

Reconstructing Stress in Wôpanâak

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We know the Wôpanâak language (also known as Wampanoag, Massachusetts, or Natick) through a variety of documents from the 17th and 18th centuries. For the most part, these documents do not indicate stress. Eliot (1666, 3), in his grammar of the language, remarks that it is important to know "which syllable is first *produced* in pronouncing of the word," and tells us (on the preceding page) that in the word <anúm> 'dog', the second syllable is to be "produced". He then generally fails to mark the "produced" syllable for the rest of the grammar¹. Vowels in various texts, including Eliot's grammar, bear diacritics which may sometimes indicate stress, but they may also indicate vowel length, and they are used infrequently enough to make analysis difficult.

There is one poem in Wôpanâak, a metrical translation of the book of Psalms which was part of the translation of the Bible organized by John Eliot (1663, 1685). In this paper I will assemble evidence, mainly from this poem, which allows us to reconstruct the stress system of the language.

I will begin, in section 1, by outlining the stress system of Wôpanâak for which I will argue. In section 2 I will outline the evidence for this system from the metrical translation of Psalms. Section 3 will turn to evidence from other sources, bearing on the treatment of unstressed schwa in the system. Section 4 will conclude.

¹ Eliot does also remark, on p. 3 of the grammar, that the difference between <Naumog> 'If we see' and <Naumóg> 'If ye see' is that in the latter, the second vowel is 'produced'. If the account developed here is right, the second vowel of this verb is long, but is not stressed. The second vowel of <anúm> 'dog', on the other hand, is stressed, but is not long.

1. Wôpanâak background

Stress in Wôpanâak, I will argue, is governed by rules very similar to those of Lenape

(Delaware: Goddard 1979, 2021, Hayes 1995). In particular:

- (1) a. Long vowels are stressed.
- b. In sequences of syllables with short vowels,
the even-numbered vowels are stressed.
- c. The last syllable of a word is not stressed,
unless this is the only stress in the word.
- d. Main stress goes on the last stressed syllable of the word.

One general exception to these rules is the word *mata* 'no, not' which receives initial stress; I discuss this case in section 2.2 below. In section 3 I will turn to another kind of exception; we will see there that certain instances of unstressed schwa are skipped by the stress rule in (1b), allowing for multiple unstressed vowels between stresses.

In what follows, I will typically give examples from Wôpanâak documents either in the original orthography of the documents or in IPA. When I need to write a Wôpanâak word or morpheme in the text of the paper, I will either write in the modern orthography for the language invented by Ken Hale and Jessie Little Doe Baird (Fermino 2000), in which case I will write in *italics*; or I will write in the original orthography of the document, in <angle brackets>, or I will write in IPA, set off by /slashes/.

Wôpanâak has four long vowels, and two short vowels:

(2)	<i>modern orthography</i>	<i>IPA</i>
	â	/a:/
	ô	/ã:/
	ø	/u:/
	ee	/i:/
	a	/a/
	u	/ə/

The spelling of the language in the original documents is somewhat variable, and it is often useful to appeal to etymological information in order to establish exactly which vowels are being written. I will indicate Proto-Algonquian sources for the Wôpanâak words wherever possible. Interested readers should consult Goddard (1980, 1981, 1990) for a discussion of the sound changes connecting Proto-Algonquian to Wôpanâak, but for our purposes, the most important changes involve the vowels:

(3)	<i>Proto-Algonquian</i>	<i>Wôpanâak</i>	<i>IPA</i>
	*a•	ô	/ã:/
	*e•	â	/a:/
	*i•, *i	ee, u	/i:/, /ə/
	*o•	ø	/u:/
	*a	a	/a/
	*e	u	/ə/

The PA vowels *i• and *i have fallen together in Wôpanâak, and are realized either as *ee* /i:/ or as *u* /ə/; the choice between these depends on factors which are still not clear, but may have something to do with how early the vowel is in the word. The other long PA vowels have

become long vowels in Wôpanâak. The short PA vowel *a surfaces as Wôpanâak short *a* /a/, and PA *e has become /ə/ (the fate of PA *o is unclear; it may have fallen together with *o•). Like most Algonquian languages, Wôpanâak has lost the word-final vowels of Proto-Algonquian.

2. Evidence for stress

In 1640, John Eliot participated in the creation of the *Bay Psalm Book*, which was the first book published in the British colonies in North America. It was a translation of the Psalms into English metrical verse. Here is Psalm 1:1 in that book:

- (4) O Blessed man, that in th'advice
of wicked doeth not walk:
nor stand in sinner's way, nor sit
in chayre of scornfull folk.

In the King James version of the Bible, Psalm 1:1 runs as follows:

- (5) Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.

The bulk of the Bay Psalm Book translates the Psalms into the popular English verse form known as *ballad stanza*, shown in (4)²: it involves alternating 8- and 6- syllable lines, with the shorter lines rhyming with each other, and the meter is iambic, with stress on the even-numbered syllables of each line.

The idea of the Bay Psalm Book was to make it possible for worshippers to sing the psalms during church services. John Calvin had urged that the psalms be translated into vernacular languages for this purpose³, and had supervised the creation of the *Geneva Psalter*, a metrical translation of the Psalms into French, in 1539.

² Many thanks to Martha Rainbolt for teaching me about ballad stanza.

³ I am very grateful to Anne McCants for informing me of this.

When Eliot was working on the Wôpanâak translation of the Bible in 1663, he apparently decided to continue the Calvinist tradition by making it possible for Christian Wôpanâak to sing the Psalms in their own language. The Eliot Bible contains two translations of the book of Psalms. One is in the traditional position for Psalms in the bible (between the books of Job and Proverbs), and largely follows the word order of the King James version on which it was presumably modeled. The other is at the end of the book, and is in poetic meter.

Here is Psalms 1:1 in the prose translation of Psalms, with the King James version of the translation repeated for comparison:

(6) Wunatum-au missinnin noh matta aon-k wu-ssuwongan-it matchetou,
 bless-3PASS person who not IC.go-NEG.3CONJ 3-speech-LOC wicked
 asuh matta neepau-8-k u-mmáy-euo-ut matcheseaenu-og,
 or not stand-NEG-3CONJ 3-way-NON1PL-LOC evildoer-AN.PL
 asuh matta ápe-gk wut-appuongan-it mamanowontamwaénin.
 or not IC.sit-3CONJ 3-seat-LOC scornful.person

' Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.'

And here is the same verse in the metrical version:

(7) Michem 8nanum-au missin
 forever bless-3PASS person
 nnoh aon-t matchag
 who IC.go-3CONJ no
 Matchit wutt-innaongan-it
 bad 3-saying-LOC
 matchit wosketompa-og
 bad man-AN.PL
 Mat neepau-ou-un u-mmay-eu
 not stand-NEG-N 3-way-NON1PL
 matcheseaenu-og
 evildoer-AN.PL
 Mat appe-in wut-apuonk
 not sit.NEG-N 3-seat
 hahanuénu-og.
 laughing.person-AN.PL

'(lit.) Forever blessed is the person who does not go in the bad sayings of bad men. He does not stand in the way of evildoers. He does not sit in the seat of laughing people.'

Like the English version in the Bay Psalm Book, this Wôpanâak metrical psalm is in alternating 8- and 6-syllable lines, with the 6-syllable lines rhyming. If this Wôpanâak translation is also like the English of the Bay Psalm Book in being in iambic meter, then the metrical psalms are potentially a valuable source of information about stress. Unearthing this information is the goal of this paper.

2.1 The evidence

We do not need to spend much time with the metrical psalms to see that the quality of the meter cannot be perfect. If we begin to analyze the metrical Psalms on the assumption that every word is placed in the right position in the line for the metrical beats to fall on its stressed syllables, we quickly arrive at contradictions. The negative morpheme <matta>, for example, is stressed on its first syllable in the fifth line of Psalms 1:3, and on its second syllable in the first line of Psalms 1:4, four lines later; <ketass8t> 'king' is stressed on its first and third syllables in the first line of Psalms 21:1, but on its second syllable in the second line of Psalms 21:7.

To illustrate the method of analysis I will be using in this paper, it will be useful to compare the King James Version and the Bay Song Book again. Here is Psalms 23:1-3 in those two versions:

- (8) The Lord is my shepherd; I shall not want. He maketh me to lie down in green pastures:
he leadeth me beside the still waters. He restoreth my soul: he leadeth me in the paths of
righteousness for his name's sake.
- (9) The Lord to mee a shepheard is,
want therefore shall not I.
Hee in the folds of tender-grasse
doth cause mee downe to lie:
To waters calme me gently leads
Restore my soule doth hee:
he doth in paths of righteousness
for his names sake leade mee.

In rendering the Psalms as English poetry, the creators of the Bay Psalm Book were willing to do a fair amount of violence to the rules of English word order. In the second line of (9), for example, they reorder the clause so that it ends in the word 'I', in order to set up a rhyme with 'lie' in the fourth line. In the fifth line, they change the King James Version's 'calm waters' to 'waters calme'. By violating the ordinary rules of English word order, they allow for the stressed first syllable of 'waters' to appear in the second syllable of the line, as the iambic meter requires.

Most of the data for this paper will come from lines in the metrical Wôpanâak translation of Psalms which are like the fifth line of the example in (9), in that they involve changes to the prose translation which appear to be motivated by the desire to improve the meter. One example of the kind of line in question comes from Psalms 22:16. Here is the King James Version:

(10) For dogs have compassed me: the assembly of the wicked have inclosed me: they pierced
my hands and my feet.

