

# Mary, Darling, Make Me Merry; Say You'll Marry Me: Tense-Lax Neutralization in the *Linguistic Atlas of New England*

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## 1. Introduction, Methodology, and Data

A sound change in modern American English that has had perhaps the greatest effect to date on the distributional constraints of the vowel subsystems is that that has been called **tense-lax neutralization** (TLN), or (less generally) the *marry-merry-Mary* merger. In dialects that have been affected by tense-lax neutralization, what were originally the short lax vowels /æ e i o ʌ/<sup>1</sup> develop into (and merge with) the nearest tense ingliding vowels when before intervocalic /r/. Thus *marry* and *merry*, originally with /æ/ and /e/ respectively, become homophonous with *Mary*; *mirror*, originally with /i/, comes to rhyme with *nearer*; *horror* (/o/) with *explorer*; and *hurry* (/ʌ/) with *furry*. (The short vowel /u/ is excluded because there are very few if any clear examples of it before /r/, on account of the highly restricted environments in which the phoneme originated.) The upshot of this sound change is a sharp change in the constraints on the distribution of the short vowels. This can have significant interactions with English syllable structure, for reasons I will detail later in this paper.

In this paper I examine tense-lax neutralization in the front vowels—i.e., the *marry-merry-Mary* merger—in early-20<sup>th</sup>-century New England, as it is reflected in the *Linguistic Atlas of New England* (LANE). This atlas presents the results of a study conducted in the 1930s by nine fieldworkers, in which over 700 phonetic and lexical variables were elicited from some 400 speakers in various towns and cities throughout New England, as well as a few from Long Island and New Brunswick. (The New Brunswick data is not included in the current study.) All the informants' responses are represented in highly detailed phonetic transcription, which makes LANE perfect for examining mergers among similar phonemes, as is the aim here.

This study considers tense-lax neutralization in six words on which data is presented in Volume 2 of LANE: one containing historic /æ/, *married*; three with historic /e/, namely *merry* (*Christmas*), *cherry* (*tree*), and *Ameri-*

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<sup>1</sup> I use the notation of Labov et al. (in press).

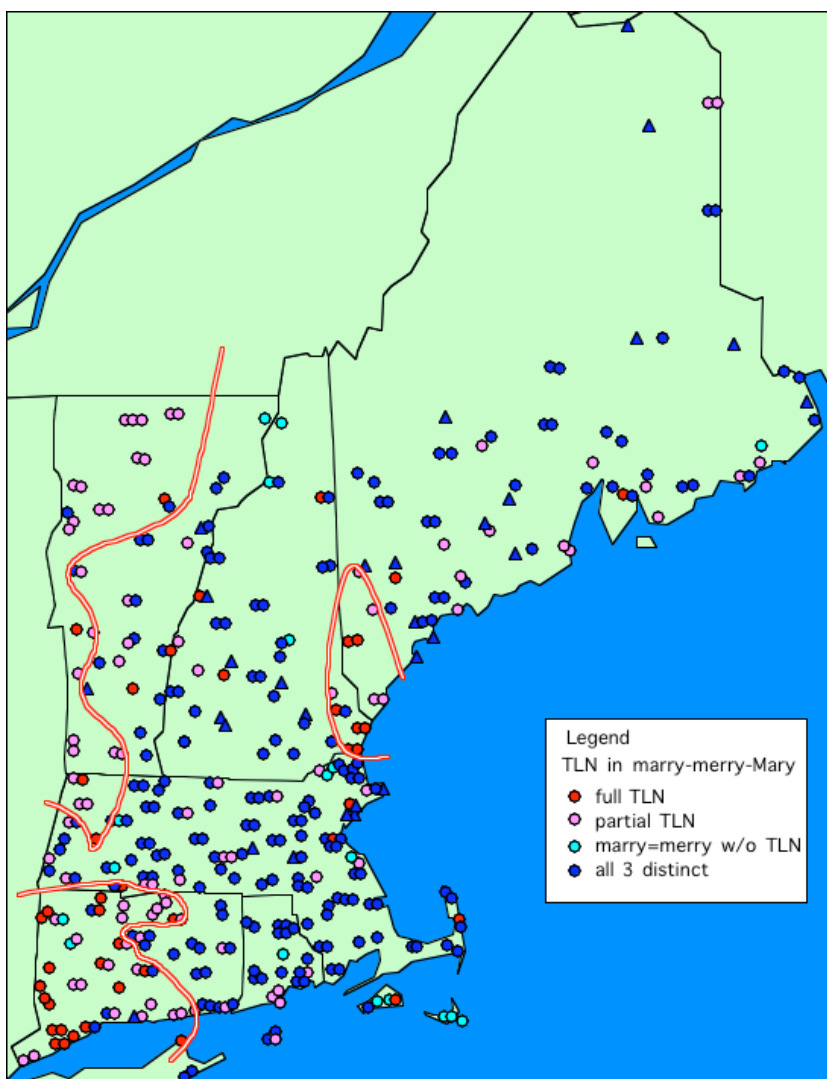
*can*; and two with the original tense vowel that I shall write as /ehr/<sup>2</sup>, namely (*Aunt*) *Sarah* and *Mary*. A seventh word from Volume 2, *parents*, was excluded on the grounds that there is some ambiguity as to whether its underlying original vowel is /æ/ or /ehr/, or both with some original social or geographic variation. One area for further study might be to use the isoglosses developed and data gathered by this paper to determine to what extent this variation exists and is systematic across the speakers studied by LANE.

