LAGS WORKING PAPERS, THIRD SERIES (1985)

WORKING PAPER NUMBER ONE

An English Technical Alphabet

Lee Pederson

AN ENGLISH TECHNICAL ALPHABET

Lee Pederson

In a report originally published by the Ericsson Telephone Company in Stockholm,[1] Fant (1973) introduced the concept of a technical alphabet:

> For the benefit of a simple transcription of the speech material the phonemes of Swedish have been given the following symbols in close conformity to Swedish orthography. This transcription is referred to as the Swedish Technical Alphabet (STA) . . . . (32)

Although the later issue limits the alphabet to vowel notation, its discussion of consonants implies a complete system (61-8) and suggests a tool for descriptive word geography.

Applied to American English phonemics and orthographics (ordinary writing), this conversion of one familiar set of graphic signs for another can serve linguistic geography in several ways. The operation bridges phonemics and graphemics with tacit linkage, perhaps the only sensible approach in the representation of an intuitive process, and yields a systematically contrastive code. In reporting the findings of word geography, this code opens the study to phonological and morphological considerations and transmits information in a readable form, an alphabet familiar to any reader of English. Taken together, those resources advance the work toward integrated description.

The application outlined here concerns problems of the Linguistic Atlas of the Gulf States (LAGS) Project, the description of its *Basic Materials* (1981). At this time, it is best understood as a LAGS code, an English technical alphabet, and not the English Technical Alphabet (ETA). Here, it reflects the experience of the concordance program (Pederson, McDaniel, and

Bassett, 1985) that centered on the conversion of more than one million phonetic strings into orthographic writing according to prescribed rules and the example of *Webster's Third New International Dictionary*. During the years 1981–1984, three editors read the phonetic texts and rewrote them with ease and efficiency, demonstrated by the fact that the task involved more than forty million segments--consonants and vowels--and extended over scarcely 30 months. That intuitive process produced an exhaustive phonemic analysis of the full phonetics text of the *Basic Materials* in a procedure that was as automatic as ordinary communication, listening and speaking or reading and writing. Had it been otherwise, the composition of the LAGS concordance (Pederson, McDaniel, and Bassett, forthcoming) would remain a work in progress.

And, because the code aims to provide a conventional writing system for the transmission of information through ordinary means of communication, such as essays, monographs, and reference books, the LAGS technical alphabet is called the Automatic Book Code (ABC). As such it serves the project as a sixth writing system, combined with those described earlier (Pederson, 1974; 1985).

These include conventional writing or orthographics (O), unitary phonemics (U), binary phonemics or broad phonics (B), phonetics (P), and systematic features (S). The five codes form a descriptive chain for bidirectional study, toward analysis or specification (>) and toward synthesis or generalization (<). Schematically, those interdependent deductive and inductive operations are represented in this way:

O > U > B > P > S.[2]

The Automatic Book Code enters the chain immediately after orthographics (O) to improve the linkage between ordinary writing and unitary phonemics (U):

O × A × U × B × P × S.

Realistically, the work will probably never require engagement of all six codes in a single analysis, but their relationships help explain the work in progress. For example, the concordance was a unidirectional, inductive operation (O < P), as has been all American atlas-oriented word geography.[3]

This report lists the elements of the ABC with corresponding notations in the other five systems and then illustrates a single application of the code in a problem of deductive word geography, limited to 39 pronunciations of *French harp* in Mississippi, the dominant term in that state for the small musical instrument known elsewhere as a *harmonica*.