The phrase which will be of interest to us is in boldface, at the end of the verse. The prose translation of Psalms 22:16 goes as follows:

(11) Newutche anumw-og n8-weenuhkun-k:
 because dog-AN.PL 1-encircle-INV
 matchetow-og u-mmukkinneongan-8 n8-weenuhkon-gqu-og,
 wicked-AN.PL 1-assembly-NON1PL 1-encircle-INV-AN.PL
 kánittequómw-og **nu-nnutche-ash kah nu-sseet-ash.**
 pierce-AN.PL 1-hand-INAN.PL and 1-foot-INAN.PL

As usual, (11) represents a fairly literal, word-for-word translation of the King James Version, keeping the word order of the original. Now we can compare the metrical version of the same verse:

(12) Matchit anumw-og, mukkin-hettit,
 bad dog-AN.PL assemble-3PL.CONJ
 n8-weenuhkun-kqu-og
 1-encircle-INV-AN.PL
Nu-sseet-ash kah nu-nnutcheg-ash
 1-foot-INAN.PL and 1-hand-INAN.PL
 nag kanittequomw-og
 they pierce-AN.PL
 '(lit.) Bad dogs, when they assemble, encircle me;
 my feet and my hands they have pierced'

The translation in (12) differs from the one in (11) in various ways, but the one I want to concentrate on involves the boldfaced phrase. In the King James Version, and in the prose translation, this phrase is 'my hands and my feet'. But in the metrical translation in (12), the order has been changed; the order is now 'my feet and my hands'. This change was not made in order to create a rhyme; the line in question is not one of the rhyming lines (and the resulting line does not rhyme with anything, in any case). The length of the line is also unaffected by the change; with either order of the words, the line would be eight syllables long, as required. I will pursue the hypothesis that changes like these are made in order to improve the meter.

Consider which syllables would be stressed in an iambic meter, both in the actual metrical translation and in an imaginable version that kept the word order of the prose translation:

- (13) (*meter*): • / • / • / • /
- a. **nu ssee tash** kah nu nnut che gash (*actual*)
- b. nu nnut che gash kah **nu ssee tash** (*imagined*)

In both of the orders in (13), <nunnutchegash> 'my hands' would have its even-numbered syllables aligned with iambic stress beats. This verse is therefore not informative about where stress goes in <nunnutchegash>; the choice in (13) has no consequences for this word.

On the other hand, <nusseetash> 'my feet' is treated differently in the two orders. In the actual order seen in (13a), iambic meter puts stress just on the second syllable of this word. In (13b), on the other hand, it would be the first and third syllables of the word that would receive stress in an iambic meter. The change in word order made to this line gives us a reason to think that <nusseetash> 'my feet' is stressed on its second syllable.

Another example of the kind of change that I will be paying attention to in this paper comes from Psalms 15:1. In the King James Version, this verse reads as follows:

- (14) Lord, who shall abide in thy tabernacle? who shall dwell in thy holy hill?

And here is the prose translation of the verse:

- (15) Jehovah, howan woh api-t k-ek-it?
 Jehovah who MOD IC.sit-3CONJ 2-house-LOC
 howan woh wadohke-t k8neetupanatamwe wadchu-m-ut?
 who MOD IC.dwell-3CONJ 2.holy mountain-POSS-LOC

And finally, here is the metrical translation, with a word of interest in boldface:

(16) Nu-mmanitt8-m-un **woi** howan
 1-god-POSS-1PL VOC who
 woh api-t ut k-ek-it?
 MOD IC.sit-3CONJ LOC 2-house-LOC
 K8netupanatamwe wadchu-m-ut
 2.holy mountain-POSS-LOC
 howan woh wadohki-t.
 who MOD IC.dwell-3CONJ

'(lit.) O our God, who shall sit in your house? In your holy mountain, who shall dwell?'

In the first line in (16), Eliot introduces the vocative particle <woi>, and also addresses God, not as *Jehovah*, as he does in the prose translation, but as <Nummanitt8mun> 'our God'. Put together, these changes are responsible for making the first line eight syllables long.

What is of interest to us here is the placement of the vocative particle <woi>. This particle is quite frequent in Eliot's prose translations, though it does not appear in the prose version of this particular verse. Here, for example, is Eliot's prose translation of Psalms 2:10:

(17) Waantam-8k yowutche, **woi** ketass8tamw-og,
 be.wise-2PL.IMPER therefore VOC king-AN.PL
 netuhtau-8k kenaau wussittamwaenu-og ut ohke-it.
 be.skillful-2PL.IMPER you.PL judge-AN.PL LOC earth-LOC

'(King James Version) Be wise now therefore, O ye Kings:

be instructed, ye judges of the earth.'

In (17) the particle <woi> is used, as it often is, as a translation for English vocative 'O'. But what we also see in (17) is the usual placement of <woi>; it typically appears (like the English particle it translates) before the noun being used as a vocative (here <ketass8tamwog> 'kings').

Returning to (16), we can ask; when Eliot introduced the vocative particle *woi*, presumably in order to guarantee that the line would be eight syllables long, why did he place it after <Nummanitt8mun> 'our God', rather than before? And again, it is possible that he was motivated by a desire to improve the meter. We can consider again the actual word order Eliot used, and compare it with an imaginable order in which <woi> begins the line:

- (18) (*meter*): • / • / • / • /
- a. nu mma ni tt8 mun woi ho wan (*actual*)
- b. woi nu mma ni tt8 mun ho wan (*imagined*)

By making *woi* the second word in the line rather than the first, Eliot has arranged for <Nummanitt8mun> 'our God' to receive iambic stress on its even-numbered syllables, rather than its odd-numbered syllables. We can suspect, based on this choice, that this is the correct placement of stress for this word.

The bulk of the data in this paper will come from lines like the two discussed above, in which the metrical translation of Psalms differs from the prose translation in ways that are not plausibly connected to rhyme or to the need to create lines of the correct length. Having assembled a number of lines of this kind, I will try to develop a theory of stress which is consistent with the information that we find in this way.

One complication should be acknowledged at the outset. In the course of looking for lines like the two above, I have come across 101 lines featuring changes which appear not to

affect rhyme, line length, or meter; in fact, the motivations for these changes are often completely mysterious. One example comes from the translation of Psalms 58:8:

- (19) Onatuh **askéquttum mahtupâi-t** nag nein mohtupae-hettich,
like snail IC.melt-3CONJ they thus melt-3PL.IMPER
onatuh poékhe-un-t mittamwossis,
like IC.miscarry-3OBJ-3CONJ woman
woh mo nau-ô-8-og nepauz-oh.
MOD not see-3OBJ-NEG-AN.PL sun-OBV

'(*King James Version*) As a snail which melteth, let every one of them pass away:
like the untimely birth of a woman,
that they may not see the sun.'

Here is the metrical translation of the same verse:

- (20) **Mahtupai-t askequttum**
IC.melt-3CONJ snail
wonk onatuh-hettich,
also be.like-3PL.IMPER
Poekhe-un-t mittamwossis
IC.miscarry-3OBJ-3CONJ woman
wonk onatuh-hettich.
also be.like-3PL.IMPER

The first line of (20) consists of two four-syllable words. These words are in the opposite of the order in which they appear in the prose translation in (19). But since the two words are each four

syllables long, changing their order does not change the placement of iambic stress in them; each of them would receive stress on their even-numbered syllables, in either order.

The existence of lines like this one in Psalms 58:8—and, as mentioned above, I have found 101 lines of this kind—should make us cautious in our attempts to interpret Eliot's choices. There appear to be lines in which words are rearranged, neither to create lines of the appropriate length, nor to create rhymes, nor to place words so that their stresses will be correctly aligned with the iambic meter. One possibility, of course, is that these rearrangements reflect some other kind of metrical preference; perhaps Eliot is seeking to make sure that deviations from iambic meter are at the end of the line, or at the beginning. I can only say that I have found no evidence for either of these particular possibilities. Another possibility, in this particular case, is that Eliot is not motivated by considerations of meter at all, but is trying to enhance the structural parallelism of the lines. Here he has made the second and fourth lines identical, and the first and third lines—including the first line, in which the change under discussion takes place—consist of the verb of a relative clause, followed by a noun (so that these two lines have interpretations something like 'a snail which melts' and 'that which a woman miscarries').

The only point of this discussion is to make us wary as we start on the project of interpreting Eliot's changes. As he was creating his metrical translation, his choices may sometimes have been dictated by factors like rhyme, line length, and meter, but there were apparently other factors in play as well.

Putting these unsettling examples aside, then, I will start evaluating the evidence that Eliot's decisions seem to give us. Let us begin with the simplest cases, consisting of lines of the correct length (either six or eight syllables long, depending on where they are in the verse) in

which the stress of only a single polysyllabic word has been affected by a change. I have managed to find 208 such lines.

2.2 Short vowels

In 25 of these lines, the single word which is affected by a change contains only short vowels.

One relevant example is in Psalms 62:11, which has the following prose translation:

(21) God wu-ssi-nnu pasukqut, neesit nu-nn8tam-un yeu,

God 3-say-N once twice 1-hear-N this

menuhkesuonk wutchaiyeu-m8 God-ut.

power belong-II God-LOC

'(*King James Version*) God hath spoken once; twice have I heard this,

that power belongeth unto God.'

The metrical version of the same verse runs as follows:

(22) Wu-ssi-n Jehovah pasukqut

3-say-N Jehovah once

nu-nn8tam yeu neesit

1-hear this twice

Kah wamu menuhkesuonk

and all power

wutchayeu-m8 God-ut.

belong-II God-LOC

'(*lit.*) Jehovah said it once; I heard this twice; and all power belongs to God.'

In the first line of (22), the word *God* has been changed to *Jehovah*, presumably in order to make it easy to create an eight-syllable line. The word order has also been changed; the verb *wussin* 'he says it' is now initial in the line, rather than following the subject.

This change in word order affects the accentuation of <wussin> (/wəsən/), but not of any of the other words in the line:

- (23) (meter): • / • / • / • /
- a. wu ssin Je ho vah pa suk qut (*actual*)
- b. Je ho vah wu ssin pa suk qut (*imagined*)

In both of the word orders in (23), *Jehovah* is stressed on its second syllable, and <pasukqut> 'once' on its first and third. The difference between the two versions of (23) has to do with the verb <wussin>, which is stressed on its second syllable in the actual order in (23a), but would be stressed on its first syllable if it were left after the subject, as in the imaginable order in (23b).

Both of the vowels in <wussin> (/wəsən/) are short. The consequence of the rearrangement of word order, in this case, is that stress appears, not on the odd-numbered syllable of the word, but on the even-numbered syllable. And when we consider the 25 lines which are like this one, in that they involve a change that affects a single word in which all the vowels are short, we discover that the behavior of Psalms 62:11 is typical; in 21 of these 25 lines, the change has the effect that the single word is stressed on its even-numbered syllables. I take this as evidence that in general, stress in sequences of short vowels appears on the even-numbered syllables in the sequence.