The IPA transcription used by LANE, together with a system of diacritics that are used to show subtle variations, allows 18 levels of height to be distinguished among front vowels: the six basic symbols [a æ ε e i i], each of which may appear either on its own or with one of two diacritics [◌̑ ◌̒] that indicate slight raising and slight lowering. I assigned a number to each of these vowel height values, from -4 for [a ◌̑] up to 8 for [i ◌̒], with 9 for [i] and everything above.

My methodology for designating a particular informant as having tense-lax neutralization in the front vowels was as follows: If, for one speaker, the range of vowel heights encompassed by one of the three phonemes overlapped at all with that of another phoneme, then I regarded those two phonemes as merged before /r/ for this particular speaker. If the difference between the heights of the lowest token of one phoneme and the highest token of another was 1 according to the -4-to-9-scale of vowel height described above, I regarded the phonemes as not merged but “close”. Neither of these criteria applied if, in the overlapping or “close” range, all the tokens of /eh/ were diphthongized and all the tokens of the other phoneme were not. Thus, a speaker from Guilford, Connecticut, whose pronunciations of *merry* and *Mary* are given by LANE as [mɛri] and [mɛ̑ri] respectively, I do not consider to have merged /e/ before /r/ with /ehr/.

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<sup>2</sup> Although I write this tense vowel as /ehr/, it is far from the case that it is ingliding in all cases. Many LANE informants realize this vowel with a front upglide, as for example [ȇr], or with a central upglide as [ȇ̑r], and, as we shall see below, many realize it with a monophthong as something like [er]. The distinction between ingliding and upgliding realizations of this vowel is not germane to the current study; and, while monophthongal realizations will turn out to be essential, it is important to note that whether this vowel is a monophthong or diphthong is a separate question from whether it is tense or lax; in many cases, as we shall see, a tense monophthongal /ehr/ in *Mary* remains clearly distinct from the lax monophthong in *merry*. In any event, I shall use /ehr/ to refer to the historical tense word class throughout.



Map 1. The *marry-merry-Mary* merger.

Map 1 shows the distribution of the *marry-merry-Mary* merger in the LANE data according to those criteria. I have conflated a few categories on this map that technically could be kept distinct: I use red spots to represent (a) informants for whom all three phonemes are merged; (b) those for whom

one phoneme is merged with both of the other two but the other two remain separate from each other, according to the definition above<sup>3</sup>; and (c) those who merge two while the third is close but not merged. Dark blue spots represent informants who keep all three phonemes separate from each other, as well as informants for whom two phonemes are close but not merged while the third is separate from both of them. Blue triangles represent those speakers that keep all three distinct, but for whom the only distinction between /e/ before /r/ and /ehr/ are that /ehr/ is diphthongized and /e/ is not, such as the speaker from Guilford, Connecticut. Pink spots represent speakers for whom either *merry* or *marry*<sup>4</sup> merged with *Mary*, while the other is separate from both. Light blue spots are speakers who merge *merry* and *marry* but distinguish *Mary*; since this merger is not strictly speaking TLN, it is incidental to the current study.

The hollow red isoglosses on Map 1 attempt to separate the regions with a preponderance of red and pink spots from those with a preponderance of blue spots—that is to say, the regions with at least some degree of TLN from the regions with none—for the most part according to the principles of isogloss-drawing outlined in Chapter 6 of the *Atlas of North American English* (ANAE: Labov et al. in press; however, I regarded it as more important, for the purpose of this map, to exclude blue spots from the isogloss than to include pink spots) Computed with respect to the red spots alone and ignoring the pink ones, the red isogloss has 77% homogeneity and 80% consistency; with respect to both red and pink spots, it has 90% homogeneity but only 61% consistency.

## 2. Results and Analysis

On Map 1, we see three discontinuous regions with a significant degree of TLN: the southeastern corner of New Hampshire and southern corner of Maine; western Connecticut; and the entire northwestern fringe of New England, reaching from northwestern Massachusetts all the way around the edge of Vermont.

### 2.1. Southern New Hampshire and Maine

The presence of a merger in the first of these areas, southern New Hampshire and Maine, echoes Nagy (2001)'s finding of a high degree of *marry-merry-*

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<sup>3</sup> Such as the speaker from Casco, Maine, who has [æ] for /æ/ and [ɛ<sup>ə</sup>] for /eh/, but both [æ] and [ɛ<sup>ə</sup>] for /e/.