With ABC in the descriptive chain, unitary phonemics and broad phonics are no longer essential, but they may be useful later. For that reason they are included here among six LAGS writing systems:[4]

ORTHOGRAPHICS	AUTOMATICS	PHONEMICS	PHONICS	PHONETICS	SYSTEMATICS
glass	<a>	/æ/	(æ)	[æ]	OBA
May	<ā>	/e/	(ey)	[eɪ]	GBA-daa
car	<ä>	/ɑ/	(ah)	[ɑ]	TAA
comma	<ă>	/ə/	(ə)	[ə]	MAA
bill	<b>	/b/	(b)	[b]	*BAA*
chill	<ch>	/č/	(č)	[tʃ]	*CAA-MAA*
dill	<d>	/d/	(d)	[d]	*DAA*
neck	<e>	/ɛ/	(e)	[ɛ]	KAA
key	<ē>	/i/	(iy)	[i]	ABA
herd	<ë>	/ɜ/	(ɘh)	[ɜ]	LAA
caret	<ĕ>	/ɪ/	(i̇)	[ɪ]	EAA

ORTHOGRAPHICS	AUTOMATICS	PHONEMICS	PHONICS	PHONETICS	SYSTEMATICS
fill	<f>	/f/	(f)	[f]	*GAA*
gill	<g>	/g/	(g)	[g]	*FAA*
hill	<h>	/h/	(h)	[h]	*OAA*
bit	<i>	/ɪ/	(i)	[ɪ]	*DAA*
bite	<ī>	/aɪ/	(ay)	[aɪ]	*RAA-daa*
Jill	<j>	/ǰ/	(ǰ)	[dʒ]	*DAA-NAA*
kill	<k>	/k/	(k)	[k]	*EAA*
Lil	<l>	/l/	(l)	[l]	*UAA*
mill	<m>	/m/	(m)	[m]	*PCA*
kin	<n>	/n/	(n)	[n]	*QCA*
king	<ṇ>	/ŋ/	(ŋ)	[ŋ]	*RCA*
lock	<o>	/ɑ/	(a)	[a]	*SAA*
host	<ō>	/o/	(ow)	[oʊ]	*JJA-ffa*
horse	<ö>	/ɔ/	(ɔ)	[ɔ]	*QFA*
owl	<ow>	/aʊ/	(aw)	[aʊ]	*RAA-ffa*
oil	<oy>	/ɔɪ/	(oy)	[ɔɪ]	*QFA-daa*
pill	<p>	/p/	(p)	[p]	*AAA*
rill	<r>	/r/	(r)	[r]	*VAR*
sue	<s>	/s/	(s)	[s]	*KAA*
mesh	<sh>	/š/	(š)	[ʃ]	*MAA*
till	<t>	/t/	(t)	[t]	*CAA*
breath	<th>	/θ/	(θ)	[θ]	*IAA*
breathe	<ṯḥ>	/ð/	(ð)	[ð]	*JAA*
luck	<u>	/ʌ/	(ə)	[ʌ]	*NAA*
Luke	<ū>	/u/	(uw)	[u]	*CJA*

ORTHOGRAPHICS AUTOMATICS PHONEMICS PHONICS PHONETICS SYSTEMATICS

look	<Ü>	/U/	(u)	[U]	*FFA*
vowel	<v>	/v/	(v)	[v]	*HAA*
will	<w>	/w/	(w)	[w]	*TOA*
you	<y>	/y/	(y)	[ɰ]	*SEA*
zoo	<z>	/z/	(z)	[z]	*LAA*
measure	<zh>	/ž/	(ž)	[ʒ]	*NAA*

In transcription, ABC shares features of orthographic and phonemic writing. Like orthographics, it reports words as indivisible phonological symbols, not strings of segmented signs as in phonemic and phonetic writing. Symbolic writing must account for omitted characters that violate the integrity of the form: orthographics uses apostrophes; automatics uses parens and enters the omitted letter between them. The word *husband*, pronounced without the final stop consonant, would be transcribed /hˊʌzbǹ/ in phonemic notation, probably *husban'* in the orthographics of a dialect writer, and <hˊuzbǹ(d)> in automatics. Like phonemic writing, ABC accepts syllabic consonants as coherent nuclear elements and marks prosodic stress in words of more than one syllable. As a technical alphabet, ABC observes the phonemic principle as its unifying feature. In its present form, however, the code maintains all five vowel letters and uses them in accordance with the conventions of English spelling.[5]