There is one apparent exception to this generalization. There are eight lines (not included in the 25 lines discussed above) in which the word *mata* 'no, not' is moved in ways that guarantee

that it will be stressed on its first syllable. One of these appears in Psalms 49:19, which is translated as follows in prose:

(24) Noh pish au pometuongan-8 8sh-u-oh:
he will go.3 generation-NON1PL 3.father-NON1PL-OBV
nag matta pish naum-8-og wequai.
they not will see-NEG-AN.PL light

'(*King James Version*) He shall go to the generation of his fathers;
they shall never see light.'

In its metrical translation, the verse appears as follows:

(25) Noh pish pometuongan-8
he will generation-NON1PL
au 8sh-uo-h kusseh
go.3 3.father-NON1PL-OBV behold
Kah nag pish matta naum-8-og
and they will not see-NEG-AN.PL
wequai micheme
light forever

'(*lit.*) He will go to the generation of their father, behold;
and they will not see light forever.'

In the third line of (25), <matta> appears after the future marker <pish>; in the prose model in (24), this order is reversed. And a consequence of the change is that in the poetic translation, <matta> is stressed on its first syllable:

- (26) (meter): • / • / • / • /
- a. kah nag pish ma tta nau m8 og (actual)
- b. kah nag ma tta pish nau m8 og (imagined)

In all eight of the lines in which the stress on <matta> is affected by a change, the result is stress on the initial syllable.

The vowels in *mata* are both short, so its initial stress is surprising given the generalization that words with short vowels are stressed on even-numbered syllables (compare, for example, Unami Lenape *máta* (Goddard 2021, 97), which shares with its Wôpanâak cognate the property of exceptionally having initial stress). One possibility is that the word should actually be thought of as beginning with a schwa, which would always be unstressed and therefore not written; that is, that the word is really *umata*, with stress on the second syllable as expected⁴. Alternatively, we can simply regard *mata* as an exception to the general rules of stress.

2.3. Long vowels

Next we can consider words that contain long vowels. For the time being, we will avoid words with long vowels in adjacent syllables; we will turn to the behavior of words of this kind in the next section. At this point, we will concentrate on words in which assignment of stress to long

⁴ One appealing feature of this idea is that it would explain the form of the marker for yes-no questions in which the answer 'yes' is expected, featured here (boldfaced) in Eliot's translation of Numbers 12:2:

(i) Kah nag n8wa-og, Sun Jehovah ket8hkau, wunnamuhkut webe nashpe Moses-oh?
 and they say-AN.PL Q Jehovah speak.3 truly only with Moses-OBV
sunnummatta wonk nashpe kenawun kutt8kau-à-u? Kah Jehovah wu-nn8tam-un.
Q.not also with us.INCL speak-NEG-3 and Jehovah 3-hear-N
 '(King James Version) And they said, Hath the LORD indeed spoken only by Moses?
 hath he not spoken also by us? And the LORD heard it.'

The boldfaced particle seems to be the combination of the yes-no question particle *sun* (which appears in the first line of (i)) together with the negative marker *mata*. But it is frequently written, as in (i), as though there were a vowel between *sun* and *mata*. If *mata* were truly *umata*, then this vowel would simply be part of the negative marker itself.

vowels, and to even-numbered short vowels in sequences of short vowels, would not yield stresses in adjacent syllables. There are 85 lines which seem to be informative about words of this kind.

One relevant example appears in the translation of Psalms 64:9, which begins, in the prose version:

- (27) Kah wame wosketompa-og pish wabesu-og...
 and all man-AN.PL will fear.3-AN.PL
 '(King James Version) And all men shall fear...'

The metrical version begins with these two lines:

- (28) Kah wabesu-og wame pish
 and fear.3-AN.PL all will
 nag wosketompa-og
 they man-AN.PL

'(lit.) And they will all fear, those men...'

Some of the rearrangement of the words in (28) is in order to create lines of the correct length.

The subject <wosketompaog> 'men', for example, has been postposed to make up a six-syllable line of its own, assisted by the added monosyllable <nag> 'they'. But the verb <wabesuog> 'they fear' has also been moved to precede <wame> 'all' and <pish> 'will', both of which it follows in the prose version. This placement of the verb has consequences for the position of stress in the verb:

- (29) (meter): • / • / • / • /
 a. kah wa be su og wa me pish (actual)
 b. kah wa me pish wa be su og (imagined)

All the other words in the line have the same positions of stress regardless of the position of the verb; but by moving the verb, Eliot has arranged for it to be stressed on its odd-numbered syllables, rather than its even-numbered syllables.

The verb in question, <wabesuog> (*wâpusuwak*, /wa:pəsəwak/), has a long vowel in its first syllable, and short vowels in the following three syllables (< PA **we•pesiwaki* 'they are foolish'). Eliot appears to have felt that such a word should be stressed on its odd-numbered syllables. In other words, we appear to be learning that although sequences of short vowels are stressed on the even-numbered vowels, long vowels receive stress. Of the 85 lines which appear to give us information about stress in words containing long vowels (and which do not contain any potential cases of adjacent stressed syllables), 74 involve arrangements for stress to fall on the word's long vowels.

2.4 Long and short vowels

We have now arrived at the conclusion that Wôpanâak stress (like stress, for example, in Lenape), conforms to the two generalizations in (30):

- (30) a. Long vowels are stressed.
b. In sequences of short vowels, the even-numbered vowels are stressed.

For words which only contain short vowels, the consequence of (30b) is that these words are stressed on their even-numbered syllables; we have seen that in 21 cases out of 25, Eliot is making changes to lines which seem to be motivated by this fact.

For words which contain long vowels, the consequences of (30) depend on the position of the long vowels. So far, we have considered only words with long vowels in positions that would allow the conditions in (30) to be followed without creating stressed vowels in adjacent syllables; we have considered 85 examples of this kind. Out of these 85, 51 involve words with

long vowels only in their even-numbered syllables, and Eliot places such words in positions that allow iambic stress to fall on their even-numbered syllables in 46 of the 51 cases. Another 34 words have long vowels which would produce stress on their odd-numbered syllables, and these words are placed in positions where the stress of the iambic meter would fall on their odd-numbered syllables, in 28 of the 34 cases.

Putting all the data together, we arrive at the table in (31):

(31)		<i>position of stress by iambic meter</i>	
		even syllables	odd syllables
<i>position of stress</i>	even	67	9
<i>in the word</i>	odd	6	28

This level of correlation between the position of these words in their lines and the position of long vowels, if any, within the words is very unlikely to have occurred by chance ($p < .00001$).

2.4.1. More support

The generalizations about stress in (30) receive additional support from patterns of vowel loss which can be seen in the documents more generally. As Goddard and Bragdon (1988, 482) note, "Apparently short-vowel loss was governed by a phonetic rule similar to that found in modern Ottawa and Eastern Ojibwa dialects: odd-numbered short vowels (counting from the beginning of the word or from a long vowel), except for ones in final syllables, are unstressed and subject to loss, while the even-numbered short vowels receive stress and are protected."

We can see the effects of Goddard and Bragdon's observation in the spelling of a verb stem like *ununumaw-* 'give' (/ənənəmaw/, < PA **eθenamaw-*). The second vowel in this verb, perhaps because it is flanked by identical consonants, is reliably written just when it receives

stress by Goddard and Bragdon's rule—that is, when it is in an even-numbered position in a string of short vowels.

The vowel in question appears, for example, in Matthew 21:43:

(32) Yowutch kutt-inn-onn-umw8

therefore 2-say.to-2OBJ-2PL

wut-ass8tamoont God ke-neemunumon-tea-n-eau,

3-kingdom God 2-take.from-PASS-N-NON1PL

kah pish **unninumau-o-n** wutohtimoin,

and will give-3OBJ-N nation

noh woh paudtun-k meechemmuonk noh ut.

that MOD bring-3CONJ fruit that LOC

'(*King James Version*) Therefore say I unto you,

The kingdom of God shall be taken from you,

and **given** to a nation

bringing forth the fruits thereof.'

In the boldfaced form of the verb in (32), *uninumawôn* (/ənənəməwã:n/) 'it is given to him/her', the second vowel of the verb stem is the second in a string of short vowels. It is therefore stressed by Goddard and Bragdon's rule, and is retained.

In an example like (33), from Genesis 20:16, a monosyllabic prefix has been added to the verb, with consequences for the second vowel of the verb stem:

(33) Onk Sarah unn-a-u,
and Sarah say.to-3OBJ-3

Kusseh **nutt-innumau** ke-nohtonugqus
behold 1-give 2-woman's.younger.brother
nequt muttanonganogkodt-ash silver...
one thousand-INAN.PL silver

'(King James Version) And unto Sarah he said, Behold, **I have given** thy brother a
thousand pieces of silver...'

In (33), the agreement prefix *nut-* (/nət/) has made the second vowel of the verb stem the third short vowel in the word; since it is now in an odd position in the syllable count, it is not stressed, and is not written.

Another example of this type of vowel loss comes from Exodus 25:16:

(34) Onk pish ku-ppetau Ark-ut, wauwaonk ne pish **anumau-un**.
and will 2-put.in ark-LOC testimony that will IC.give-2OBJ

'(King James Version) And thou shalt put into the ark the testimony
which **I shall give thee**.'

In (34), because it is being used in a relative clause, the verb *ununumaw-* has undergone an ablaut process known in the Algonquian literature as Initial Change, which here changes the schwa in the first syllable of the verb into the long vowel *â*. As a consequence, the second vowel of the verb stem is now the first short vowel in a sequence of short vowels; it is therefore again unstressed, and accordingly drops.

The agreement between these two sources of information about Wôpanâak stress can reinforce our faith in the reliability of both sources. The facts about vowel-drop, for example,

could in principle be the remnant of an earlier stress system, no longer reflecting the position of stress in the language as it was spoken at the time that the documents are created; we find something like this situation in the related language Passamaquoddy, for example (LeSourd 1989)⁵. And the investigation of the metrical Psalms is based on an attempt to interpret the poetic choices of an author who clearly had poetic meter as just one of many considerations in his work. The worries we might have about the validity of these two sources of information can hopefully be quieted somewhat by the fact that the sources seem to agree about the basic stress system.