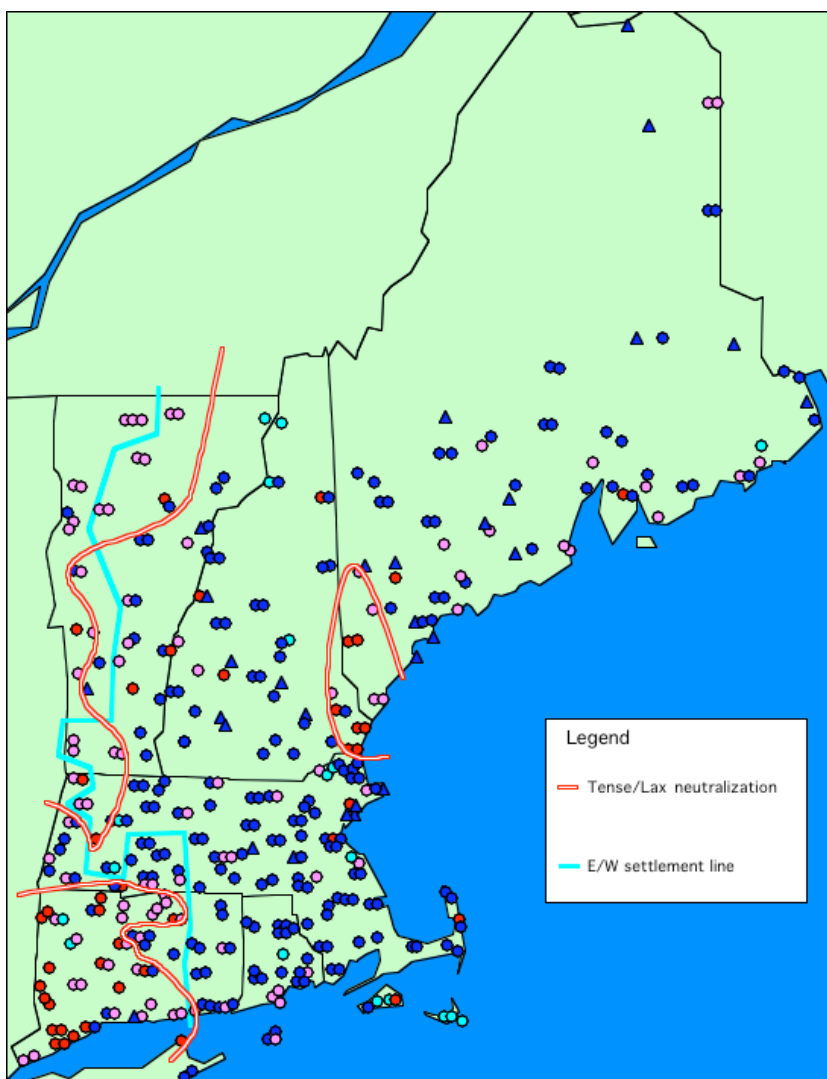
<sup>4</sup> Usually *merry*; only three speakers merged *marry* and *Mary* but not *merry*.

*Mary* merger throughout all the southernmost counties of New Hampshire: all of the word pairs in this class that Nagy investigated were merged at least three times as often in every region of southern New Hampshire as in any of the nearby regions of northeastern Massachusetts. She interprets this as a mechanism by which residents of the parts of New Hampshire closest to Massachusetts can emphasize their local New Hampshire identity and place themselves, as it were, outside the cultural influence of Boston. She found that the distribution of the merger across age groups in New Hampshire indicated a stable variation rather than a change in progress.

Clearly the results we have from LANE are different from Nagy's results: she found the merger to be prevalent throughout all of southern New Hampshire, whereas we have only found any degree of merger in the extreme southeast corner of the state, as well as in Maine. Inasmuch as the data published in LANE was gathered some sixty or more years prior to Nagy's study, however, it is possible that what we see here is the origin of the merger that Nagy found, and that over the next generation or so the *marry-merry-Mary* merger spread west to cover all of southern New Hampshire. If this is so, and Nagy's hypothesis is correct that the merger spreads in New Hampshire to emphasize separation from Boston cultural influence, it may be significant that Seabrook N.H., which is included in the TLN region, is the closest to Boston of all the New Hampshire towns with data in LANE.

## **2. Western New England**

Two areas of TLN as depicted on Map 1 are almost entirely contained within the region defined by Kurath in LANE as Western New England—western Connecticut and the northwestern fringe around Vermont. Indeed the red isogloss of Map 1 to a great degree resembles the boundary between Eastern and Western New England that is described in the LANE handbook's discussion of the settlement history of New England. Map 2 compares these two lines. The line between Eastern and Western New England, in blue on the map, reflects the barriers to travel and settlement that the topography of New England presents, and the concomitant split in the settlement history of the region.



Map 2. The TLN isogloss compared to the Eastern/Western New England settlement line.

Eastern New England was settled mostly westward from Massachusetts Bay and the Atlantic Ocean, and Western New England was settled northward from Long Island Sound. The settlers originating from the eastern and

southeastern coast of New England expanded as far westward into Connecticut as some inhospitable hill country between the Thames and Connecticut Rivers. Beyond that, coastal Connecticut was settled chiefly directly from England, or by Englishmen who had spent little time in Massachusetts Bay before moving on to establish settlements on Long Island Sound. These settlements expanded northward along the Connecticut and Housatonic Rivers into western Massachusetts. (It is notable that the area with the greatest density of red spots on Map 1, indicating the most complete *marry-merry-Mary* merger, is along one of the chief routes of settlement of Western New England, starting around Bridgeport and extending north along the Housatonic near the western border of Connecticut.)

Further north, the Eastern New England settlements originating from the Massachusetts Bay and Atlantic coasts moved through New Hampshire and into the upper Connecticut River valley straddling New Hampshire and Vermont, and also into the lower Connecticut Valley in western Massachusetts, where they met the settlements coming north from Long Island Sound. But the Berkshire Mountains on the western extreme of Massachusetts, and the Green Mountains north of them through most of Vermont, proved a boundary to settlement from the east, and so the western edges of Massachusetts and Vermont remained relatively isolated from the Connecticut valley after being settled. For this reason, LANE's boundary between Eastern and Western New England includes the Connecticut valley as part of Western New England only up to Hampshire County, Massachusetts; there the boundary jogs westward and follows the Berkshires and Green Mountains up the rest of the way.

On Map 2, although the western arms of the red isogloss mark out the same general region as the orange settlement line—most of Connecticut, the western edge of Massachusetts and western Vermont—there are several noticeable differences. The TLN isogloss excludes Hartford, Glastonbury, and Hebron, Conn., although the eastern extent of the isogloss in Connecticut conforms pretty well to the East/West line. The entire southwestern corner of Massachusetts is missing from the TLN area. The isogloss and the East/West line weave in and out of each other throughout Vermont and northwestern Massachusetts; however, we can regard this variation as relatively unimportant, since LANE indicates that the East/West border is less secure in the northern part of New England, as these regions were settled late and had settlers that originated from both Massachusetts Bay and Long Island Sound.