The alphabet will be useful in word geography if the study aims at integrated, essentially deductive, description. As mentioned earlier, the "strong South Midland marker" *french harp* (Pederson 1983, 118) is a problem in Mississippi. Here, instead of neatly delimiting the South Midland territory,

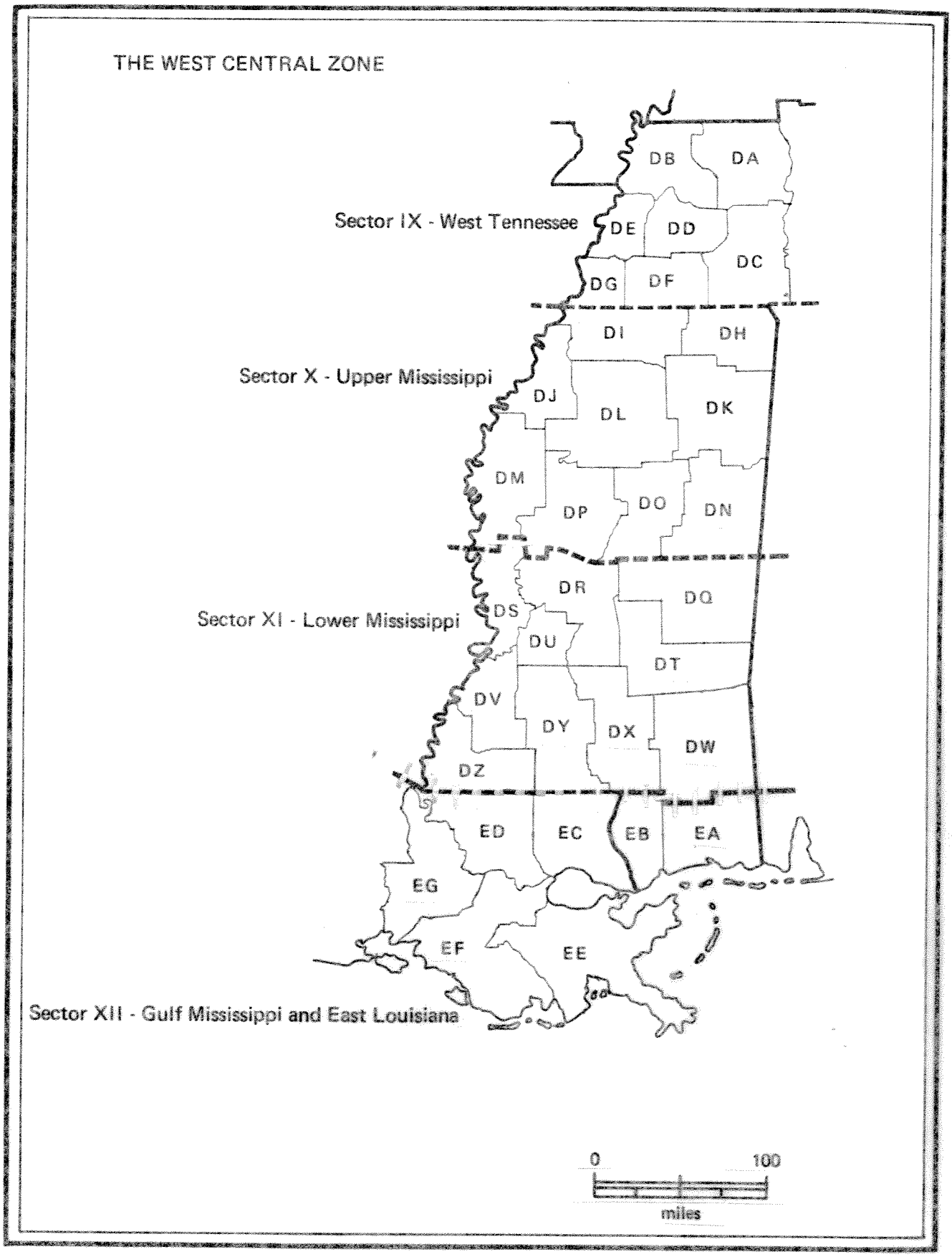
as it does in East Tennessee and elsewhere, the term recurs across the state. It was recorded in every grid unit except one. It is missing only in EA, the coastal unit that includes Biloxi and Gulfport (Figure 1). The state is represented by 110 informants, the basic Mississippi sample. Figure 2 identifies those 39 who used the term *French harp*.[6]