The facts of vowel drop also allow us to discover a difference between the quite similar stress systems of Wôpanâak and Lenape. In Lenape, according to Goddard (1979, 2021) and Hayes (1995), short vowels are stressed when they are followed by consonant clusters (and also, as in Wôpanâak, when they are in even position in an otherwise unstressed sequence of syllables with short vowels). This appears not to be true in Wôpanâak.

Examples of the relevant kind are too rare in the informative lines of the metrical Psalms for us to draw any conclusions. But the behavior of vowel-drop certainly does not seem to treat short vowels as stressed when they are followed by consonant clusters. Consider, for example, the verb *washkuhe-* /waʃkəh/ 'oppress, hurt, persecute'. If the first vowel of this verb were reliably stressed because of the consonant cluster following it, then the second vowel of the verb would always be the first in a series of unstressed short vowels. But this is not what we find; the second vowel of this stem turns out to be subject to loss, much like the second vowel of the verb *ununumaw-* 'give' above, just when it is in an odd position in a sequence of short vowels.

⁵ Thanks to Wayne Harbert for pointing out this possibility.

John 15:20, for example, contains two instances of this verb, one with the vowel in question and another without:

(35) ...**woskeh-ukque-an**, nag wonk **k8-woskh-ukk-8wo-og**...

persecute-INV-1CONJ they also 2-persecute-INV-NON1PL-AN.PL

'(*King James Version*)...If they have persecuted me, they will also persecute you...'

In the first word of this part of the verse, the verb appears without a prefix (/wəʃkəh^hək^wəjã:n/).

The second vowel of the verb stem is therefore the second vowel of the word, and receives

stress, protecting it from being dropped. In the last word of (35), on the other hand, a

monosyllabic prefix *ku-*, agreeing in this case with the object 'you', has made the second vowel

of the verb stem the third short vowel in a sequence of short vowels (/kəwəʃkəh^həkəwã:ak/).

Consequently, this vowel is no longer stressed, and is therefore dropped.

The behavior of the two verbs in (35) is representative; this vowel is typically written just when it is stressed. But we can only make use of this explanation if we regard Wôpanâak as differing from Lenape in its treatment of consonant clusters. Lenape short vowels followed by consonant clusters may be reliably stressed, but in Wôpanâak they are not; if they were, the second vowel of this verb would always be unstressed, and the presence or absence of a prefix would not matter.

2.4.2. Defining "Iambic"

In the 110 lines considered so far, Eliot arranges for the iambic stresses of the line to appear on stressed syllables in 95 cases (roughly 86% of the time). The correlation between iambic stress and word-level stress is too complete to be an accident. But what is happening in the remaining 15 cases?

Of course, it is possible that these 15 cases simply represent 15 mistakes, or 15 cases in which some desideratum other than poetic meter dictates Eliot's actions. But I think we can make some headway on some of the mysterious examples if we consider more carefully what is meant by an iambic line. Some of these 15 examples, I will claim, represent lines which are not in fact iambic, but which satisfy some of the metrical requirements that Eliot is trying to fulfill.

We can describe a line as 'iambic' if it has the following characteristics:

- (36)
- a. The line begins with an unstressed syllable.
 - b. The line ends with a stressed syllable.
 - c. There are no adjacent stressed syllables.
 - d. There are no adjacent unstressed syllables.

The 95 examples described above involve the creation of lines which satisfy all of the conditions in (36). But we also seem to find examples in which Eliot decides to settle for lines which merely satisfy the conditions in (36c-d), without necessarily having the properties in (36a-b).

Consider, for example, Psalms 41:9. Here it is in the prose version:

- (37) Nux nehenwonche n-eetomp
 yes own 1-friend
 sampwanum-og n noh sompwanum-og,
 trust-1SG.SUBJ3OBJ.CONJ who trust-1SG.SUBJ3OBJ.CONJ
 n noh meeched-up nu-pputtukqunnunk, nu-ttogskun-k.
 who eat-PRET 1-bread 1-kick-INV

'(*King James Version*) Yea, mine own familiar friend, in whom I trusted,

which did eat of my bread, hath lifted up his heel against me.'

And here is the metrical translation:

(38) Sompwanum-og noh sompwanum-og
 trust-1SG.SUBJ3OBJ.CONJ who trust-1SG.SUBJ3OBJ.CONJ
 nehenwonche n-etomp
 own 1-friend
 Meech-up wonk nu-ppetukqunneg
 eat-PRET also 1-bread
 qut yeuyeu nu-ttogskun-k.
 but now 1-kick-INV

'(lit.) The one that I trusted, my own friend, also ate my bread, but now he kicks me'

The third line of (38) contains the verb <meechup> 'ate', and its object, <nuppetukqunneg> 'my bread'. Both of these correspond to words in the prose version (though the prose version uses a slightly different word for 'bread'), and they preserve their relative order from the prose version. The monosyllabic adverb <wonk> 'also' has also been introduced, presumably in order to make the line long enough.

The position of <wonk> is very free; it could in principle have been placed anywhere in the line. Its placement in (38) is particularly interesting, because the first word of this line, *meechup* (/mi:tʃəp/) is a two-syllable word with a long first vowel and a short second vowel (the monosyllabic verb stem *meech* 'eat' is descended from PA **mi•čīwa*, and contains a long vowel). Given the conclusions we have drawn so far about how stress works, we expect *meechup* to be stressed on its first syllable. Why did Eliot place the monosyllable <wonk> after this verb, rather than before? In other words, why did he fail to take advantage of the opportunity to maneuver the stressed syllable of the verb into one of the even-numbered positions in the iambic line?

I think we can answer this question by considering the stress in the object of the verb, *nu-putuquneeek* (/nəpətək^wəni:k/) 'my bread'. All of the vowels in this five-syllable word are short (in fact, each of them is a schwa) except for the last one; after the possessive prefix *nu-*, which features a schwa as its vowel, the noun consists of an initial *putuq-* 'round' (cognate with the initials of Delaware *ptúkw-eeew*, Abenaki *bedegw-igen* 'it is round'), followed by a final *-un* which marks transitive verbs of action by the hands (< PA *-en-), and finally the nominalizer *-eeek*. The word therefore begins with a sequence of short vowels, which should be stressed on the even-numbered vowels in the sequence. We will shortly see evidence that the long final vowel should not be stressed at all.

The choice of whether to put <wonk> 'also' in first or second position in the line, then, is a choice between the stress patterns in (39):

- / • / • / • / •
- (39) a. mee chup wonk nu- ppe tuk qun neg (*actual*)
 eat -PRET also 1- bread
- / • • / • / •
- b. wonk mee chup nu ppe tuk qun neg (*imagined*)

Neither of the lines in (39) is iambic. The actual line in (39a) is in fact trochaic; it consists of alternating stressed and unstressed syllables, and begins with a stressed syllable and ends with an unstressed one. But (39a) does have the property, which (39b) lacks, of consisting of regularly alternating stressed and unstressed syllables. (39b), by contrast, has a pair of adjacent unstressed syllables. Bearing in mind that the purpose of this translation is to create lyrics to songs for worship in church, we can think of the line in (39a) as one which is to be sung beginning on the second note of the line (and which has an additional syllable at the end, perhaps to be sung

together with the immediately preceding one). The result is not an iambic line, but is apparently preferable to the alternative in (39b), in which stressed and unstressed syllables fail to alternate regularly.

We can see particularly clear cases of Eliot's willingness to create trochees in some of the lines which are not of the correct length for their position in the verse. Psalms 146:10, for example, begins as follows in its prose translation:

(40) Jehovah pish nanauunnuau micheme...

Jehovah will reign forever

'(*King James Version*) The LORD shall reign for ever...'

The corresponding metrical translation begins with this line:

(41) Nanawunnum God michem...

reign God forever

'(*lit.*) God reigns forever...'

The line in (41) is in the right position in the verse to be an eight-syllable line. But it is in fact a seven-syllable line. This is particularly striking, because Eliot has passed up several opportunities to make the line appropriately long. The adverb meaning 'forever', for example, is typically three syllables long, and is usually written <micheme>, as it is in the prose version of the verse in (40). But in (41), the adverb is shortened to <michem>, thereby making the line too short. Also, the verb has been changed from its intransitive version, appearing in (40), to a transitive version. The verb is thereby shortened from five syllables to four, again ensuring that the resulting line will be too short.

We can understand why Eliot is introducing these abbreviations if we consider the placement of stress in the resulting line. The verb <nanawunnum> (*nânawunum*, /na:nawənəm/)

'reign' has a long first vowel, and its remaining three vowels are short (as noted in Goddard and Bragdon 1988, the verb shares an initial with Fox *ne:naw-ihto:wa* 'camp police'). It should therefore be stressed on its long first vowel, and on the third vowel (which is the second in a string of syllables with short vowels). Meanwhile, the adverb <micchem> (*muchem*, /mətʃi:m/) 'always' has a schwa in its first syllable and a long vowel *ee* (/i:/) in its second syllable (it is cognate with East Abenaki *metsimi8i* 'always'). It should therefore be stressed on its second syllable.

Putting these together, the position of stress in the line constructed by Eliot should be as follows:

/ • / • / • /

(42) na na wu nnum God mi chem
 reign God forever

The line in (42) is not iambic, but it bears many of the desirable properties of an iambic line; it consists of alternating stressed and unstressed syllables, and ends with a stressed syllable. All it lacks is an unstressed syllable at the beginning of the line. As mentioned above, Eliot used two different strategies to make the line shorter, but it would not be possible to improve the line by undoing either of these strategies; all this would do is add material to the end of the verb or the adverb, which would not address the line's one metrical deficiency. It looks as though Eliot is willing, if necessary, to tolerate a line which bears most of the desirable properties of an iambic line, except that it does not begin with an unstressed syllable.

Another line of interest appears in Psalms 74:11. In its prose version, this verse begins as follows:

(43) Tohwutch wutontinum-an ke-nutcheg, kutt-innohkou?
what.for pull.out-2SG.CONJ 2-hand 2-right.hand

'(*King James Version*) Why withdrawest thou thy hand, even thy right hand?'

