

## When PALMS are in your THOUGHTS, you head south:

### Evidence for diffusion of the low-back vowel system from New York to New Orleans

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#### Abstract

In New Orleans, there is a white, working-class dialect of English, sometimes called “Yat”, that has several notable similarities with that of New York City. These similarities have been argued to be the result of 19th-century dialect contact between residents of the two cities. This paper examines the PALM vowel in New Orleans and argues that it too shows evidence of diffusion from New York around this time period. Words of the PALM lexical set that have been part of the English lexicon since before the 19th century, such as *father* and *calm*, are found to be merged with the THOUGHT phoneme in New Orleans, while more recent PALM words such as *garage* are merged with LOT. A handful of traditional LOT words, such as *John* and *god*, are also sporadically attested with the THOUGHT phoneme. Since traditional New York City English also possesses a PALM vowel backer than LOT, with words such as *John* and *god* variably included in it—a pattern that is not widely found in other dialects closely connected to New Orleans English—the findings are interpreted as further evidence for dialect diffusion from New York to New Orleans.

**Keywords:** Vowel mergers, dialect contact, New Orleans English, father-bothmer merger

#### Introduction

Low-back vowel systems in American English have been the site of much inquiry recently (Dinkin 2011, 2016; Becker 2019; inter alia), due to the overwhelming spread of the low-back merger across disparate regions of the US. In New Orleans English (NOE), there is evidence of a change in progress towards a LOT-THOUGHT (or low-back) merger (Carmichael 2014), despite NOE’s notably raised THOUGHT vowel, which Labov (2007: 365) describes as “uncommon in the South.” Indeed, raised THOUGHT in combination with several other features shared with New York City English (NYCE) led Labov (2007) to argue that the presence of these features in NOE was the result of dialect diffusion from NYCE. According to Labov (2007), the results of diffusion of phonological change from one speech community to another differ from those of intra-community language transmission in terms of the patterns visible in the recipient community; typically, diffusion is characterized by structural simplification by which certain constraints on variation are absent or weakened. This, Labov argues, is due to the fact that diffusion takes place as a result of contact between adults, and adults’ capabilities for language acquisition are less plastic than those of children; thus adults are incapable of faithfully acquiring complex phonological systems in full. Carmichael & Becker (2018) followed up on Labov’s argumentation, comparing contemporary NOE and NYCE via constraint ranking analysis, ultimately also arguing in favor of diffusion on the basis of variation in rhoticity, though variation in THOUGHT height did not present compelling evidence of diffusion. In this

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paper, we demonstrate that only through examining the full low-back system of NOE—THOUGHT, LOT, and PALM—does the evidence in favor of diffusion become clear.

We examine the speech of 57 participants from the white, working-class New Orleans suburb of Chalmette. Chalmette represents a linguistic enclave in which local “Yat” features—those representative of the white, working-class norm from the mid-twentieth century to the early twenty-first century—have been retained longer than in other parts of the New Orleans area, where many individuals have shifted away from these iconically “New Yorky”-sounding features (Carmichael 2014). Examination of this group is key to the analysis, since the shift towards the low-back merger is much more advanced in New Orleans proper (and indeed, even in the Chalmette sample the youngest participants feature merged or nearly merged low-back vowels). Based on visual assessment of vowel plots in which THOUGHT, LOT, and PALM were identified, we conclude that many unmerged LOT-THOUGHT speakers feature PALM apparently merged with THOUGHT in words that are not recent borrowings or coinages. Such a pattern is uncommon throughout much of the rest of the US; however, PALM backer than LOT is attested in NYCE (Newman 2016), leading us to hypothesize that the low-back system of NOE is a result of contact between NYCE and NOE speakers in the 1800s, when Carmichael & Becker (2018) propose contact to have occurred, after which the diffused system with backer PALM eventually led New Orleanians to merge PALM with THOUGHT. We end by considering what other data is still needed in order to confirm or refute the hypothesis of NYCE diffusion to NOE.

### **New Orleans–New York connection**

New Orleanians frequently report being mistaken for New Yorkers, and linguists have theorized about this perceived similarity as well. While a popular folk theory posits that the similar immigrant populations in New York City and New Orleans (namely, Irish and Italian immigrant groups) landed upon similar pronunciations (e.g. Champagne 2012), linguists have found this theory challenging to substantiate on either historical or linguistic grounds. Focusing on specific shared features such as raised THOUGHT, variable nonrhoticity, a split short-*a* system, and palatalization of the NURSE vowel (as in the famous “thoity-thoid street” example), linguists have put forth theories about a historical relationship between New York City English and New Orleans English: Berger (1980) argued for the adoption of palatalized NURSE pronunciations by New Yorkers influenced by Southerners, while Labov (2007) and Carmichael & Becker (2018) presented evidence from raised THOUGHT, variable nonrhoticity, and the split short-*a* system to argue in favor of diffusion of features from New York to New Orleans.

Berger (1980) draws attention to the maritime connection between the American South and New York, pointing out both the contact amongst Southerners and New Yorkers on the docks during a period of heavy maritime trade between 1820 and 1860, and the relative prestige of the variably nonrhotic Southern accent during this time. Berger ultimately argues that the palatalized NURSE pronunciation that was first documented in NYC by Babbitt in 1896, and over the next century rose to the level of a stereotype and then went into disuse in the city, was adopted from Southern nonrhotic realizations of this vowel class. Much of this argument is dependent on written documentation of pronunciations—which are sparse—and puts forth hypotheses about both the social value of certain pronunciations and the level of contact between users of these dialects. Dillard (1985) echoes this account, describing the proposed “maritime Englishes” that he suggests existed on the docks of New Orleans, which he argues were spoken amongst workers from varied backgrounds and locales.

Labov (2007) presents the first empirical examination of the New York–New Orleans connection via recordings of New Orleanians from the *Atlas of North American English* (Labov, Ash, & Boberg 2006), noting striking similarities in the split short-*a* system in particular to argue for diffusion from New York to New Orleans. In this paper, Labov compares a number of short-*a* systems throughout the US which resemble New York’s, but which feature certain simplifications in terms of constraints. He theorizes that these simplifications are part of the process of diffusion of one regional dialect to a new locale—a sort of imperfect replication of the phonological pattern of the source community. And indeed, Payne (1980) has demonstrated that the split short-*a* system in Philadelphia, which has notoriously idiosyncratic constraints, is not faithfully transmitted across generations without both parents having acquired it natively, suggesting that similar processes of “imperfect” transmission can occur even within a single locale if the input is not consistent on a community-wide level. Thus Labov does not take issue with Berger’s hypothesis that the presence of similar features between New York and New Orleans is the result of contact; however he proposes an alternative version of the events, drawing on a handful of historical sources as well as the gravity model (Trudgill 1974) to argue that the bigger city (in this case New York) would be the likely source of the borrowed/diffused features.