And, before considering those social factors in isolation, a reader deserves a summary of the LAGS sample from which those 39 are distinguished. The following matrix offers as much information as space allows, concerning the distribution of primary informants according to sex (F/M for female and male), racial caste (B/W for black and white), education (1/2/3 for elementary school, high school, and college training, respectively), social class (A/U/M/L/I for aristocratic, upper, middle, lower, and indigent) according to Warner's four-factor index (1960), and average age (AM for arithmetic mean) within each of the three sectors Upper Mississippi (UM), Lower Mississippi (LM), and Gulf Mississippi (GM):

	M/F	B1	B2	B3	W1	W2	W3	A	U	M	L	I	AM
UM	21/28	6	5	3	7	14	14	2	7	27	12	1	63
LM	22/25	10	5	4	11	9	8	3	4	24	15	2	67
GM	4/10	2	1	1	2	6	4	1	2	5	6	0	64

In this context, a review of the informants with *French harp* is somewhat easier to understand. Only seven of the informants are under age 65, the approximate mean of the sample, and only two members of the upper social classes, aristocratic and upper, are represented in the set, and perhaps most striking is the regional spread of the feature in black speech. Of the nine black informants with *French harp*, five of them provide the only instances of the term within their home units (#4, 10, 19, 22, and 36 for units DI, DL, DQ, DS, and DZ). With three of those in Lower Mississippi and the others in the