The greatest divergence between the TLN merger and the East/West line is the gap that we see in southwestern Massachusetts; it demands an explanation, if we intend to portray the merger as a feature of Western New England speech. We cannot suppose that the merger **had** affected southwestern

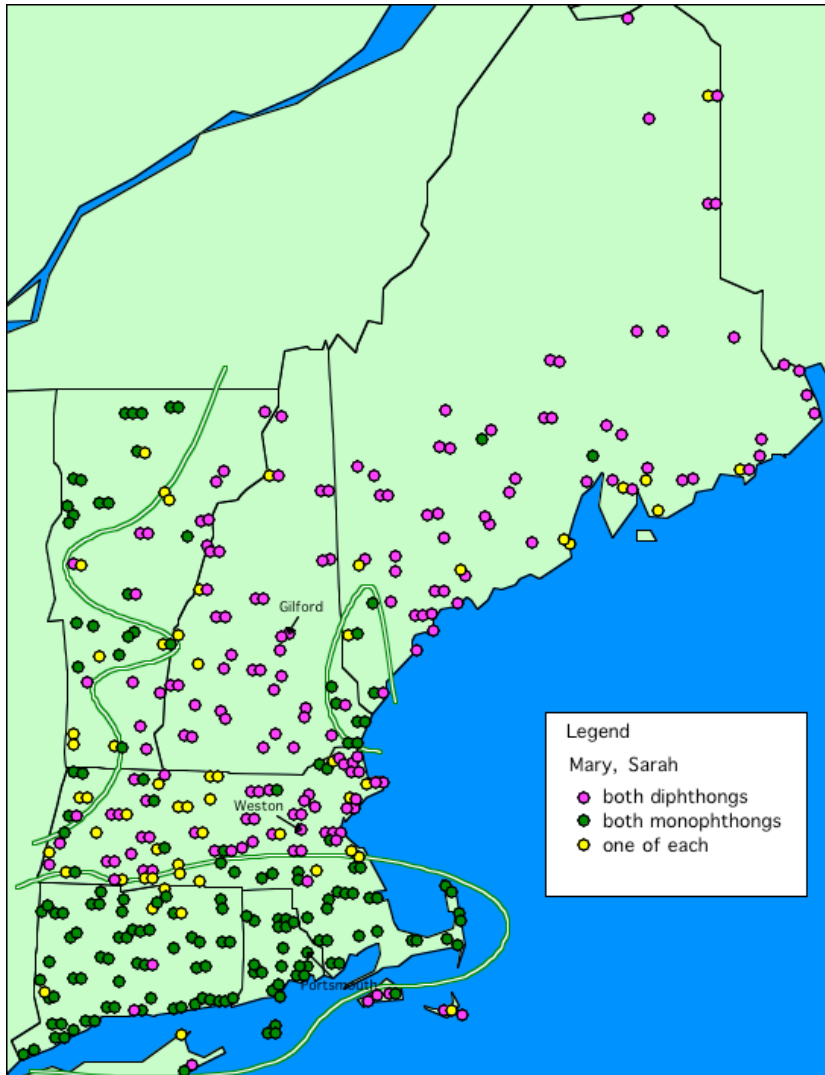
New England but then been reversed; once a merger has occurred in a region, it is next to impossible to reverse its effect (see e.g. Labov 1994). One possible explanation would be to suppose that tense-lax neutralization had arisen independently in Connecticut and Vermont and was expanding simultaneously northward and southward but, at the time of the LANE study, had not affected that corner of Massachusetts. Another possibility would be to hypothesize that the New York border is, contrary to popular opinion, **not** the western boundary of civilization, and that TLN originating in Connecticut may have managed to spread into Vermont without passing through southwestern Massachusetts by means of spreading through New York State. Unfortunately, the current study lacks sufficient data to test this radical hypothesis. At any rate, we can gain some insight into why TLN spreading north from Connecticut or south from Vermont might have bypassed or failed to reach southwestern Massachusetts by looking at another isogloss that shows a gap in the same region. Map 3 deals with the monophthongization of /ehr/.

On Map 3, the purple spots represent speakers who pronounced *Mary* and *Sarah* with either ingliding or upgliding diphthongs (e.g., the informant from Gilford, N.H., who uses [e<sup>ɪ</sup>] for both, and the informant from Weston, Mass., who uses [e<sup>ɪ</sup>] for both, respectively). The green spots represent speakers who pronounce both names with monophthongs, such as the speaker from Portsmouth, R.I., who uses just plain [e] in both *Mary* and *Sarah*. The hollow green isogloss was drawn with an eye to remaining agnostic as to whether diphthongs or monophthongs are the innovative form, and so I completely ignored the yellow spots (indicating speakers who have a monophthong in one name and a diphthong in the other) in constructing it. The result is a remarkably clean isogloss; with respect to the green spots it has a homogeneity of 95% (again, ignoring the yellow spots) and a consistency of 92%. It certainly appears that monophthongization of word-medial /ehr/ is a proper feature of Western New England<sup>5</sup> and the southern area of Eastern New England—i.e., the regions that were settled from Long Island Sound and from the Plymouth Colony or close to it, rather than the Massachusetts Bay Colony. (Nantucket and Martha's Vineyard were actually settled from north of Boston.) This could well be a case of inherited variation that's simply due to dialectal differences between the founding populations.