Carmichael & Becker (2018) follow up on Labov’s work by using a constraint ranking comparison analysis with two comparable contemporary samples of New York City and New Orleans English, focusing on nonrhoticity and raised THOUGHT. In constraint ranking analysis, models of variation are generated and constraints on that variation are compared between two dialects; highly similar constraints and constraint ordering suggest a shared origin (Poplack & Tagliamonte 2001; Nagy & Irwin 2010). The constraints for nonrhoticity in NYCE and NOE are nearly identical, save for a function word constraint which was active in the New York City sample, but not in the New Orleans sample; in other words, the models produced a textbook example of diffusion according to Labov’s definition, in which constraints were highly similar with one dialect featuring a simplification or omission of a constraint. The case for THOUGHT was less straightforward, with few shared constraints on THOUGHT-raising, leading Carmichael & Becker to posit that this variation had arisen independently in both locales but was perceptually “packaged” as part of the New Yorky sound by those hearing the New Orleans accent. Carmichael (2020) presented additional evidence in favor of the split short-*a* system having diffused from New York, calling for further analysis in order to challenge or substantiate such claims.

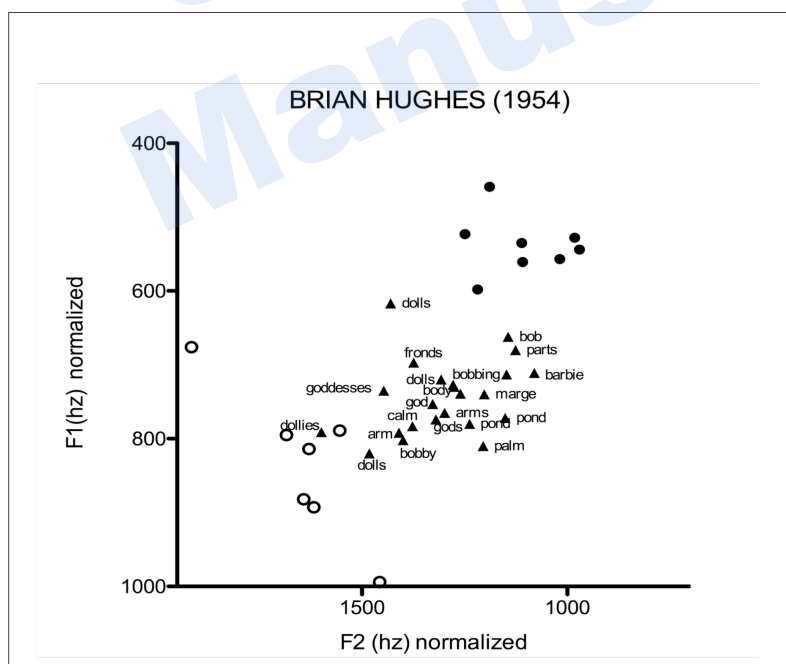
### **PALM-LOT in the US**

The LOT-THOUGHT merger is a widely studied change in progress throughout American English; change in progress toward merger is ongoing in most regions of the US, including New Orleans (Carmichael 2014). The PALM-LOT merger (sometimes also called the FATHER-BOTHER merger) is less frequently studied, in part because it is believed to be complete or nearly complete across all of North American English. That is, in most regions LOT-THOUGHT merger actually means that THOUGHT is merging with the already-merged PALM/LOT category. The PALM class includes a relatively small cluster of words, from a handful of different sources (Wells 1982, Newman 2016, Labov et al. 2006): the lengthening of Middle English *a* or *au*, usually before *l* as in *palm* and *calm* though exceptionally in a few other words such as *father*; a few “onomatopoeic and affective forms” (Labov et al 2006:14) such as *blah* and *tra la*; and a larger category of loanwords in which the PALM vowel is used to adapt a foreign language’s *a* vowel, such as *plaza* and *garage*—although many such words use the TRAP vowel instead in one or more regional varieties

(Boberg 2009). It may in part be a result of the small size of this class of words that PALM's merger with LOT is so widespread in North American English. In Labov et al. (2006:171), it appears that only about eight out of 310 speakers interviewed in the 1990s for whom the PALM vowel was analyzed maintained a clear contrast between PALM and LOT: five in Eastern New England, two in New York City, and one outlier in Lexington, Kentucky.

In Eastern New England, the region in which the PALM-LOT distinction is most broadly attested in recent decades, the difference between the two phonemes (for speakers who maintain it) is that PALM is fronted, while LOT is back and merged with THOUGHT. Labov et al. (2006) find five speakers maintaining the distinction out of the six in Eastern New England for whom the contrast was analyzed, born between 1919 and 1980. The contrast in New England is perhaps reinforced by the presence of non-rhoticity, which expands the PALM class by merging START with it, and by the so-called broad-*a* system, which transfers several words with historical short-*a*, such as *half* and *can't* (the GLASS word class of Wells 1982), into the PALM category. Stanford (2019), however, finds change in progress toward the PALM-LOT merger (and rhoticity) in Eastern New England, with the broad-*a* system moribund.

In New York City, unlike Eastern New England, speakers who distinguish PALM from LOT do so by having the PALM vowel backer than LOT. Labov et al. (2006:171) show two out of five speakers from New York City making this contrast. Newman (2016) examines this contrast in New York in more depth, and notes that in New York the PALM class is expanded by non-rhoticity as well as by the transfer of many words with historical LOT before voiced codas, such as *god*, *job*, and *doll*, into the PALM class. Also unlike Eastern New England, New York retains the LOT-THOUGHT contrast; for those speakers for whom PALM is separate from LOT, it occupies its own area of phonetic space in between LOT and THOUGHT. This pattern can be observed in Figure 1, from Newman (2016:134) in which THOUGHT is indicated by closed circles, LOT open circles, and PALM triangles.



**Figure 1: Distribution of PALM words between LOT and THOUGHT in New York City vowel system**  
(adapted from Newman 2016)

Johnson & Durian (2017), examining archival data from Kurath & McDavid (1961), find evidence that the PALM-LOT distinction was relatively robust along the East Coast in the early part of the 20th century; this implies that the current situation of widespread merger may be a fairly recent development. Using data collected in the 1930s and 1940s, Kurath & McDavid (1961) report that PALM at that time tended to be backer than LOT in the New York City area and the upper South from Maryland to North Carolina, but fronter than LOT in New England and the lower South from South Carolina to Georgia. Johnson & Durian also note that, for a handful of “cultivated” speakers from eastern Virginia for whom Kurath & McDavid (1961:73, 76, 79–80) provide more detailed transcriptions, PALM and THOUGHT appear to be merged, contrasting with a distinct LOT. But by the present day, the PALM-LOT contrast appears to have been lost for the most part outside of New York City and eastern New England, in both of which it is rapidly disappearing.

Since New York is one of a very small number of regions reported to still maintain the PALM-LOT contrast, and New Orleans has been found to share a great number of dialect features with New York, including features that are unusual in the American South, the status of the PALM vowel in New Orleans English is a subject of potential research interest. Johnson & Durian (2017:266) presented the claim that PALM-LOT contrast is preserved in New Orleans, but offered no references or evidence. Therefore the goal of this paper is to examine the PALM vowel in detail in New Orleans English, to determine its status and potential insights into the New York-New Orleans connection.