The metrical translation of this verse begins with the following two lines:

(44) Ke-nutcheg woi wutontinum-an
2-hand VOC pull.out-2SG.CONJ
kutt-innohkou tohwutch?
2-right.hand what.for

'(*lit.*)Your hand, oh, you pull it out; your right hand, why?'

The first line of (44) is in the right position to be an eight-syllable line, but it is a nine-syllable line. And in fact, it is a particularly gratuitous nine-syllable line; Eliot has added the vocative particle <woi>, which was not present in the prose translation, and which makes the line excessively long.

Again, we can see Eliot's choice here as a decision to tolerate a line which is not of the appropriate length, in order to create a sequence of alternating stressed and unstressed syllables. The word <kenutcheg> (*kunuchek*, /kənətʃi:k/) 'your hand' has short vowels in its first two syllables, and a long vowel in its final syllable (< PA **ke-θenčyikani*). As mentioned above, we will shortly see evidence that final vowels in this language are not stressed in words containing other stresses. Consequently, this word should only be stressed on its second syllable (as the second in a sequence of short vowels). The verb <wutontinuman> (*wutōtunuman*, /wətā:tənəman/) 'you pull it out' is a five-syllable word in which only the second vowel is long (the verb is from PA **went-a•ntenamwa*, and the Conjunct 2sg ending *-an* contains a short vowel

as well). This word should therefore be stressed on its long second vowel, and on the fourth vowel (which is the second in a sequence of short vowels).

Putting these together, the line as it appears would have the following array of stressed and unstressed syllables:

• / • / • / • / •

(45) ke- nu tcheg woi wu ton ti num -an

2- hand VOC pull.out -2SG.CONJ

The line as it appears is almost a perfectly iambic line; it begins with an unstressed syllable, and consists of alternating stressed and unstressed syllables. It is not completely perfect, because it ends in an unstressed syllable. But removing the monosyllabic vocative particle <woi> would not improve the line; in fact, it is because of the presence of this particle that stressed and unstressed syllables alternate throughout the line.

The excessively long line in (45), then, falls short of being an iambic line, in that it fails to end properly; it begins correctly, with an unstressed syllable, and the stresses alternate, as desired. The excessively short line in (42), we saw, also falls short of being an iambic line, in that it begins improperly, starting with a stressed syllable. The line is otherwise perfect, ending with a stressed syllable, and alternating stressed and unstressed syllables correctly.

Now we can return to the line from Psalms 41:9, repeated below:

/ • / • / • / •

(46) a. mee ch-up wonk nu- ppe tu kqu nneg (*actual*)

eat -PRET also 1- bread

• / • • / • / •

b. wonk mee chup nu ppe tu kqu nneg (*imagined*)

The line in (46), unlike the two just discussed, is of the correct length for its place in the verse. We can now see Eliot's decision here as involving a combination of the two strategies just outlined. The line shares with an iambic line only the property of having alternating stressed and unstressed syllables; it neither begins with an unstressed syllable nor ends with a stressed one. Most of the lines of interest which Eliot has constructed are not of this type; as we saw above, in the 110 lines considered above, he manages to create iambic lines in 95 cases, or roughly 86% of the time. But of the remaining 15 lines, it looks as though nine can be seen as involving Eliot's willingness to create trochaic lines when this is his best available alternative. The facts are shown in more detail in the table in (45):

(47)	<i>iambic line</i>	<i>trochaic line</i>	<i>mystery</i>
all short vowels	21	3	1
long vowels:			
on even syllables	46	3	2
on odd syllables	28	3	3

If we give Eliot credit both for iambic and for trochaic lines, he is successful in 104 of these 110 cases, or 95% of the time. Moreover, his rate of success does not vary statistically significantly in the three rows of the table above.

Of course, there are still six genuine mysteries, which I will have to leave for future work. Moreover, our studies so far have still not answered certain kinds of natural questions about the stress system. We do not know, for example, which of the various stresses in the word, if any, is the *main* stress, as opposed to the secondary stresses. In fact, we cannot know from the data we have studied so far that there can ever be more than one stress in a word; it is possible, so far, that stress actually only appears on the first of the syllables marked for stress in a word by our

generalizations, or on the last. We also do not know what happens when adjacent syllables are to be stressed. The next section will begin to address these questions.

2.5 Stress clash

All of the examples considered so far have involved words in which stress would be assigned to alternating syllables; these are all words in which, according to our algorithms, stress should appear on every even-numbered vowel, or on every odd-numbered vowel. Now we will turn our attention to *stress clash*; these will be words in which both odd-numbered and even-numbered vowels are expected to receive stress.

It will be useful to consider these words in two separate groups. Section 2.5.1 will be about words in which stress clash is confined to the final two syllables of the word. Section 2.5.2 will consider stress clash in other parts of the word. We will see that these two situations are treated differently.

2.5.1 Stress clash in the last two syllables

The words in this section will all have long vowels in their final syllables, and stress on their penultimate syllables, either because their penultimate syllables also have long vowels or because the short vowels in these syllables are in the even-numbered position in a string of short vowels. They will contain no other instances of stress clash; any other long vowels, for example, will not be in syllables adjacent to other syllables with long vowels in the word. There are 53 lines in the metrical Psalms which appear to be informative about stress in words of this kind.

One such example is in Psalms 56:13. In its prose translation, this verse begins as follows:

- (48) Newutche ku-ppohquohwhun nu-kketeâhogkou, wutch nupp-una-t:
 because 2-save 1-soul from die-N-T.SUBORD
 sun matta ku-ppohquohwuttau nu-sseet-ash wutch penushó-na-t?
 Q not 2-save 1-foot-INAN.PL from fall-N-T.SUBORD
 '(*King James Version*) For thou hast delivered my soul from death:
 wilt thou not deliver my feet from falling...'

And the metrical version begins with these lines:

- (49) Ku-ppohquohwhun nu-kketeahog
 2-save 1-soul
 nupp-una-t wutch. Sun mat
 die-N-T.SUBORD from Q not
 Ku-ppohquohwhuttau nu-sseet-ash
 2-save 1-foot-INAN.PL
 wutche penusho-na-t?
 from fall-N-T.SUBORD
 '(*lit.*) You save my soul from death. Will you not save my feet from falling?'

Both of the translations in (48-49) render 'death' as a *t-subordinative*, a kind of verbal noun based on the verb *nup* 'die' (for more discussion of t-subordinatives, see Goddard and Bragdon 1988). In the prose translation in (48), <nuppunat> 'death' follows the preposition <wutch> 'from' (and, in fact, this order is generally the one found for prepositions and their objects in the documents, at least for objects of prepositions which are not demonstratives). But in the metrical translation in (49), <nuppunat> 'death' precedes <wutch> 'from'. The two words are in a six-syllable line, but since they begin the line, their order has nothing to do with making the line rhyme.

The word <nuppunat> (*nupunât*, /nəpəna:t/) contains three syllables, and only its last vowel is long; the monosyllabic verb contains a schwa as its only vowel (< PA *nepwa), and the N-formative which participates in making the t-subordinative form has the underlying form *-unâ*, with a schwa as its first vowel and a long *â* as its second. All other things being equal, then, we should expect the last vowel of this word to be stressed (because it is long), along with the second vowel (because it is the second in a sequence of short vowels).

Eliot's decision to put <nuppunat> 'death' before its preposition suggests that he regards this word as having stress on its second syllable, and not on its third:

- (50) (*meter*): • / • / • /
- a. nu ppu nat wutch sun mat (*actual*)
- b. wutch nu ppu nat sun mat (*imagined*)

In choosing (50a) over (50b), Eliot is arranging for this word to be stressed just on its second syllable. And of the 53 lines in which words of this kind have their positions of stress affected, in 46 of them, Eliot treats these words as though stressing them on their penultimate syllables, and not on their final syllables, will create iambic lines. Another two lines seem to be trochaic, and the remaining five lines treat these words in ways that remain mysterious. We can repeat and extend the table in (47) as in (51):

(51)	<i>iambic line</i>	<i>trochaic line</i>	<i>mystery</i>
all short vowels	21	3	1
long vowels:			
on even syllables	46	3	2
on odd syllables	28	3	3
potential stress clash in final syllables,			
penultimate stress	46	2	5

The mysterious cases are not statistically significantly more frequent for these stress-clash examples than they are for the other categories considered.

It appears that a word like <nuppunat>, then, is treated for purposes of the iambic meter as though its last stress was not present. We will see in the next section that this is not a general property of the handling of stress clash. I think the best conclusion to draw from this section is that Wôpanâak is like Lenape, in that final syllables are generally not stressed, unless they are the only stressed syllables in the word.

Most of the data in this paper is not informative about how many stresses appear in words. For example, in a six-syllable word in which all the vowels are short, the placement of these words in the metrical Psalms seems to indicate that stress goes on the even-numbered vowels. But we do not know from this what subset of the even-numbered vowels actually receive stress; as long as at least one of the even-numbered vowels is stressed, the treatment of words like this in the metrical translation is explicable. If the conclusion of this section is correct, a six-syllable word might be stressed on its second and fourth syllables, but not on its sixth.

2.5.2. Non-final stress clash

Finally, we turn to the last group of words; these are words in which the rules for stress should place stress on adjacent syllables which are not the last two syllables in the word. Included in this group will be words with stress clash in both final and non-final positions.

One relevant example comes from Psalms 49:20:

- (52) Wosketomp quttianto-g, qut matta waanto-g
man honor-3CONJ but not understand-3CONJ
 ogqunneunkqussu wutawakompunae puppinashim.
 be.like.3 mortal beast

'(*King James Version*) Man that is in honour, and understandeth not,
is like the beasts that perish.'

In its metrical version, this verse is as follows:

- (53) Wosketomp quttianto-g, qut
man honor-3CONJ but
waanto-g mat kusseh
understand-3CONJ not behold
Ogqueneunkqussu puppinashim
be.like.3 beast
wutawakompunae
mortal

'(*lit.*) Man, if he honors, but understands not, lo, he is like a beast that perishes'

Here the line to concentrate on is the second one. Eliot has added the particle <kusseh> 'behold' at the end of the line, both to make the line sufficiently long and to set up a rhyme with the last

line. Since he has added this two-syllable particle, he must shorten the negative morpheme from <matta> to <mat>, in order to arrive at a six-syllable line.