FIGURE 1


THE WEST CENTRAL ZONE
Sector IX - West Tennessee
Sector X - Upper Mississippi
Sector XI - Lower Mississippi
Sector XII - Gulf Mississippi and East Louisiana
DB
DA
DE
DD
DC
DG
DF
DI
DH
DJ
DL
DK
DM
DP
DO
DN
DR
DQ
DS
DU
DT
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DZ
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EE
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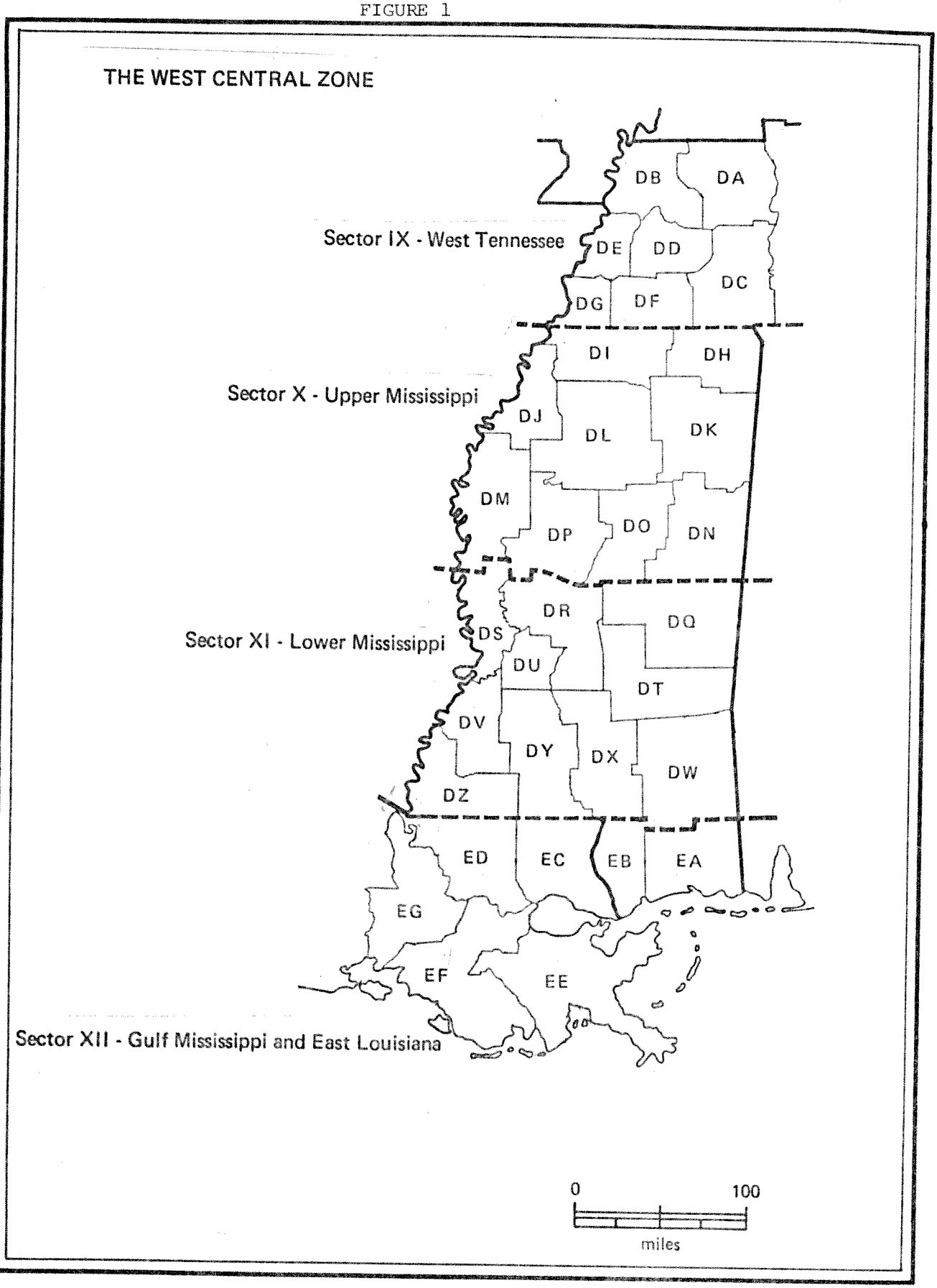
100
miles

FIGURE 1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DC
DG
DF
DI
DH
DJ
DL
DK
DM
DP
DO
DN
DR
DQ
DS
DU
DT
DV
DY
DX
DW
DZ
ED
EC
EB
EA
EG
EF
EE
0
100
miles

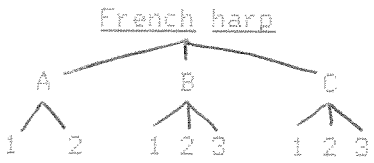
FIGURE 2: MISSISSIPPI PRIMARY INFORMANTS*
WITH *FRENCH HARP*