## Methods

The data for this study come from audiorecorded interviews with 57 English speakers born and raised in the Greater New Orleans suburb of Chalmette. Chalmette is locally known as a bastion of traditional “Yat” features that closely resemble NYCE, such as raised THOUGHT, a split short-*a* system, and nonrhoticity (Mucciaccio 2009; Carmichael 2014). Thus this sample of linguistically conservative speakers allows us to examine the relationship of PALM to LOT and THOUGHT amongst speakers for whom the latter two are mostly unmerged.

In the remainder of this paper, we will continue to use the Wells (1982) lexical set names PALM, LOT, and THOUGHT to refer to historical diaphonemic classes of words (though our THOUGHT class includes both Wells’s THOUGHT and CLOTH classes, which are not differentiated in American English). To identify the synchronic phonemic incidence of individual words in the production of NOE speakers, we will use IPA-like phonemic symbols /ɑ/ (for the LOT phoneme) and /ɔ/ (for the THOUGHT phoneme); this will enable us to unambiguously describe when a speaker uses a phoneme at variance with a word’s historical classification, as such as by producing a LOT word with /ɔ/.

Interviews were completed by the second author in 2012 using a Handy H4 Zoom recorder with a Shure SM10A headset on the interviewee, ensuring high-quality sound despite recordings taking place “in the field” (generally in participants’ homes or in public spaces). Thirty- to forty-five-minute portions of free-flowing speech were selected for each participant, manually transcribed, and then automatically force-aligned using the Montreal Forced Aligner (McAuliffe et al. 2017) and hand-checked for errors. F1 and F2 measurements at the midpoint of each vowel were then extracted using a Praat script. Outliers,

characterized as tokens with F1 and/or F2 measurements greater than two standard deviations above and below the mean 25% and/or 75% of the F1 and F2 measurements across the corpus, were removed. All data points with a duration less than 0.05 seconds were excluded to avoid vowel reduction, and only the first three tokens of any given word were included in the final dataset to combat oversampling of more frequent words. Tokens preceding /r/ or following /w/ were excluded due to coarticulatory effects. The resulting data represented 4,054 vowel tokens, which were Lobanov-normalized and plotted in F1/F2 space using R.

Initial coding of tokens into the THOUGHT and LOT categories was completed according to the classification of the Montreal Forced Aligner. While many of these categorizations appear accurate for New Orleans English, it was clear upon visual examination that New Orleans English THOUGHT and LOT categories for unmerged speakers required some closer inspection. The first and second author both visually examined vowel plots and reviewed the list of lexical items in the data to make some broader changes to classification, which can be found in Appendix A. Namely, frequently reduced morphemes such as *-body* and *-cause* were removed from the corpus, as were certain frequently reduced function words (e.g. *was*). Some words initially coded as LOT, such as *boss* and *coffee*, were re-coded to THOUGHT. A handful of initially-THOUGHT words, such as *golf* and *drop*, were re-coded to LOT. Our aim here was to code words based on the historical lexical set they belong to, rather than their synchronic phonemic incidence in the individual tokens of our corpus. Finally, and most crucially, the Montreal Forced Aligner's output does not have a phonemic category for PALM words, coding them mostly as LOT. The first author, a native speaker of Eastern New England English with a distinct PALM phoneme, examined the list of lexical items coded as LOT or THOUGHT, identified those belonging to the PALM class, and recoded them as a distinct lexical set. The fact that several words apparently produced with /ɔ/ by speakers in the data were coded as LOT by the forced aligner and then recognized as PALM words by the first author is the observation that motivated this paper.

Where possible, the first author's judgments of which words belong to the PALM class were corroborated by comparison with the 1956 *Webster's New Collegiate Dictionary*, a conservative dictionary that reliably represents the three-way THOUGHT/LOT/PALM contrast. Not all words coded as PALM are listed in *Webster's* (1956) at all (omissions include several proper nouns such as *Vietnam*, as well as a handful of recent loanwords such as *taco* and informal words such as *yada yada yada*); but there were no words classified as PALM by the first author on which the dictionary disagreed.<sup>1</sup> The closest to a discrepancy is the word *Panama*, which *Webster's* (1956) transcribes as variably containing either the PALM or THOUGHT vowel; we treat *Panama* as a PALM word in this paper.

No speaker in the data appeared to have PALM words in a phonemic class of their own separate from both LOT and THOUGHT, as has been reported for some speakers in New York City (Newman 2016). Each token of a PALM word (or certain LOT words, as discussed below) was therefore coded for whether the vowel was produced as /a/ or /ɔ/, based on visual inspection of F1/F2 plots—i.e., whether a given

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<sup>1</sup>We classify the final syllable of *restaurant* as belonging to the LOT class, based on the first author's native-speaker judgments. However, its status as a loanword containing orthographic *a*—a typical source of PALM words—suggests that it might be construable as a PALM word in at least some dialects. *Webster's* (1956) unhelpfully identifies the final syllable of *restaurant* as containing an unstressed TRAP vowel; however, it does suggest PALM to be a possibility for British English. Therefore it is not entirely clear which is a better classification of this word in the current data.