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<sup>5</sup> This isogloss waves in and out in Vermont with respect to LANE's Eastern/Western New England border just as much as the TLN isogloss does; but, as mentioned above, the more diverse settlement that LANE indicates in this region makes us inclined to regard this fluctuation as not significantly refuting the hypothesis that the relevant region for /ehr/ monophthongization is fundamentally Western New England.





Map 3. Monophthongization of /ehr/ in *Mary* and *Sarah*.

And Map 3 has just about the same hole in southwestern New England that the TLN isogloss has: there is a region including about five or six towns of the LANE survey that is within neither the red nor the green isogloss, de-

spite being within the Western New England region that was settled up the Connecticut and Housatonic Rivers from Long Island Sound. Indeed, only four border towns with TLN are outside the /ehr/-monophthong region. This relationship suggests that /ehr/-monophthongization may be virtually a necessary precondition for TLN to be initiated in a region, or at least the version of TLN that obtains in these regions. There is both a phonetic argument and a geographical argument to support this proposition.

First, monophthongizing /ehr/ reduces its margin of security from /e/, in the sense of Martinet (1952). For the typical speaker outside both the red isogloss of Map 1 and the green isoglosses of Map 3, the vowels of *Mary* and *Sarah* are differentiated from those of *merry*, *cherry*, and *American* both by being diphthongized and by being noticeably higher. The speaker from Burlington, Mass., is a good example of this; this informant uses [ei]<sup>6</sup> in both tokens of /ehr/ and [ɛ] in all three tokens of /e/. Even if /e/ were raised or /ehr/ were lowered, the distinction would remain because of the diphthongization; such is the case for the speakers symbolized by blue triangles on Map 1. In a region where /ehr/ is a monophthong, however, only a single change is necessary to merge *merry* with *Mary*.

Furthermore, observe that the only region of monophthongal /ehr/ outside Western and southeastern New England is almost the exact same strip of southern New Hampshire and Maine that possesses TLN; in this area we can safely assume monophthongization to be an innovation. If we had no reason to believe that monophthongization and the *marry-merry-Mary* merger were related, it would be very surprising to find that two unconnected areas, with completely separate histories and populations, should have independently produced the same pair of front-vowel features. The improbability and surprisingness of such an observation goes down, however, when we hypothesize that monophthongization sets up a staging area, as it were, which is necessary for the merger to occur.<sup>7</sup>

The aim of the above reasoning has been to argue that TLN is more or less constrained to occur principally within the green isogloss of monophthongization. The point, of course, has been to attempt an explanation of why there's a hole in the red isogloss in southwestern Massachusetts. The answer that this line of reasoning indicates is that there's a hole in the red

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<sup>6</sup> In this paper, I use [i] to denote a lax high central vowel, with the same degree of height as [ɪ], not as [i]. LANE indicates this vowel with the symbol of a small capital / with a bar through it, but that symbol is unavailable to me.

<sup>7</sup> Or at least, necessary for the merger to spread; for there are numerous isolated points scattered throughout Map 1 where partial or even complete mergers have occurred, but which remain surrounded by blue spots.

isogloss because there's a hole in the green isogloss—that is to say, there hole is the red isogloss is present because the red isogloss is more or less constrained to sit within the green isogloss, and the green isogloss itself has such a hole. This may seem merely to push the question back to “Why is there a hole in the green isogloss?” without actually answering it, but it has a distinct advantage over the original question in one important respect: Above we rejected the hypothesis that southwestern Massachusetts had formerly had TLN but lost it as a result of dialect spreading; it seemed too implausible to suppose that such a merger could have been reversed. But /ehr/-monophthongization is not a merger, and therefore it can be reversed with considerably less difficulty. We are not prevented from supposing that diphthongal /ehr/ could have spread into formerly monophthongal southwestern Massachusetts from adjacent areas of Eastern New England. Thus we can revise our hypothesis as follows: southwestern Massachusetts, as part of the Western New England settlement pattern, had had monophthongal /ehr/ but adopted diphthongal /ehr/ due to influence from the adjacent area of Eastern New England (i.e., Hampshire County, Massachusetts). Then, when TLN began to take effect in Western New England, it was blocked by in southwestern Massachusetts by the diphthongal /ehr/, which was too dissimilar from the /e/ of *merry*, *cherry*, and so forth to be readily merged with it.

The red isogloss also swerves to avoid Hartford, in the center of Connecticut. I will have a word or two to say about that later in this paper.