NO.	CODE	SEX	CLASS	CASTE	AGE	ED.	COMMUNITY, COUNTY, AND SECTOR
1.	DH/520	M	L	W	72	2	Iuka, Tishomingo, UM
2.	DH/521	F	M	W	80	3	Iuka, Tishomingo, UM
3.	DH/522	F	M	W	15	2	Corinth, Alcorn, UM
4.	DI/525	M	M	B	82	1	Holly Springs, Marshall, UM
5.	DJ/528	M	U	W	87	1	Tunica, Tunica, UM
6.	DK/533	M	M	W	25	3	Houston, Chickasaw, UM
7.	DK/534	M	M	W	69	1	Saltillo, Lee, UM
8.	DK/535	F	M	W	67	2	Tupelo, Lee, UM
9.	DK/536	M	M	W	86	1	Toxish, Pontotoc, UM
10.	DL/543	M	L	B	64	1	Lafayette Springs, Lafayette, UM
11.	DM/549	M	U	W	81	3	Benoit, Bolivar, UM
12.	DN/556	M	M	W	77	2	Macon, Noxubee, UM
13.	DO/559	M	M	W	83	2	Chester, Choctaw, UM
14.	DO/560	M	M	W	69	2	Ackerman, Choctaw, UM
15.	DO/562	F	M	W	85	2	McCool, Attala, UM
16.	DO/563	F	M	W	46	2	Kosciusko, Attala, UM
17.	DO/564	M	M	B	37	3	Kosciusko, Attala, UM
18.	DP/565	F	L	W	80	1	Jefferson, Carroll, UM
19.	DQ/569	M	M	B	73	2	Klondike, Kemper, LM
20.	DR/573	M	L	B	87	1	Eden, Yazoo, LM
21.	DR/574	F	M	W	63	1	Pleasant Hill, Yazoo, LM
22.	DS/577	F	M	B	77	1	Vicksburg, Warren, LM
23.	DT/582	M	M	W	76	1	Quitman, Clarke, LM
24.	DT/584	F	M	W	65	3	Wicker, Smith, LM
25.	DT/585	M	L	B	52	1	Pulaski, Scott, LM
26.	DU/586	M	L	B	88	2	Edwards, Hinds, LM
27.	DU/588	M	M	W	78	1	Raymond, Hinds, LM
28.	DU/591	M	M	Y	19	3	Jackson, Hinds, LM
29.	DV/594	M	L	W	68	2	Lorman, Jefferson, LM
30.	DV/596	M	M	B	78	1	Little Springs, Franklin, LM
31.	DW/601	F	L	W	69	2	Soso, Jones, LM
32.	DX/603	M	I	W	72	1	Baxterville, Lamar, LM
33.	DX/604	F	M	W	78	2	Lumberton, Lamar, LM
34.	DY/607	M	M	W	85	2	Bogue Chitto, Lincoln, LM
35.	DY/608	F	M	W	72	2	Brookhaven, Lincoln, LM
36.	DZ/610	M	L	B	73	2	Woodville, Wilkinson, LM
37.	EB/625	M	L	W	84	2	Kiln, Hancock, GM
38.	EB/628	F	L	W	73	1	White Chapel, Pearl River, GM
39.	EB/629	M	M	W	27	3	Picayune, Pearl River, GM

*CODE identifies the records in the *Basic Materials* (1981); CLASS reports Warner's four-factor index; ED(UCATION) indicates elementary school (1), high school (2), or college (3) training. Sectors UM, LM, and GM indicate Upper, Lower, and Gulf Mississippi, respectively.

Upper Mississippi interior, all of which are marked by Lower Southern features, a partial explanation might emerge. But even at that, as well as a recognition that units DT, DW, DX, and DY comprise a historical South Midland enclave in Lower Mississippi, called the Piney Woods, more information is needed to refine the analysis. Traditional word geography, however, has exhausted its resources at this point.

But, if the phonetics are transcribed in automatics as well as orthographics, the phonological factor can enter the consideration. A contrastive analysis of the 39 pronunciations of *French harp* in ABC yields three subclasses with eight distinctive components:



The term includes three different stressed vowels in the first syllable and an inconsistent realization of the prevocalic and postvocalic consonants in the second. The results include these subclasses and components, followed by the number assigned to each informant in Figure 2:

A. Subclass <fránch härp>

1. <fránch härp>: #1, 21;
2. <fránch hä(r)p>: #14, 20;

B. Subclass <frénch härp>

1. <frénch härp>: #2, 5, 7, 8, 11, 15, 16, 23, 29, 30, 32, 33;
2. <frénch hä(r)p>: #10, 17, 19, 22, 25, 26, 34;
3. <frénch (h)ä(r)p>: #27;