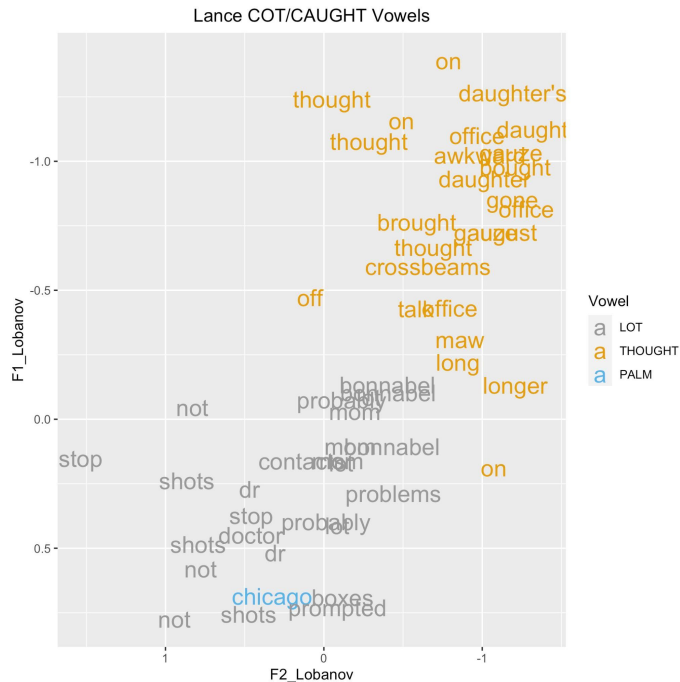


Figure 5: Lance, male, b. 1982 with /a/ in PALM word *Chicago*

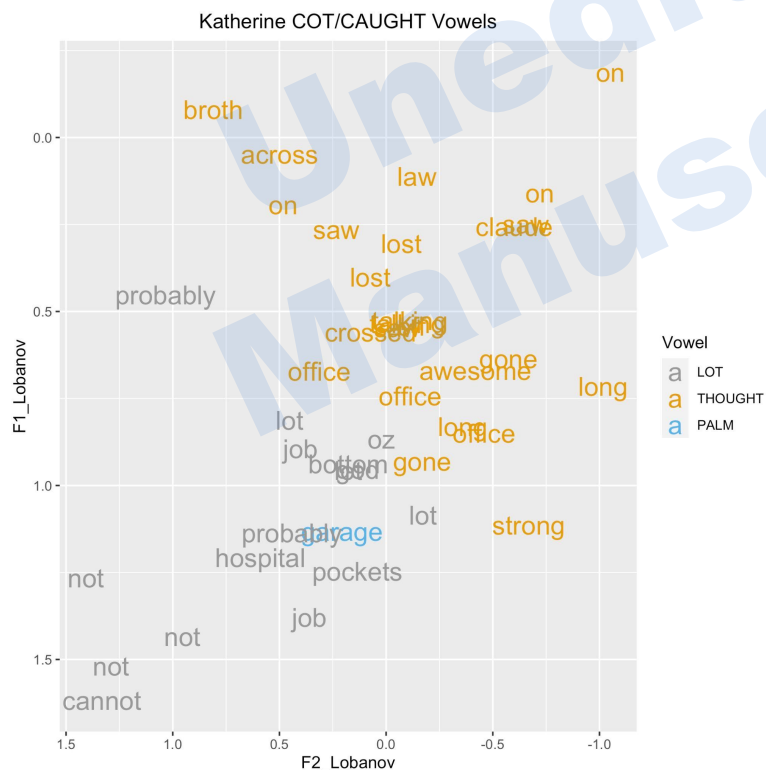


Figure 6: Katherine, b. 1955 with /a/ in PALM word *garage*

Although these plots may look at face value to present varied categorization of PALM vowels, below we argue for consistency across the corpus in terms of which words are produced with /a/ and which with

/ɔ/. Within the corpus, we identified 35 lexical items in the PALM class, ranging from *father*, produced by 13 speakers, to a variety of infrequent words such as *debacle*, produced by only one speaker. Table 1 shows how many speakers produced each PALM-class word with /ɑ/, with /ɔ/, or ambiguously; the table represents the number of speakers, rather than the number of tokens, because, in the event that a single speaker produced multiple tokens of the same word, intra-speaker variation in the incidence of /ɑ/ and /ɔ/ in these words was not observed. In the event that a speaker produced one ambiguous token of a given word but other unambiguous tokens of the same word, they are classified based on the unambiguous tokens.

	ɑ	ambiguous	ɔ
<i>Andrea</i>	1		
<i>aunt</i>		1	
<i>Botswana</i>		1	
<i>brah</i>	1		
<i>calm</i>		1	3
<i>camouflage</i>	1		
<i>Chicago</i>	1		
<i>debacle</i>	1		
<i>drama</i>		2	
<i>façade</i>	1		
<i>father</i>		2	11
<i>fiancée</i>	1		
<i>garage</i>	7	1	
<i>Gonzalez</i>	1		
<i>grandfather</i>		2	9
<i>grandma</i>	1	1	9
<i>grandpa</i>		1	6
<i>(Mardi) Gras</i>		1	1
<i>Gustav</i>		2	
<i>Java</i>	1		
<i>Lafayette</i>		2	
<i>ma</i>	3	2	

<i>mama</i>	1		
<i>mawmaw</i>			2
<i>montage</i>	1		
<i>nacho</i>	1		
<i>pa</i>		1	
<i>Panama</i>		1	1
<i>papa</i>		1	1
<i>pecan</i>			1
<i>Raleigh</i>		1	
<i>taco</i>	1		
<i>tsunami</i>	1		
<i>Vietnam</i>	1		
<i>yada yada yada</i>	1		

**Table 1: PALM words produced with /a/, /ɔ/, and ambiguous realizations, enumerated according to speaker**

Although Table 1 illustrates that PALM words in New Orleans may be realized with either /a/ or /ɔ/, it actually shows little evidence of inter-speaker variation. Despite the relatively large number of ambiguous productions (23 out of a total of 94), the lexical items for which multiple speakers were unambiguous exhibit remarkable consistency. Only one word, *grandma*, had tokens coded as both /a/ and /ɔ/, and the one token coded as /a/ was from a speaker who both (a) was quoting another person's speech, and therefore may not have been performing her own pronunciation, and (b) produced the word with an unstressed final syllable, which may have caused the vowel to be reduced. Overall, as far as we can tell, it appears that New Orleans English speakers are in agreement on which PALM words contain /a/ and which /ɔ/.

There is no clear phonological pattern as to which PALM words contain which phoneme. The /ɔ/ words include several words in which the PALM vowel is word-final (e.g., *grandma*, *grandpa*, *Mardi Gras*), but *ma* and *brah* (the clipped form of *brother*, not of *brassiere*) are found with /a/. In *calm* and *pecan*, the PALM vowel appears as /ɔ/ followed by a final nasal consonant; but *Vietnam* contains /a/. *Father* and *grandfather*, containing /ɔ/, have no precise phonological parallel on the /a/ side, but /a/ is found preceding voiced fricatives in *garage*, *Java*, and others. Despite the intra-word consistency, the incidence of /a/ and /ɔ/ in PALM words does not appear to be governed simply by phonological principles.

Most of the PALM words containing /a/ are represented by only one token in the data, and many of them are recent or infrequently-used loanwords such as *debacle* or proper names such as *Java*.

*Garage* and *ma* are the only PALM lexical items attested more than once in which the vowel is /a/. In the /ɔ/ category, there are several repeatedly-appearing words, but the place name *Panama* (which Webster's 1956 potentially assigns to the THOUGHT category) and the loanword (*Mardi*) *Gras* appear here as well.

While many PALM words containing /a/ appear to be relatively recent loanwords, the /ɔ/ group includes words of long standing in English, such as the native English word *father*, inherited directly from Indo-European via Old English, and the Middle English *calm*, borrowed from French. We can investigate this pattern more systematically by consulting the *Oxford English Dictionary* to find the eras in which these words (excluding proper names) entered English. Of the PALM words in which /ɔ/ appears—*calm*, *father*, *grandfather*, *grandma*, *grandpa*, *Mardi Gras*, *ma(w)ma(w)*, *pa(w)pa(w)*, and *pecan*—the *OED* has attestations for all prior to the year 1800. Of the PALM words in which /a/ appears, all but one have their earliest *OED* attestations later than 1800, ranging from *debacle* (1802)<sup>3</sup> to *yada yada yada* (1981)<sup>4</sup>; the only exception is *façade* (1656). Although the *OED*'s dates of citation are not necessarily reliable reflections of the specific years in which a word entered the language, the pattern is clear: PALM words with a longer history of use in English tend to have their vowel identified with /ɔ/, while more recent PALM words have the vowel identified with /a/.

The corpus of vowel measurements of the *Atlas of North American English* (Labov et al. 2006) includes a handful of speakers from New Orleans, one of whom produced PALM tokens. This speaker—Edith G., a 38-year-old white woman interviewed in 1996—differs from the pattern shown in the current data in that she produces *Chicago* with /ɔ/ and *almond*, a PALM word of long standing in English, with /a/. However, Edith appears to be from New Orleans proper, rather than the linguistically conservative community of Chalmette that is the source of the current data, and may therefore be less representative of the traditional New Orleans vowel pattern.