### **3. Tense-lax neutralization in the phonological system**

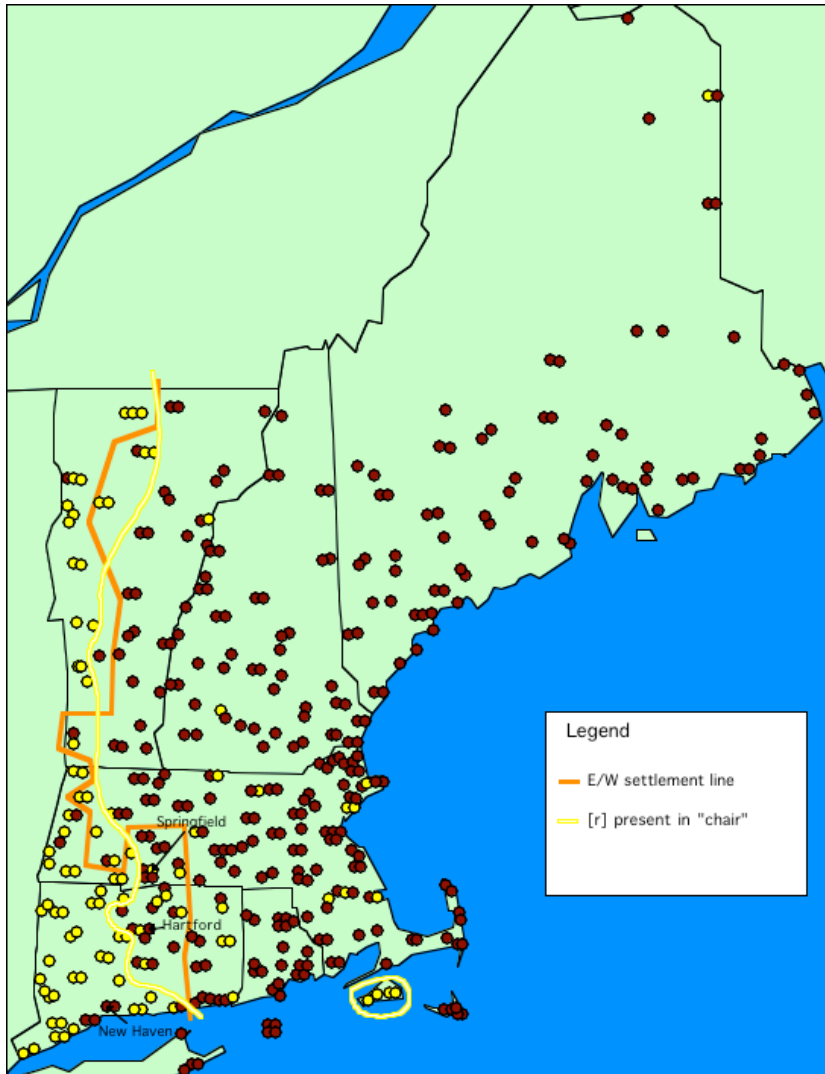
Now I intend to examine the relation of tense-lax neutralization to the general phonological system in which it occurs. Is there system-internal pressure that leads toward tense-lax neutralization, or is it just the result of arbitrary phonetic drift? We have already pointed to monophthongal /ehr/ as a phonetic factor that may lead towards tense-lax neutralization, but clearly this is not sufficient to trigger neutralization by itself; /ehr/ is monophthongal throughout Rhode Island and southern Massachusetts, but only seven out of 52 monophthongal-/ehr/ speakers in Rhode Island and southern Massachusetts show any degree of TLN at all. We could put it down to the Eastern/Western New England settlement line: if TLN is a Western New England phenomenon and expanded with the settlement of the region, then we have no reason to expect it to spread eastward in a direction perpendicular to settlement. However, there are some five informants in Rhode Island who do have a *merry-Mary* merger, yet the merger has not spread from them to cover all of southeastern New England the way the Vermont and Connecti-

cut mergers have spread, even though the factor we have identified as necessary for the spread of TLN is present. These points seem to be more like the various isolated pink spots on Map 1 throughout eastern Massachusetts, New Hampshire, and Maine, except without the excuse of diphthongal /ehr/ to explain why they have not spread.

My claim is that the reason TLN did not spread into southeastern New England is nonrhoticity—that is to say, the absence of syllable-final /r/. I will argue that rhoticity produces a phonological system that is far more conducive to TLN than is nonrhoticity. But first, a map.

Map 4 presents an isogloss between rhotic and nonrhotic regions of New England, as reflected in the word *chair*, and compares it to the settlement boundary between Eastern and Western New England (shown in orange on this map). Yellow spots represent speakers whose pronunciation of *chair*, according to LANE, contained any degree of rhoticity at all; this includes those transcribed as containing [r] or the rhoticized vowel [ə̃], and those whose final vowels were transcribed with a diacritic that was defined as representing “r-coloring”. Dark brown spots represent complete absence of [r] or r-coloring.

It is noteworthy that, for the most part, where the East/West settlement line is east of the yellow rhoticity isogloss on Map 4, it is in southern New England, around the major cities of Hartford and Springfield, whereas where the yellow isogloss is east of the East/West boundary, it is in the sparsely populated areas of northwestern Massachusetts and Vermont. This suggests that we can regard nonrhoticity as an urban prestige feature having spread from Boston, which expanded slowest in rural areas out of touch with urban culture, and was able to cross regional boundaries to reach cosmopolitan Hartford and Springfield as a prestige feature from the culturally influential Eastern regions. This analysis gains support from the fact that, even deep within Western New England and behind the yellow isogloss, the university city of New Haven shows complete nonrhoticity. (New Haven notwithstanding, the yellow isogloss is a fairly clean one, with 87% homogeneity and 75% consistency.)



Map 4. Rhoticity versus the Eastern/Western New England border.

The motivation for tense-lax neutralization, I will argue, lies in rhoticity and its relation to English syllable structure. Wells (1990) has argued, on the basis of such facts of English phonology as aspiration of voiceless consonants and shortening of pre-voiceless vowels, that consonants that follow

stressed syllables tend preferentially to be syllabified as codas, rather than onsets—in other words, that stressed syllables tend to maximize the number of consonants they contain, in both directions. Others have argued that such consonants are ambisyllabic. The important part for the relevance of rhoticity to tense-lax neutralization here is merely that a consonant in English ends up at least partly syllabified with a preceding stressed vowel.