But he has also relocated negation, which typically sits before the verb, to postverbal position. We can now consider the effect of this move on the placement of stress in the verb. The verb is 'understand', *wâanutam* (< PA *we•we•lentamwa) here appearing in its 3rd person Conjunct form as <waantog>. This verb is actually four syllables long; there is an underlying schwa between *n* and *t*. This schwa is often not written, and does not appear in either the prose or poetic translation of this verse; we will discuss this kind of vowel further in section 3 below. For purposes of this line, Eliot is clearly treating the verb as a three-syllable word, with adjacent long vowels in its first two syllables, and a short *a* in the third syllable. The rules for stress would therefore assign stress to these first two syllables, since each of them contains a long vowel. Eliot's decision to put the monosyllabic negative morpheme <mat> after the verb, rather than before as in the prose translation, can be seen as reflecting his desire to locate iambic stress on the second syllable of the word, rather than the first. Stress clash appears to be decided in favor of the second of the adjacent stresses. And this is the most common strategy that we find, in examples like this one. There are 18 metrically informative lines involving words like *waantog* which contain two adjacent stressed syllables, neither of which is the final syllable. And of these 18 words, 14 are, like <waantog>, being moved into positions in which the second of the adjacent stresses will appear on an iambic beat.

In the previous section, we saw that when the rules for stress assign stress to both of the last two syllables of a word, the word is treated as though the last syllable is not stressed. The hypothesis offered there was that Wôpanâak, like Lenape, generally does not stress final syllables of words if there are other syllables to stress. In this section we are seeing evidence for

the more general strategy for dealing with stress clash; it is the second of the adjacent stresses which is kept, and mapped onto an iambic beat.

One possible interpretation of the data so far would be to say that stress clash is actually resolved by the loss of a stress; the word <waantog>, on this view, would genuinely contain only one stress, on its second syllable. I think there are reasons to reject this view. What is actually happening, I will argue, is that <waantog> does have stress on both its first and its second syllable, but the *primary* stress is the second one; the first stress is only a secondary stress. I will offer two reasons for thinking this.

The first has to do with a difference between this stress clash case and the other cases described in the previous sections. The table of the results discussed in previous sections is repeated here in (54):

(54)	<i>iambic line</i>	<i>trochaic line</i>	<i>mystery</i>
all short vowels	21	3	1
long vowels:			
on even syllables	46	3	2
on odd syllables	28	3	3
potential stress clash in final syllables,			
penultimate stress	46	2	5

The examples summarized in (54), despite the title of the fourth line of the table, contain no true instances of stress clash, by hypothesis; final syllables are not stressed in Wôpanâak, so the words in the fourth line have no cases of adjacent stressed syllables. In the 163 cases surveyed in these four lines, there are 11 'mysteries'; these are examples in which Eliot's choices cannot be

explained by the metrical needs of the line, as I have presented them in this paper. These 'mysteries' make up a little less than 7% of the total.

Now we are considering words that contain only two stressed syllables, which are adjacent to each other (and neither of them is final). As mentioned above, there are 18 examples of such cases, and 14 of them treat the second stress as the one to map onto the iambic beat; the first stress is to be ignored. But there are an additional 4 cases which demonstrate the opposite strategy, and none of these additional 4 lines appear to be trochaic.

In other words, if we posit a generalization saying that in cases of genuine stress clash, the second stress is to be kept, and the first discarded, we will find 14 examples conforming to the generalization, and 4 mysteries. This is more mysteries than the table in (54) has made us accustomed to; the 4 counterexamples represent around 22% of the relevant cases, and the greater frequency of mysteries, in the short stress clash examples now being discussed, compared with the stress-clash-free examples in the table in (54), is statistically significant ($p < .05$). We can make sense of this fact, it seems to me, if we conclude that the apparent stress clash in these examples is real; both of the syllables which ought to receive stress are in fact stressed. The main stress goes on the second stressed syllable, which is why the majority of these lines align the second stressed syllable with the iambic beat, but there is also stress on the first stressed syllable, and Eliot is capable of deciding to use this stress to build his iambic line.

A second reason to think that Wôpanâak words can contain adjacent stressed syllables has to do with the treatment of longer words with stress clash. Here we will be considering words with three nonfinal stresses, two of which are in adjacent syllables, while the third is not in an adjacent syllable to the other two. The two kinds of cases of interest can be schematized as in (55)

- (55)
- | | | | | | | |
|----|---|---|---|---|---|---|
| | • | / | / | • | / | • |
| a. | σ | σ | σ | σ | σ | σ |
| | • | / | • | / | / | • |
| b. | σ | σ | σ | σ | σ | σ |

As shown, the words are six syllables long (there could also be shorter examples, lacking the unstressed syllable at the beginning of the word). The difference between the two classes has to do with the ordering of the two adjacent stressed syllables with the third, non-adjacent stressed syllable. In (55a), we are considering a word in which the two adjacent syllables precede the third syllable; in (55b), the order is the opposite.

Another difference between the two kinds of examples is that in (55a), there are two odd-numbered syllables that are stressed, while in (55b), there are two even-numbered syllables that are stressed. To put the case more generally, in (55a), the stressed syllable which is not participating in clash is the same kind of syllable as the second of the two adjacent stressed syllables (in this case, they are both odd-numbered syllables). And in (55b), the stressed syllable which is not part of the stress clash is the same kind of syllable as the first of the two adjacent stressed syllables (in this case, they are both even-numbered syllables).

It turns out that in examples like the ones in (55), Eliot appears to be pursuing a strategy of maximizing the number of stressed syllables which are aligned with iambic beats. In other words, given a word like the one in (55a), he arranges for it to be stressed on its odd-numbered syllables, while the word in (55b) is aligned with its even-numbered syllables. There are ten

examples of the first kind of case⁶, and two of the second, and Eliot's behavior with these 12 is completely consistent.

An example of the kind of case in (55a) comes from Psalms 90:14:

- (56) Woi tapeneauoshuss-unan teanuk nashpe ku-mmonaneteaonk,
VOC satisfy-2SUBJ.1P.OBJ.IMPER soon with 2-mercy

onk woh n8-wekontam-umun, kah nu-mmuskauanatam-umun
so.that MOD 1-rejoice-1PL and 1-be.glad-1PL

ut wame nu-kesukkodt-um-unnon-ut.

LOC all 1-day-POSS-1PL-LOC

'(*King James Version*) O satisfy us early with thy mercy;

that we may rejoice and be glad all our days.'

The metrical version of this verse goes as follows:

⁶ There is a candidate for an eleventh case of this kind, in Psalms 22:18, in which <nuppetaushqushaonk> 'my robe' is placed so that the metrical beats appear on its odd-numbered syllables. The etymology of the word for 'robe' is not completely clear; the word could be either *nupeetwashquhshâôk* or *nupeetwâshquhshâôk*. Some evidence for the second possibility, in which the third vowel of the word is long, comes from the spelling of the word in Exodus 39:22, 39:23, 39:25, where an accent mark is placed on this vowel (Exodus 39:23 spells it <petwóshqusháonk>). Given that the first vowel is long, the accent mark in Exodus could not indicate a stressed short vowel; unless it just represents an error, it seems to indicate that the second vowel of the noun is long as well. This would make the Psalms 22:18 example an eleventh case of the kind under discussion here. I have left it out of the count for now, since the form of the word is not clear.

(57) Nashpe ku-mmonaneteaonk
 with 2-mercy
 taph-innean woi God
 satisfy-2SUBJ.1PLOBJ.IMPER VOC God
 Onk n8-weekontam-umun woh
 so.that 1-rejoice-1PL MOD
 toh sohke pomantam-og
 how long live-1PL

'(lit.) With your mercy, satisfy us, O God, so that we may rejoice as long as we live'

The line of interest here is the third line, <onk n8weekontamumun woh> 'so that we may rejoice'.

The monosyllabic modal particle <woh> has been relocated here to the end of the line; in the prose translation in (56), this particle is preverbal, as it generally is in the texts. The line is not a rhyming line, so we are entitled to suspect that this reordering was done to improve the meter.

The six-syllable verb <n8weekontamumun> (*nuweekôtamumun*, /nəwi:kā:taməmən/) has long vowels in its second and third syllables, and the rest of its vowels are short. It involves a three-syllable verb stem with long vowels in its first two syllables (*weekôtam* < PA *wi•nka•tamwa), with a first person agreement prefix *nu-*, in which the vowel is a schwa, and a suffix containing two instances of schwa (*-umun* '1st person plural').

Our rules would assign stress to the second and third syllables of *nuweekôtamumun*, since these contain long vowels. It would also assign stress to the fifth syllable, since this is the second short vowel in the sequence of three short-vowel syllables which end the word. In other words, the verb has the stress pattern in (58) (which we can see as an instance of the pattern in (55a) above):

(58) • / / • / •
 n8 wee kon ta mu mun

Eliot's decision to shift the particle <woh> to the position after this verb has the consequence that the iambic meter will put stress on the odd-numbered syllables of the word. Since the word is stressed on its second, third, and fifth syllables, Eliot's decision has the consequence of maximizing the number of stressed syllables which appear on iambic beats.

One example of the rarer type of word in (55b), featuring a pair of adjacent stressed syllables which are preceded by a third, non-adjacent stress, comes from Psalms 118:11, the prose translation of which begins as follows:

(59) Nag n8-weenuhkong-qu-og, nux, n8-weenuhkong-qu-og...
 they 1-encircle-INV-AN.PL yes 1-encircle-INV-AN.PL
 '(King James Version) They compassed me about; yea, they compassed me about:...'

These lines of prose correspond to the following two metrical lines:

(60) Nag wam n8-weenuhkong-qu-og
 they all 1-encircle-INV-AN.PL
 n8-weenuhkong-qu-og
 1-encircle-INV-AN.PL
 '(lit.) They all encircle me; they encircle me...'