Aside from the PALM words above, we also observed several LOT words manifesting regularly or sporadically with /ɔ/; in most of these, the key vowel was followed by a voiced coda consonant. Since LOT words are variably transferred to the PALM class in New York City when followed by a voiced coda consonant (Newman 2016), we examined the incidence of /a/ or /ɔ/ in the current data in words of that type as well. To keep the number of lexical items tractable, we restrict our attention to LOT words in which the vowel is followed by a voiced coda consonant in a (primary or secondary) stressed final syllable. 28 such lexical items are attested in the data; compounds such as *godmother* are grouped with the lexical item *god* for the purposes of this analysis. We exclude from analysis the word *on*, which contains /ɔ/ throughout the entire southeastern super-region, not just New Orleans (Labov et al. 2006), and *mom*, which was frequently mismeasured by the formant extractor and was therefore difficult to classify. Eleven of the remaining words are attested in the data with /ɔ/ in one or more tokens; they are listed in Table 2, again counting by numbers of speakers rather than numbers of tokens.

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<sup>3</sup> *Debacle* is attested from 1802 as a technical term from geology meaning 'a breaking up of ice in a river'; the *OED*'s earliest citation of the perhaps more widely-used metaphorical sense is from 1847. Excluding the technical sense of *debacle*, the next earliest-cited PALM=/a/ word is actually *ma* (1823).

<sup>4</sup> Arguably *brah*, the clipped form of *brother*, is the most recent. The word is attested in the *OED* from 1869; however, *OED* suggests that *brah* arose independently in several different regions, including the Caribbean, South Africa, and Hawaii, and the word's earliest reported attestation from the U.S. is dated to 1997.

	LOT	ambiguous	THOUGHT
<i>Chevron</i>			1
<i>doll</i>	1		2
<i>Exxon</i>	1		2
<i>futon</i>	1		1
<i>god</i>	24	3	4
<i>golf</i>		1	3
<i>involved</i>			7
<i>John</i>	4	2	1
<i>restaurant</i>	2	8	8
<i>salon</i>			1
<i>solve</i>		1	1

**Table 2: Speakers producing LOT words with /ɔ/**

The 15 voiced-coda LOT words which no speakers unambiguously produced with /ɔ/ include *beyond*, *Bob*, *bomb*, *(dot) com*, *con*, *don*, *iPod*, *job*, *odd*, *pond*, *prompt*, *response*, *rob*, *Ron*, and *Oz*. All except *job* were produced by between one and five speakers; *job* was produced by 27, of whom only five had ambiguous productions and the other 22 unambiguously used /a/.

The distribution of /ɔ/ in LOT words in Table 2 differs in some respects from that of /ɔ/ in PALM words in Table 1. Unlike PALM words, LOT words do show some apparently phonologically-conditioned patterning. In nearly all of the LOT words in which /ɔ/ is attested, the vowel is followed by /l/ or /n/; the only exception is *god*. LOT words in which the vowel is followed by /l/ (*doll*, *golf*, *involved*, *solve*) are produced with /ɔ/ almost categorically. On the other hand, following /n/ conditions /ɔ/ only inconsistently: of 12 LOT words with the vowel followed by /n/, only six are attested with /ɔ/; of those six, all that are attested by more than one speaker show some variation between /a/ and /ɔ/. This also contrasts with PALM words, in which virtually no inter-speaker variation was found.

The regular appearance of /ɔ/ for the LOT vowel when followed by /l/ is not surprising, and has been reported in other dialects as well. In Upstate New York, Dinkin (2016) finds *revolve*, *golf*, and *involve* produced with /ɔ/ categorically by speakers born later than 1957, with *doll* following some decades later; this finding is attributed to “phonological transfer”, with the pre-L environment anticipating the ongoing change toward the LOT-THOUGHT merger and leaping discretely from /a/ to /ɔ/. It seems as if the same phonological transfer has also taken place in the New Orleans area—no doubt helped along by the fact that, unlike Upstate New Yorkers, New Orleanians actually produce /ɔ/ lower (and thus closer to /a/) in the pre-L environment than elsewhere (Carmichael & Dinkin 2022).

The intermittent incidence of /ɔ/ in LOT words in the pre-*n* environment and *god*, however, is harder to explain in phonological terms. There is no attestation of /ɔ/ in LOT words before coda /m/ and /b/, even though a labial consonant might be expected to be a bit more likely to condition the rounded /ɔ/ phoneme (although recall the word *mom* was excluded from analysis). It is difficult to tell whether the LOT and PALM classes pattern together in the phonological conditioning of /ɔ/ incidence. One PALM word with coda /n/, *pecan*, is attested with /ɔ/; however, one PALM word with coda /m/, *calm*<sup>5</sup>, also appears with /ɔ/, unlike LOT words with coda /m/. The most robustly attested PALM word, *father*, shares its phonological environment with only one LOT word, *bother*; unfortunately, the only token of *bother* in the corpus was produced by a speaker with a large overlap of /ɔ/ and /ɑ/, and cannot be unambiguously classified as one or the other.

Thus we see in New Orleans English a pattern where certain PALM words—though far from all—appear to be consistently produced with /ɔ/; while certain LOT words with voiced codas appear with /ɔ/ occasionally. Apart from following /l/, which conditions /ɔ/ systematically in LOT words, there appears to be little phonological explanation for which words appear with /ɔ/ and which do not.

### According to Locals

While there is some awareness of raised THOUGHT in Greater New Orleans—evinced by commentary online, dialect performances, and eye dialect in comic strips (Carmichael & Dajko 2016)—there is not much commentary about the PALM class. There does appear to be some awareness of the incidence of /ɔ/ in specific LOT lexical items—in particular, *god* and *John*. This can be seen in dialect dictionaries, as in the Gumbo Pages “How to Tawk Right” page maintained by Chuck Taggart (<https://www.gumbopages.com/yatspeak.html>), in which the pronunciation of these two words warrants their entry alongside local lexical items such as *banquette* ‘sidewalk’ and *neutral ground* ‘median’:

GAWD - A supernatural deity, worshipped by most New Orleanians.

JAWN - The most popular boys' name in English, pronounced this way among Localese-speakers. Also, a pot ta [sɪc] pee in. Rhymes with "lawn"

We see here that the marked pronunciation is indicated by dialect spelling and indication of rhyme with THOUGHT words like *lawn*. Similarly, in Figure 7 we see a comic strip featuring ample dialect spelling in order to evoke the local accent, Bunny Matthews produces Saints coach John Fourcade’s name as “Jawn Fo’cade,” indicating pronunciation of *John* with /ɔ/ and *r*-less realization of *Fourcade*.

<sup>5</sup> Although some speakers of American English have /l/ between the vowel and /m/ in words like *calm* and *palm*, these three speakers produced no /l/ in *calm*; in fact their /ɔ/ in *calm* is much higher than their typical /ɔ/ before /l/ in words like *call*.