What does this mean, then, in a rhotic dialect? Well, in words like *Mary*, *merry*, and *marry*, the medial /r/ will be syllabified with the preceding stressed syllable. This places /r/ right up against the vowel, within a single syllable, producing tautosyllabic /ehr/, /er/, and /æɾ/. Two of these are a problem—English does not ordinarily allow /r/ codas after short vowels, as we can see from the absence of words ending in /er/ or /æɾ/ or containing /er/ or /æɾ/ followed by a consonant. So rhotic dialects that distinguish *merry* and *marry* from *Mary* are in an unstable situation: the rules of English syllabification force them to have a tautosyllabic sequence that other phonological rules forbid, or at least regard as very highly marked. The resolution, of course, is tense-lax neutralization: the nuclei that are not allowed to precede /r/ begin to be replaced with the closest vowel that can: /e/ and /æ/ with /eh/, and so on. When a dialect has reached the point at which all originally short vowels before /r/ have been replaced by the corresponding tense vowels, the instability in the phonology is gone.

Compare now the situation in a nonrhotic dialect. Here /r/ is not allowed to be in a coda at all. This means that, where in rhotic dialects the /r/ in *Mary*, *merry*, and *marry* ends up syllabified by rule into the coda, in nonrhotic dialects that rule is blocked by a stronger one, and /r/ never enters the coda. The result is that there is still a syllable boundary between the stressed vowels of *merry* and *marry* and the /r/, so rules such as the one forbidding tautosyllabic /er/—if we even had reason to suspect that such a rule existed in a dialect that forbids coda /r/ anyway—never have a chance to apply. In other words, whereas in rhotic dialects the presence of the /r/ can cause the /e/ and /æ/ to be replaced by /eh/, in nonrhotic dialects the /r/ never gets close enough to the vowel to trigger that. (Elsewhere [Dinkin 2005] I have worked out a set of Optimality Theory constraints which formalize this analysis.)

This, finally, explains the hole we observed in the tense-lax neutralization isogloss around Hartford. Recall from Map 2 how the red TLN isogloss, which is very close to the East/West line at the northern and southern edges of Connecticut, swerves westward in central Connecticut to exclude Hartford and some nearby towns. If rhoticity pushes a dialect in the direction of tense-lax neutralization, then the fact that Hartford is non-rhotic can explain why it remains outside the tense-lax neutralization isogloss.

I am certainly not claiming that nonrhoticity blocks tense-lax neutralization from occurring at all—observe for instance the group of four towns between Hartford and Springfield that fall outside the yellow isogloss but show *merry-Mary* mergers, as well as the fully nonrhotic Maine–New Hampshire wedge—but it does produce a phonological system without such strong pressure towards the origination of neutralization as the rhotic dialects have. Once tense-lax neutralization has originated in a rhotic region, it can spread into a neighboring nonrhotic region with which it is in close contact, as in northern Connecticut. In the Maine–New Hampshire wedge, the cultural pressure that Nagy describes takes the place of the phonological pressure exerted by rhoticity.

We cannot, of course, ignore the role played by the variable that we previously identified as relevant to tense-lax neutralization, namely monophthongal /ehr/. Although rhoticity produces a phonological environment favorable to tense/lax neutralization, we've already observed that tense-lax neutralization does not spread through a region with diphthongal /ehr/. While a rhotic dialect has phonological pressure towards eliminating /e/ and /æ/ before intervocalic /r/, it takes monophthongal /ehr/ to give such a dialect an easy way of relieving that pressure. In dialects with diphthongal /ehr/, though there may be pressure from a rhotic syllable-structure system, a merger of /ehr/ with /e/ before /r/ is too phonetically drastic to be readily accomplished and spread through a region.

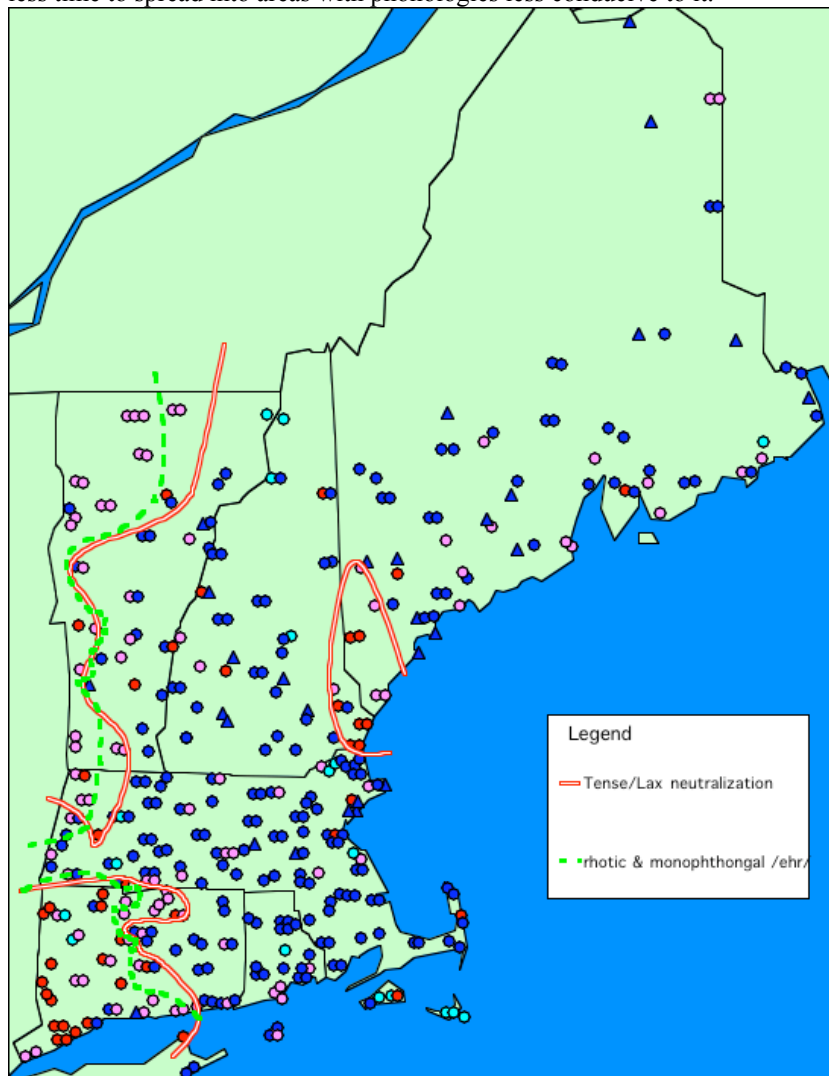
Meanwhile, the merger of /e/ before /r/ with /ehr/, spreading through the monophthongal-/ehr/ population, leaves another asymmetry in the phonology, in that different short lax vowels now have different possible distributions: /æ/ can appear before intervocalic /r/, and /e/ cannot. In the most advanced regions of tense-lax neutralization—the Maine–New Hampshire wedge, and along the Housatonic in Connecticut<sup>8</sup>—this asymmetry is resolved by merging /æ/ before /r/ with /ehr/ as well.