In the first line of (60), the word <nux> 'yes', present in the prose translation in (59), has been removed. In order to make the line long enough again, <wam> 'all' is introduced in a contracted form (this word is typically two syllables long, ending in a vowel *e* which is omitted here). The new monosyllable precedes the verb, and the decision to replace <nux> 'yes' with <wam> 'all' therefore has consequences for the metrical properties of the verb.

The verb <n8weenuhkongquog> (*nuweenuhkhôqak*, /nəwi:ənəhkã:k^wak/) is six syllables long, and its second and fifth vowels are long. The verb stem consists of four syllables, of which the first contains a long vowel (< PA *wi•wenehkaw-). An agreement prefix with a short vowel precedes the verb stem, and another suffix, the 'inverse' marker *-uq*, participates in a regular morphophonological change which creates another long vowel (*ô*, /ã:/) in the fifth syllable. A second suffix, indicating that the subject is animate and plural, contains the sixth vowel of the word, which is short.

Consequently, the verb should have stress on its second and fifth syllables, since these are the long vowels, and also on the fourth syllable, since it is the second in the string of short-vowel syllables between the two long vowels. The verb, in other words, has the stress pattern in (61), a version of the pattern schematized in (55b) above:

(61) • / • / / •
 n8 we e nuh kong quog

By removing the monosyllable <nux> 'yes' and replacing it with a preverbal monosyllable <wam> 'all', Eliot has arranged for this word to be stressed on its even-numbered syllables.

Again, the consequence is that of the three stressed syllables in the word, two are aligned with iambic beats.

To summarize the facts about stress clash so far; in words containing only two stresses, on adjacent syllables, Eliot mainly (14 times out of 18) aligns the second stress with an iambic beat. In longer words containing three stresses, two of them adjacent to each other and the third not, Eliot reliably pursues a strategy of aligning as many stresses as possible with iambic beats; this sometimes involves aligning the second of the adjacent stresses with an iambic beat, and sometimes the first, depending on where the third, non-adjacent stress is in the word.

I have suggested that we can understand these facts as teaching us that all of the stresses assigned by our rules for stress are real. Wôpanâak words can contain multiple stressed syllables, including syllables which are adjacent to each other, and all of these stresses can in principle influence the placement of a word in an iambic line (as we can see in Eliot's treatment of the words with three stressed syllables). I have also proposed that of the stressed syllables, the primary stress is on the last non-final stress; this is why this is the stress which is preferentially aligned with iambic beats in words with only two stresses.

There are other kinds of words with stress clash, but they are rare enough in the data to be difficult to draw conclusions about. Seven metrically informative lines feature words with three non-final stressed syllables, all adjacent to each other. In three of these cases, Eliot aligns the iambic beats of the line with the first and third of the stressed syllables; in the other four, he seems to align the second of the three stressed syllables with an iambic beat⁷. Given that his task is to create an iambic meter, it is perhaps not so surprising that his treatment of words with three adjacent stressed syllables is somewhat haphazard.

2.6 Multiple-word lines

This concludes the discussion of lines in which the position of stress has been changed for a single multisyllabic word. There are also lines in which multiple words change the position of stress; as far as I can tell, these teach us nothing new about the stress system, though we can use them as a test of the system developed on the simpler cases.

In 33 verses, there are lines with changes that affect stress in two different words, correctly aligning the stress of both words with the alternating beats of the line. In 27 of these

⁷ There is in fact a single word which Eliot aligns in different ways in two different lines (*nôpôâeeew* /nã:pã:a:i:w/ 'early', a four-syllable word in which all the vowels are long; the relevant lines are in Psalms 92:2 and 108:2).

cases, the result is an iambic line, and in the other 5 cases the resulting line appears to be trochaic. Psalms 38:3 contains one such line, in its second half:

(62) ...kah wanne anwôsin-inn8-ash nu-skon-ash newutche nu-mmatcheseonk.

and not rest-NEG-INAN.PL 1-bone-INAN.PL because 1-sin

'(*King James Version*) ...neither is there any rest in my bones because of my sin.'

This part of the verse is translated with the following two metrical lines:

(63) Nu-skon-ash mat anwohsin-ash

1-bone-INAN.PL not rest-INAN.PL

wutch nu-mmatcheseonk.

for 1-sin

'(*lit.*) My bones do not rest for my sin'

In (63), the bisyllabic negative word <wanne> has been changed to the monosyllable <mat>, and the verb has been deprived, ungrammatically, of its negative suffix. These changes succeed in making the line eight syllables long. The words have also been reordered; in (62), the subject <nuskonash> 'my bones' follows the verb <anwôsininn8ash> 'do not rest', but in (63) the subject precedes the verb.

The subject is a three-syllable word, with all the vowels short; the noun *-shkan* (/ʃkan/) 'bone' contains a short *a* (< PA **-θkani*), and the prefix and suffix both contain short vowels. The verb meaning 'rest' has a long second vowel, and the other vowels in the four-syllable word are short, including the short vowel of the agreement suffix *-ash* (*anwâhsun* /anwa:hsən/, < PA **alwe•hšin*). In considering the metrical consequences of changing the word order of (62) to that of (63), then, we are comparing the following two options:

- (64) (*meter*): • / • / • / • /
- a. nə ʃka naʃ mat an wa: hsə naʃ (*actual*)
- b. mat an wa: hsə naʃ nə ʃka naʃ (*imagined*)

In the line as it is written, *nushkanash* /nəʃkanaʃ/ 'my bones' is stressed on its second syllable, and *anwâhsunash* /anwa:hsənaʃ/ 'they rest' is stressed on its second and fourth syllables. Both words therefore receive an iambic stress beat on their main stressed syllables (the second syllable, in both cases). If the word order of the prose translation had been retained, as in (58b), then neither of these words would have been stressed on the correct syllables in an iambic line.

In another 63 lines, by my count, Eliot has made a change with consequences for two polysyllabic words in the line, with the following consequences: only one of the two words has its stress correctly aligned in the line before the change, and after the change, only the other word has its stress correctly aligned (that is, the word which was correctly aligned before the change no longer is). I will have to leave serious study of these lines for future work. In 56 of these 63 cases (that is, roughly 89% of the time) the word with the correct stress after the change is earlier in the resulting line than the word with incorrect stress.

2.7 Summary

The stress system of Wôpanâak that I have just argued for is summarized again in (65):

- (65) a. Long vowels are stressed.
- b. In sequences of syllables with short vowels,
the even-numbered vowels are stressed.
- c. The last syllable of a word is not stressed,
unless this is the only stress in the word.
- d. Main stress goes on the last stressed syllable of the word.

The evidence for (65a-b) is particularly rich, and comes not only from the treatment in the metrical Psalms of words with only short vowels (section 2.2), and of words with long vowels placed in such a way as to not create stress clash (section 2.3), but also by the patterns of vowel loss that we can observe in the Wôpanâak texts more generally (section 2.4.1).

The evidence for (65c-d) came from the treatment in the metrical Psalms of words containing adjacent syllables which are candidates for stress. We saw that words in which we would expect stress just on the last two syllables were typically aligned as though stress was only on the penultimate syllable; this was one argument that final vowels in Wôpanâak are not stressed (section 2.5.1). For words with two adjacent stressed syllables which are not final, we saw that there is a general tendency for the last stressed syllable to be aligned with iambic stress, though we also saw that there are more exceptions to this tendency than there are in other classes of words. This state of affairs led me to propose that both of the stressed syllables in such a word do indeed receive stress, with more stress appearing on the later vowel than on the earlier one (section 2.5.2). We also saw that in longer words containing adjacent stressed syllables, Eliot appears to be pursuing a policy of aligning as many stressed syllables as possible with iambic beats; this way of describing the situation is only available to us if we are willing to posit multiple stresses in the word (also section 2.5.2).

3. Skippable schwa

There is one final complication to the system, which does not come from the metrical translation of the Psalms, but from the wider body of texts. Wôpanâak appears to allow certain instances of unstressed schwa to be skipped for purposes of counting short vowels and assigning stress. In this regard, Wôpanâak apparently patterns with Passamaquoddy (LeSourd 1988) and the Unami version of Lenape (Goddard 2021).

One example of the phenomenon involves the common verb final *-ânutam* (/a:nətam/, < PA *-e•*lentamwa*), which appears on verbs (sometimes, though not always, with inanimate objects) which involve mental activity. Given our rules for stress, we know that regardless of what comes before *-ânutam* in the verb, the long vowel *â* should always attract stress. The schwa in the immediately following syllable will then always be the first short vowel in a sequence of short vowels, and will never be stressed, regardless of what form the verb is in or what affixes are attached.

As we might expect, this reliably unstressed schwa is very often dropped when a word containing it is written. But it does sometimes appear; we see it, for example, on the title page of the Eliot Bible, as part of the word for 'holy':

(66) Mamusse Wunneetupanatanwe Up-Bibl-um God...

complete holy 3-Bible-POSS God

'The complete Holy Bible of God...'

As the rules for stress stand, we would expect the seven-syllable word for 'holy' in (66) to have its main stress on the sixth syllable:

(67) • / • / • / •
 wə ni: tə pa: nə tam wi:

The long vowels in the second and fourth syllables of the word, we would think, ought to be stressed, and then the sixth syllable of the word should be stressed by virtue of being the second in a sequence of syllables with short vowels.