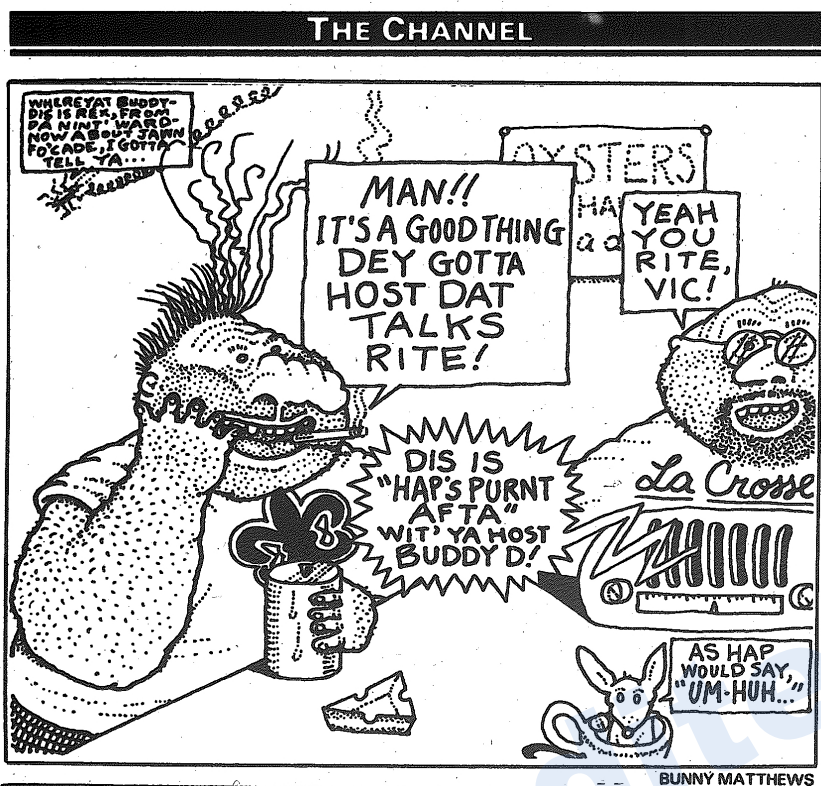


Figure 7: Vic & Nat'ly comic strip, by Bunny Matthews

Notably, several interviewees, when reading the minimal pair *guard-god* in the word list, differentiated these words not by pronouncing the *r* in *guard*, but by producing *god* with /a/, and then commenting that they might also pronounce this word /gɔd/ in conversation (identical to *r*-less *guard* in this dialect). One such interviewee followed this up by remarking that “instead of saying *John* /dʒən/ you know, we say *Jawn* /dʒɔn/,” again highlighting the iconic, shibboleth-esque value of these two particular LOT words in the local consciousness.

On the other hand, there is little evidence of overt awareness of the use of /ɔ/ in PALM words such as *father*. While *Gawd* and *Jawn* appear in eye-dialect spellings as their own entries on lists of New Orleans dialect words, *fawtha* or *fawther* (for *father*) does not get the same treatment, and the classic New Orleans-associated term *Mardi Gras* appears in its standard spelling. It is occasionally possible to find *fawtha* used as an eye-dialect spelling of the New Orleans pronunciation of *father* by people from outside New Orleans, attempting to render in text a feature of the New Orleans dialect that *they* find distinctive—e.g., a 2009 *Los Angeles Times* article (Fausset 2009) in which sports commentator Buddy Diliberto is quoted as saying “Da Fawtha, da Son and da Holy Ghost” in “a deep, garbled version of New Orleans’ Brooklyn-ish brogue”—but it is hard to find any evidence that New Orleanians themselves consider the presence of /ɔ/ in *father* to be a distinctive dialect feature. Notably, *mawmaw* ‘grandmother’ appears in some online lists of local terms<sup>6</sup>, spelled as such in order to indicate the

<sup>6</sup> For example, this entry: “MAW-MAW - Ya grandma” on <https://www.gumbopages.com/yatspeak.html> or this one: “Maw-maw (MAW-maw/m@-MAW) - grandmother. She's married to Paw-Paw” on <https://everything2.com/title/New+Orleans+vocabulary> noting the rhyming equivalent for grandfather.

pronunciation (and distinction from *mama* ‘mother’), but is generally treated as an intriguing lexical item rather than part of a broader system of pronunciations.

## Summary and Discussion

In this corpus of linguistically conservative NOE speakers, we observed variation between lexical items—but for the most part not between (or within) speakers—in whether the PALM vowel is realized as /ɔ/ or /ɑ/. This variation is conditioned not by phonological context, but apparently by the age of the word: PALM words that have been part of the English lexicon for longer, such as *father*, usually identify the vowel with /ɔ/, while more recent coinages and loanwords, such as *nacho*, contain /ɑ/. This pattern suggests the following history for the PALM lexical set in New Orleans:

- Originally, New Orleans English had a three-way phonemic contrast between PALM, LOT, and THOUGHT.
- At some point in history—likely in the 19th century—PALM became phonemically merged with THOUGHT, which was already, or soon became, substantially higher and backer than LOT.
- After that point, when new PALM words entered the lexicon, whether through borrowing from foreign languages or diffusion from other dialects of English, in the absence of a distinct PALM phoneme they were assigned to the LOT class (/ɑ/) rather than the THOUGHT class (/ɔ/).

Notably, this pattern of going from a three-way distinction to a two-way distinction to a merger is attested in a number of US dialects, although the intermediate stage varies in different regions of the US in terms of how LOT, PALM, and THOUGHT merge into two vowel classes. Table 3, adapted from Newman (2016) using terminology from Johnson (2010), demonstrates how the pattern we observe in our data set compares to this process in other dialects of American English.

	(North)eastern New England	New Orleans	Elsewhere in US
Initial state	3-way distinction (3-D)	3-way distinction (3-D)	3-way distinction (3-D)
Intermediate state	ENE: LOT/THOUGHT vs. PALM	NOE: LOT vs. THOUGHT/PALM	MAIN: LOT/PALM vs. THOUGHT
Final state	3-way merger (3-M)	3-way merger (3-M)	3-way merger (3-M)

**Table 3: LOT, PALM, and THOUGHT status across US low-back systems**

In the majority of present-day dialects in which the contrast between LOT and PALM is retained, including Eastern New England and varieties of English outside North America, PALM is fronter than LOT (Wells 1982). Although we do not have data on whether this was the case in early New Orleans English, Kurath & McDavid (1961) report that PALM was fronter than LOT elsewhere in the coastal Deep South—i.e., South Carolina and Georgia—in the early 20th century. This makes the backed position of PALM in New Orleans—back enough to merge with THOUGHT rather than LOT—relatively anomalous. Why was PALM back enough to merge with THOUGHT, seemingly bypassing LOT?