The importance of both rhoticity and monophthongal /ehr/ to tense-lax neutralization is demonstrated by the fact that the red isogloss of Map 1 is, on the whole, closer to the boundary of the intersection of the regions enclosed by the monophthongal-/ehr/ and rhoticity isoglosses (Map 5) than it is to either of the isoglosses on its own. This is especially distinct in central

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<sup>8</sup> This suggests that tense-lax neutralization in Western New England may have originated around Bridgeport, Conn., and spread north from there. Since speakers with a full *marry-merry-Mary* merger (red spots on Map 1) are so sparse in Vermont compared with partially merged speakers (pink spots), we can hypothesize that TLN is much newer in Vermont than in Connecticut; this supports the radical hypothesis mentioned above that TLN may have spread north from Connecticut to Vermont through New York.

Vermont, which further supports the hypothesis (see footnote 8) that tense-lax neutralization is newer in Vermont than in Connecticut, and thus has had less time to spread into areas with phonologies less conducive to it.



Map 5. The dotted green line marks the region within both the green isogloss of Map 3 and the yellow isogloss of Map 4.



There are, of course, pink and even red spots outside both the green isogloss of Map 3 and the yellow isogloss of Map 4—that is to say, to the extent that these spots are not the result of noise in the data, there are occasional speakers with partial or total tense-lax neutralization even in nonrhotic, monophthongal-/ehr/ regions. Indeed, even in nonrhotic dialects there is an asymmetry in the phonology which would be resolved by tense-lax neutralization. For, if /r/ in nonrhotic accents cannot be syllabified into a coda, that implies that nonrhotic *marry*, *merry* contain syllable-final /æ/, /e/. There is a rule in English which forbids word-final stressed short vowels, and, inasmuch as this sets up an asymmetry between word-final syllables and other syllables, speakers may be moved to generalize this rule to exclude any syllable-final stressed short vowels. If some nonrhotic speakers fully carried out this generalization, syllable-final /æ/, /e/ would be excluded in *marry* and *merry*, and TLN in a nonrhotic dialect would result. However, since this neutralization fails to spread even in a monophthongal-/ehr/ region like Rhode Island, it must be that this process of generalization is a weaker tendency than that against tautosyllabic /æɾ/, /eɾ/ in rhotic dialects.

#### 4. Possible Areas for Further Research

If there exists sufficient unambiguous data on the other vowels that can undergo tense-lax neutralization—namely, /i/~ihr/, /o/~ohr/, and /ʌ/~əhr/—it could be used to determine if the different tense-lax neutralizations all occurred in the same regions and at the same time. This study's findings predict that all tense-lax neutralizations should be found to greater or lesser degree in rhotic regions, since all of the short vowels are equally unavailable before coda /r/, but that those mergers that cover a greater phonetic distance, such as /æ/~ehr/, should be less pervasive and cover a smaller area. Looking at the /o/~ohr/ merger could be especially interesting in that it might give us a glimpse at the relative chronology of tense-lax neutralization versus the various mergers with /ah/ and /oh/ that /o/ has undergone in various regions; after such a merger has occurred, /o/ is no longer a lax vowel and might therefore be able to avoid undergoing tense-lax neutralization before /r/. Such an enterprise would be challenging, however, because the various fieldworkers who gathered the data for LANE followed differing standards regarding transcription of low vowels.

Evidence for or against the claims made in this paper could be gathered by studying tense-lax neutralization in other areas of the country, such as historically nonrhotic New York and rhotic Philadelphia; if Philadelphia shows more advanced tense-lax neutralization than New York, it would support the claims made here regarding the influence of rhoticity. New York

and Philadelphia also contain an added complicating factor, the tense phoneme /æh/, which does not appear as itself before /r/ but may or may not be merged with /eh/; the interactions between the more robust tense ingliding system and tense-lax neutralization could yield new insights.

I allude briefly in a couple of places in this paper to the fact that throughout the diphthongal-/ehr/ region (outside the green isogloss of Map 3), some speakers produce /ehr/ in *Mary* with an inglide and some with an upglide, which suggests that some speakers identify the nucleus of this vowel with /ey/ and others do not. This is all within the region of little to no tense-lax neutralization, but what influence the presence of this divergence of diphthongs might have had on the later spread of tense-lax neutralization, the sporadic cases of neutralization outside the red isogloss of Maps 1 and 5, and the identification or non-identification of the /ehr/ in *Mary* with that in *chair* could also be a fruitful area for further pursuit.

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