In fact, however, there appears to be evidence that the reliably unstressed schwa in the fifth syllable of this word is not counted when stress is calculated; the process of counting short vowels to assign stress to should actually begin on the sixth syllable. Consequently, the sixth

syllable is actually the first short vowel in the sequence of short vowels, and it therefore does not receive stress either; the seventh and last syllable also does not get stress, as is generally the case for final vowels. The true stress pattern of this word is as in (68), with main stress on the fourth syllable and secondary stress on the second:

(68) • / • / • • •
 wə ni: tə pa: nə tam wi:

The evidence for this conclusion comes from what happens when the Conjunct 3rd person plural suffix *-hutut* (/hətət/) is added to verbs ending in *m*. A schwa is inserted between the *m* at the end of the verb and the suffix *-hutut*, and this schwa is spelled in several different ways:

- (69) a. n8tamwhettit (/nu:taməhətət/) 'when they heard it' (Joshua 5:1)
 b. naumohettit (/na:məhətət/) 'when they saw it' (Genesis 37:4)

Part of Eliot's 1685 translation of the Bible (roughly 400,000 words) has been typed into searchable files⁸. Searching this database for verbs ending in *m* to which *hutut* has been added, we find that the spelling of the schwa before the suffix seems to be influenced by whether this schwa receives stress. The database contains 285 relevant cases, 20 of which involve the final *-anutam*. Putting these 20 aside, out of the remaining 265 examples, there are 162 in which we would expect stress to appear on the schwa before *-hutut* (forms like (69a), for example, in which the schwa is the second in a sequence of syllables with short vowels). The remaining 103 examples are ones in which the intervening schwa should not be stressed (forms like (69b), for example, in which the intervening schwa is the first in a sequence of syllables with short vowels). Out of the 162 examples in which the schwa is stressed, it is spelled with an orthographic <w>, like the example in (69a), 70 times (roughly 43% of the time). In the 103

⁸ I am profoundly grateful to Roger Higgins and Marilyn Goodrich for creating this wonderful resource.

examples in which this schwa is not stressed, it is spelled with <w> only 3 times. These last 3 examples may well involve some kind of mistake, either on my part or on Eliot's, but even putting this possibility aside, the effects of stress on the spelling of this schwa are statistically significant ($p < 0.00001$).

Turning now to the 20 examples in which *-hutut* is added to a verb ending in *-ânutam*, we find that the intervening schwa is spelled with <w> 8 times (40% of the time):

- (70) a. kodtantamwehettit (/kata:nətaməhətət/) 'what they wanted' (John 6:11)
 b. muskouanatomwohettit (/məʃkawa:nətaməhətət/) 'they rejoice' (Habakkuk 1:15)

This is the behavior we expect from stressed schwa, not from unstressed schwa. What we seem to be learning is that *-ânutam* is treated for stress as though it consisted of two syllables rather than three; the stress count 'skips' the schwa in the middle of this final, so that the schwa spelled in boldface in (70) receives stress, as though it were the second in a sequence of syllables with short vowels.

Another example of the same kind comes from the behavior of an initial *utan-* (/ətan/), meaning 'there'. The schwa with which this morpheme begins can be seen when prefixes are added; in Wôpanâak, as is typical for Algonquian languages, prefixes add an epenthetic *t* when they precede vowel-initial morphemes:

- (71) wutt-**ittann**-ehteau-un
 3-there-make-N
 'He made it there' (Jeremiah 18:3)

The initial schwa can also be detected when words beginning with *utan-* undergo Initial Change, the ablaut process which changes schwa in the first syllable of a word to long *â*:

(72) **adtann**-adtupwu-tch-eg

IC.there-feed-3CONJ-AN.PL

'(the ones) which feed there' (Song of Solomon 4:5)

In examples involving neither prefixing nor Initial Change, however, this initial schwa is typically not written:

(73) **tan**-adtupp8-og

there-feed.3-AN.PL

'they feed there' (Genesis 41:2)

Our rules for stress would not assign stress to schwa in an example like (73), since it is the first in a sequence of syllables with short vowels. The fact that it is typically not written is therefore not surprising.

There is some interesting evidence, however, that this particular schwa is like the schwa in the middle of *-ânutam*, in that it is 'skipped' by the rules for stress assignment. The evidence has to do with how *utan*- 'there' combines with verbs of writing.

The spelling of the verbs *wusuhqaham* /wəsəhk^waham/ 'write' and *wusuhqahôsuw* /wəsəhk^wahã:səw/ 'be written' is affected by the position of stress in the verb. When there is no prefix on these verbs, the third syllable of the verb is not stressed (since it is the third in a series of syllables with short vowels), and its vowel is often dropped:

(74) a. wussukhum /wəsəhk^waham/

'he writes' (Luke 1:61)

b. wussukwhôsu /wəsəhk^wahã:səw/

'it is written' (Galatians 4:22)

When Initial Change changes the schwa of the first syllables of these verbs to the long vowel *â*, the third vowel of the verb becomes the second in a series of short vowels, and is therefore written, since it now receives stress:

- (75) a. wassukkuhhuk /wa:səhk^wahak/
 'he who writes' (Ezra 7:21)
- b. wosukkuhwhosik /wa:səhk^wahā:sək/
 'that which is written' (Deuteronomy 29:20)

When agreement prefixes are added to these verbs, the schwa of the prefix combines with the *wu-* at the beginning of the verb to become a single long vowel, *ø* (/u:/). Like the long *â* created by Initial Change, this long vowel changes the syllable count for stress, shifting stress to the third vowel of the verb stem, and causing it to be written:

- (76) a. nøsukuhhum /nu:səhk^waham/
 'I write' (3 John 1:13)
- b. øsukuhwhøsuonk /u:səhk^wahā:səwā:k/
 'his writing' (Exodus 32:16)

With this much established about the spelling of these verbs, we can turn to the spelling of the verbs *utanusuhqaham* 'write there' and *utanusuhqahøsu* 'be written there':

- (77) a. tanúhsukkuhwhush /ətanəsəhk^wahaf/
 'write it there!' (Jeremiah 36:28)
- b. tannussukkuhwhosu /ətanəsəhk^wahā:səw/
 'it is written' (Revelation 21:12)

As mentioned above, the schwa with which these verbs begin is typically not written, presumably because, in these forms of the verb, it is not stressed. What is surprising about the

spellings in (77) is that they suggest that the initial schwa is not only not written, but is ignored for purposes of counting syllables with short vowels. These verbs have the kind of spelling we saw in (75) and (76), a spelling that we would associate with stress on the syllable immediately following *utan-*, and every other syllable after that.

These cases demonstrate that Wôpanâak apparently shares a property with Passamaquoddy and Unami Lenape: certain instances of unstressed schwa can be skipped when counting short vowels for purposes of assigning stress. I will have to leave for future work the question of how widespread this phenomenon is in the language, and what factors determine where it appears.

4. Conclusion

If the proposal here is correct, Wôpanâak has a stress system similar to one found in some other Algonquian languages. If we had no information at all about Wôpanâak stress, we might have guessed that Wôpanâak had the stress system already described for its relative Lenape. I have argued here that this guess would have been nearly right (but not quite), and that we do not in fact have to guess; the relevant information seems to be available in the texts.

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Appendix

This paper has contained a number of claims about the frequency of various patterns in the metrical translation of the Psalms. Just in the interests of transparency, here are the particular verses in which I think particular patterns can be found, for the cases of lines of the right length in which a change has affected the status of one polysyllabic word.

words in which all the vowels are short (25):

iambic lines (21): 18:14, 24:2, 26:7, 41:5, 45:9, 52:5, 62:11, 68:23, 74:16, 78:15, 83:16, 88:10, 94:22, 97:6, 99:7, 104:21, 104:32, 115:3, 115:6, 119:116, 146:7

trochaic lines (3): 40:2, 85:2, 148:3

mysteries (1): 96:5

lines in which mata 'no, not' has its first syllable aligned with stress (8): 1:3, 32:6, 49:19, 66:18, 78:64, 101:7, 118:18, 119:3

words with long vowels, and no adjacent syllables with stress (85):

• long vowels all in even-numbered syllables (51):

iambic lines (46): 1:6, 2:11, 5:2, 10:6, 15:1, 18:17, 22:16, 25:19, 26:3, 31:12, 32:2, 32:8, 34:8, 34:19, 35:22, 36:12, 40:12, 42:6, 55:12, 55:22, 56:11, 69:5, 69:32, 72:15, 72:16, 78:37, 85:13, 86:12, 89:33, 91:12, 95:7, 96:13, 102:10, 103:21, 104:25, 105:7, 109:5, 109:22, 115:5, 119:131, 119:141, 119:158, 119:167, 122:9, 134:2, 138:5

trochaic lines (3): 41:11, 64:1, 82:8

mysteries (2): 108:13, 144:14

• long vowels all in odd-numbered syllables (34):

iambic lines (28): 6:5, 6:8, 27:4, 32:10, 37:15, 48:5, 51:8, 51:12, 52:8, 64:2, 64:9, 72:4, 72:16, 78:51, 92:9, 100:3, 102:9, 104:30, 105:13, 106:13, 107:1, 109:27, 110:7, 119:33, 122:8, 136:11, 146:9, 147:9

trochaic lines (3): 35:10, 41:9, 47:2

mysteries (3): 18:14, 78:59, 107:35

words with a long vowel in the final syllable, and stress on the penultimate syllable ("potential stress clash") (53):

iambic lines (46): 2:7, 6:3, 20:10, 25:3, 25:14, 27:6, 30:5, 33:4, 33:9, 33:17, 34:7, 40:5, 44:17, 56:13 (twice), 69:16, 72:4, 73:25, 77:4, 78:5, 78:46, 78:65, 89:10, 90:16, 94:12, 95:5, 96:4, 103:6, 104:4, 104:5, 105:9, 106:43, 107:26, 108:2, 108:6, 119:75, 119:107, 135:5 (twice), 135:6, 139:9, 139:13, 140:8, 141:3, 145:3, 147:4

trochaic lines (2): 7:4, 74:20

*mysteries*⁹ (5): 74:20, 76:3, 80:7, 80:19, 119:62, 144:3

⁹ 80:7 and 80:19 are identical in the relevant respects, so I have counted them as one example.

words with two stressed syllables, adjacent and nonfinal (18):

iambic lines, metrical beat aligned with second stress (14): 8:4, 26:11, 27:10, 37:3, 49:20,
85:11, 92:9, 92:15, 104:31, 119:71, 128:5, 132:1, 132:3, 145:1

iambic lines, metrical beat aligned with first stress (4): 33:2, 40:5, 72:6, 78:28

words with three stressed syllables, all nonfinal, only two adjacent (12):

nonadjacent stress follows adjacent stresses (10)¹⁰: 44:26, 85:2, 89:3, 90:14, 105:6,
107:34, 111:3, 115:7, 119:58, 119:113

nonadjacent stress precedes adjacent stresses (2): 10:5, 118:11

words with three adjacent stressed syllables (7):

metrical beats aligned with first and third stresses (3): 7:11, 92:2, 110:5

metrical beats aligned with second stress (4): 35:18, 69:2, 108:2, 129:7

¹⁰ And possibly also Psalms 22:18: see footnote 6.