We propose explaining this apparent 19th-century PALM-THOUGHT merger as another result of New York–New Orleans dialect contact, which has been invoked by Labov (2007) and Carmichael (2020) to explain the similarity of the two cities’ short-*a* systems and by Carmichael & Becker (2018) to explain their similarly constrained variable non-rhoticity. NYCE speakers who possess a PALM-LOT distinction have PALM in a position backer than LOT; Kurath & McDavid (1961) confirm that this was already the case in the early 20th century. If PALM was already backer than LOT in New York in the 19th century, during the period in which Carmichael & Becker propose New York–New Orleans dialect diffusion was taking place, it could explain the New Orleans PALM vowel’s identification with THOUGHT.

If New Orleans speakers were acquiring New York dialect features through contact with New Yorkers, they could have perceived the backer realization of the New York PALM vowel and identified it with their own THOUGHT vowel, which was already backer than LOT. In more recent New York English, when PALM is distinct from LOT it is not only backer than LOT but rounded (Newman 2016), a feature whose existence is not documented by Kurath & McDavid (1961) for early-20th-century New York. However, if some degree of incipient rounding was already present in New York’s PALM vowel, that could have motivated New Orleanians to identify it with /ɔ/, a rounded vowel that already existed in New Orleans English.

Labov (2007) argues that, because diffusion takes place through dialect contact between adults whose grammars are already fully-formed, it does not necessarily result in faithful replication of the phonological structures of the source dialect by speakers of the recipient dialect; rather, diffusion leads to imitation of superficial features that can be readily perceived by adults. For this reason, 19th-century New Orleanians need not have recognized the New York PALM vowel as instantiating its own phoneme distinct from THOUGHT, and adapted their own PALM vowel accordingly; what is subject to diffusion is the superficially observable phonetic fact that PALM is backed, and adapting that into the pre-existing phonological system of New Orleans can have caused that backed vowel to become merged with THOUGHT.

The sporadic appearance of /ɔ/ in *god*, *John*, and a few other LOT words is further evidence for the influence of New York’s PALM vowel on the low-back vowels of New Orleans. According to Newman (2016:132), the transfer of PALM words with voiced codas to the LOT class is “limited to NYCE”, and yet here it is showing up in a handful of words in New Orleans. We propose that New Orleanians perceived that New Yorkers had a backed vowel (again, inaccurately identified as /ɔ/) in a handful of salient LOT words such as *John* and *god*, and adopted the use of /ɔ/ in those words as at least an indexical resource, rather than a categorical lexical transfer. The fact that these diffusion processes treat LOT and PALM differently is evidence that PALM and LOT were at that point still separate phonemes in New Orleans English.

#### *Diffusion and the challenges of the existing historical and linguistic record*

The historical ties between New York and New Orleans represent a key component of Labov’s (2007) argument that dialectal features of NYCE diffused to New Orleans; in particular, Labov cites the connection between Jewish merchants involved in the Cotton Exchange between the Crescent City and the Big Apple (pp. 367–368). In a footnote, Labov points out that the reason he focuses so heavily on the Jewish population in New Orleans, a minority group in the city, is specifically because of the THOUGHT vowel; he writes, “[t]here is a marked tendency for second and following generations of Jews to raise

this vowel to upper mid and lower high position, more so than other ethnic groups: see Labov 1966 for New York City and Laferriere 1979 for Boston” (Labov 2007:368). The question of how such a feature—in addition to other NYCE features found in New Orleans, such as the split short-*a* system—would spread so widely throughout the population of New Orleanians is an important one to answer, and we do not endeavor to do so in this paper. In the year 1860, New Orleans had the largest Jewish population in the American South, at an estimated 8,000 out of a broader population of 33,000 Jews in the South (Hertzberg 1978:281, cited by Ashkenazi 2003:9). Moreover, throughout the late 1800s there was a large transient population of merchants—Jewish and otherwise—who split their time between New York and New Orleans (Ashkenazi 2003). While Eble (2016) argues against the outsized influence of such minority groups in the city, and questions the role of the cotton trade in the linguistic patterns we see today, Labov (2007:368) argues that what is now a working class accent in New Orleans was once the “upper class” way of speaking. Looking at the historical linguistic record would seem to support this notion, in that some of the so-called “Yat” features like nonrhoticity and palatalization of the NURSE vowel are widespread in Reinecke’s (1951) sample of white schoolchildren and adults, though by the 1990s and later, these features were marked as nonstandard and working-class (e.g. Coles 1997; Carmichael 2014)—suggesting that the upper-class speakers had shifted away from their use a generation or two before working class speakers had, in a classic “change from above” pattern.

Eble’s is not the only critique of the New York–New Orleans diffusion hypothesis; Berger and Dillard, in their accounts, focused on similarities between so-called maritime accents along the Atlantic and Gulf coast where major seaports lie—Charleston, Savannah, and New Orleans in particular. And indeed, some features of New Orleans English, such as nonrhoticity and palatalization of NURSE, were present across the American South, providing a motivation to consider a shared source to these dialects; however, raised THOUGHT and the split short-*a* system are not similarly attested in these coastal varieties. In addition, the social context of Louisiana versus the rest of the American South must be considered; Louisiana was linguistically and culturally French Catholic, in stark contrast to the Anglo Protestant roots of the rest of the South (and notably the Huguenot presence in Charleston was quite distinct from the French Catholics of New Orleans).

Thus one piece of the puzzle to tease apart is the *how*—if NYCE features did indeed diffuse from New York to New Orleans, how did this occur? This question could be answered by additional documentation of the historical trade ties between merchants from these two cities, Jewish and otherwise—but another question remains: the *when*. THOUGHT-raising was first documented in NYCE in the mid-twentieth century (Frank 1948), leading Carmichael & Becker (2018) to posit, based on their examination of constraints on THOUGHT-raising in contemporary NYCE and NOE, that diffusion from NYC to New Orleans occurred in the nineteenth century. Crucially, this would be *before* raising of THOUGHT occurred in NYCE, thereby explaining the differing constraints on raising in the NOE and NYCE systems. The current analysis of the PALM vowel supports the hypothesis of 19th-century diffusion from NYCE to NOE, since it is PALM words that existed before the 19th century that have undergone merger with THOUGHT, while newer PALM words in New Orleans are identified with LOT—which is compatible with Carmichael & Becker’s (2018) proposal that THOUGHT-raising occurred independently in NOE and NYCE. It does, however, raise some questions about why, when, and how this feature arose in both places, which we leave to future research to clarify.

### *How to reconcile this story with PALM's phonetic and phonological status elsewhere in the US*

While our synchronic evidence points toward our interpretation of New Orleans PALM word distribution as evidence for diffusion from New York, the diachronic comparison available via Kurath & McDavid (1961) does not offer strong support. Although Kurath & McDavid do report that PALM was backer than LOT in early-20th-century New York, they describe it as substantially less back than the present-day New York [ɔ] PALM described by Labov (1994:203–4) and Newman (2016). Meanwhile, Kurath & McDavid's description identifies other locations on the East Coast, from Maryland to North Carolina, as also having backer PALM than LOT. This suggests that contact with New York is not the only possible explanation for PALM merging with THOUGHT in New Orleans; other dialect regions with no particular evidence for New York contact apparently developed that pattern on their own. Therefore our argument that New York specifically is involved in the New Orleans PALM pattern depends in part on the sporadic appearance of /ɔ/ in LOT words like *god* and *John* as well, a pattern found in New York's PALM vowel but not, to the best of our knowledge, in other North American dialects. However, Kurath & McDavid (1961) do not report this pattern as having been present in early 20th-century New York either. Kurath & McDavid do not comment on this subclass of words in general; but in their transcription charts for “cultivated” New York City speakers they transcribe the word *John* as having the same vowel as other LOT words. That said, “cultivated” speakers may not be representative of typical New York speakers at that time; this does not prove that the instantiation of PALM in words such as *John* was absent from 19th-century or early-20th-century New York. However, it fails to offer evidence that would support our hypothesis in this paper. More detailed acoustic analysis of archival recordings, paying fine-grained attention to the relationships between PALM and LOT that have often been glossed over or broadly summarized in previous research, may be necessary to test our current hypothesis.

### **Conclusions**

In this paper we have demonstrated that in this dialect of New Orleans English, the PALM class in some lexical items is realized as /ɔ/, in a variety of phonological contexts, distinguishing this system from many others in which PALM and LOT are merged. We suggest that this patterning results from a historical three-way PALM-LOT-THOUGHT distinction that developed into a two-way LOT-PALM/THOUGHT distinction, after which newly introduced words that contain PALM in other dialects were added to the LOT class. Due to THOUGHT-raising in NOE, the realization of key PALM words—as well as some LOT words such as *John* and *God*—is noticeably higher than in other dialects in which PALM remains distinct from other low-back vowels. In the youngest generation this two-way distinction is en route to becoming a three-way merger as LOT and PALM/THOUGHT approach each other via THOUGHT-lowering over time (Carmichael 2014), making documentation of the distinction challenging except amongst the most linguistically conservative speakers in Greater New Orleans. We were able to take on this task via examination of the low-back vowels of 57 white, working-class speakers from the suburb of Chalmette, where shift away from historically attested features lags a generation behind the rest of the city. Examining the low-back system of these speakers, we argue that the PALM-THOUGHT merger derives from historic contact with NYCE's historic three-way distinction in which PALM is realized backer than LOT (Labov 1994; Newman 2016). We suggest, thus, that alongside evidence of shared constraints in the nonrhoticity and split short-*a* systems of NYCE and NOE (Labov 2007; Carmichael & Becker 2018; Carmichael 2020), the data in this paper provides additional evidence in favor of diffusion of NYCE features to NOE. Although

Carmichael & Becker (2018) presented constraint ranking comparison findings for raised THOUGHT that did not support a diffusion hypothesis, our analysis looks more closely at the entire low-back system, considering both lexical and phonological factors. Via examination of the distribution of LOT, THOUGHT, and PALM in various environments, both within and across categories (and also, in some cases, recategorizing according to local norms), and comparing the results more broadly with low-back systems in the Northeast, we were able to add additional nuance to earlier arguments supporting diffusion.

The analysis presented above provides key documentation of a dialect of American English outside of the US Northeast that retains (at least in this linguistically conservative corpus) traces of the historic LOT-PALM distinction. Moreover, this paper sheds further light on the New York–New Orleans diffusion hypothesis, ultimately supporting previous theories suggesting the diffusion of New Orleans English features from New York City (e.g. Labov 2007; Carmichael & Becker 2018). That said, additional historical context supporting the level of contact required for diffusion would still strengthen the existing linguistic arguments in favor of such events. Moreover, archival analysis<sup>7</sup> considering PALM, LOT, and THOUGHT categories specifically and the relationship between the three would provide greater support for the suggestion that the PALM pattern in New Orleans specifically derived from NYCE and not independently or from another maritime dialect of English.

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<sup>7</sup> The audio archival record for New Orleans English presents some challenges for accessing the kind of time depth needed to test the hypotheses put forth in this paper. In terms of linguistic recordings, there are some *Linguistic Atlas of the Gulf States* recordings from New Orleanians accessible on The Digital Archive of Southern Speech (DASS) (Kretzschmar et al. 2013), including one speaker born in 1897 (speaker 657x) whose recording would be worth examining. Within the New Orleans area itself, another key opportunity is in the American Italian collection at the Jefferson Parish Library (4747 W Napoleon Ave, Metairie, LA 70001) which features about 40 oral histories from the late 1970s/early 1980s on CD plus several more on tape, though these recordings are not allowed to be copied or removed from the library, so any analysis of them would need to be done in-house. Initial inspection by the second author of these recordings concluded that the recording quality would present significant challenges for acoustic analysis but that impressionistic analysis would be possible. Many archival recordings that exist in the city are of local musicians—playing music but also sharing oral histories. One option with some archival time depth is the New Orleans Jazz and Heritage Foundation oral history collection housed at the Tulane Amistad Research Center (<https://amistad-finding-aids.tulane.edu/repositories/2/resources/711>), though these tapes need to be digitized. The Historic New Orleans Collection also has some musician recordings, but has very strict rules about how these recordings can be accessed or used, which makes them not viable for linguistic analysis without significant funding or time spent in the physical archive itself. Perhaps the most promising archival avenue is the Friends of the Cabildo oral history program which has recently digitized and made publicly available over 700 oral histories of New Orleanians (<https://www.friendsofthecabildo.org/oralhistory/>). These recordings are hosted on Sound Cloud, and thus can be accessed, downloaded, and analyzed anywhere. Unfortunately, since they mostly represent interviews with prominent, well known New Orleanians, they are only searchable by name, and there is no index indicating speaker birth year, race, or other key demographic features (though it is possible this information could be deduced from the content of the recordings themselves). The authors share this information about archival resources—even though each option available presents challenges—in the hopes that some curious reader will take up the charge in investigating these recordings!

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## **Appendix A: words adjusted in corpus**

### **Words excluded due to vowel reduction:**

gonna

got(ta)

was(n't)

ah(h)

aw(w)

somebody('s)  
everybody('s)  
nobody('s)  
anybody('s)  
blah  
nah  
ha

**Tokens recoded from LOT to THOUGHT:**

alcoholic  
alzheimers  
arkansas  
auxiliary  
awesome  
awful  
boss  
boston  
causeway  
coffee  
cost  
fal(ing)  
fallen  
ross  
soft  
sophomore (for certain speakers)  
tylenol  
upon

**Tokens recoded from THOUGHT to LOT:**

beaumont  
beyond  
doctor  
dollars  
drop  
golf  
gotten  
process  
volunteering

**Tokens recoded from THOUGHT or LOT to PALM:**

Andrea  
aunt

Botswana  
brah  
calm(ed)/(er)  
camouflaged  
Chicago  
debacle  
drama  
façade  
father('s)  
fiancé  
garage  
grandfather('s)/(ed)  
grandmaa('s)  
grandpaa('s)  
Gras  
Gustav  
java  
Lafayette  
LAMAS  
Maa  
Mama/mawmaw ('grandmother')  
montage  
nacho  
Paa  
Papa/pawpaw ('grandfather')  
pecan  
Raleigh  
restaurant(s)  
sabotaged  
taco  
tsunami  
Vietnam  
yada yada yada

Unedited  
Manuscript