C. Subclass <frínch härp>

1. <frínch härp>: #3, 6, 9, 12, 18, 28, 31, 35, 36, 37, 38, 39;
2. <frínch hä(r)p>: #4, 13;

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French harp

A		B			C		
1	2	1	2	3	1	2	3

The term includes three different stressed vowels in the first syllable and an inconsistent realization of the prevocalic and postvocalic consonants in the second. The results include these subclasses and components, followed by the number assigned to each informant in Figure 2:

A. Subclass <franch härp>

1. <franch härp>: #1, 21;

2. <franch hä(r)p>: #14, 20;

B. Subclass <french härp>

1. <french härp>: #2, 5, 7, 8, 11, 15, 16, 23, 29, 30, 32, 33;

2. <french hä(r)p>: #10, 17, 19, 22, 25, 26, 34;

3. <french (h)ä(r)p>: #27;

C. Subclass <frinch härp>

1. <frinch härp>: #3, 6, 9, 12, 18, 28, 31, 35, 36, 37, 38, 39;

2. <frinch hä(r)p>: #4, 13;

3. <frinch (h)ä(r)p>: #24.

Interpreted this way, the 39 instances of *French harp* in Mississippi can be evaluated with attention to the regional distribution and social membership of these eight components. For example, with single letters I–Z, B, here referring to the grid units DI–DZ, EB, of Figure 1, the divisions reporting *French harp* can be mapped this way; followed by a synopsis of incidence, unit by unit, as, for example, in the first line of the second figure, 13 means one instance in (D)I and three instances in (D)H:

Units	Incidence
IH	13
JLK	114
MPON	1151
SURTQ	13231
ZVYXW	12221
B–	3–

The orthographic evidence shows an incidence as high in the south as in the north. The distribution is less uniform when mapped as automatic evidence. Here, for example, are the patterns of incidence of the four principal sets of components—B1, B2, C1, and C2—followed by two composites that contrast the incidence of postvocalic /r/ (retroflex or not) in the second syllable with the sets A1, B1, and C1 combined against A2, A3, B2, B3, C2, and C3:

Incidence of:	B1	B2	C1	C2	A1–C1	A2–C3
	–1	––	–1	1–	–3	1–
	1–2	–1–	––2	–––	1–4	–1–
	1–2–	––1–	–1–1	––1–	1121	––3–
	––––1–	11–11	–1––––	–––––	–111–	12121
	–2–2–	––1–––	1–1–1	–––––	12–21	––2–––
	–––	–––	3–	–––	3–	–––

These configurations reflect the incidence of regional markers in a single form, South Midland *French harp* and South Midland retroflex postvocalic /r/ versus Lower Southern vocalized postvocalic /r/.

Although these readings offer no definitive pattern of distribution, they reinforce earlier observations of black speech as a great repository of Lower Southern relic forms, irrespective of the informant's subregional nativity, so

long as it be rural, of contrasts of black and white rural folk speech, and of correspondences of black folk speech and cultivated white speech in historical plantation settings.[7] ABC representation also places the concentration of *French harp* in Lower Mississippi into a better perspective. Whereas the communities in the line SURTQ are predominantly Lower Southern prairie units, those of the line ZVYXW, as well as the letter B in the following line, are Piney Woods units. In the latter, *French harp* and retroflex postvocalic /r/ are predictable, the latter occurring in six of eight instances. In the prairie, the reverse is true, with seven of ten instances vocalized.

These patterns may suggest several factors about the status of American English in Mississippi: 1) an expanding South Midland influence here proceeds simultaneously from the north (the primary domain of the dialect) and from the south (the insular Piney Woods territory that presses mainly toward the Gulf); 2) a conservative form, such as *French harp*, has little currency among the young and less among the upper classes, irrespective of age; 3) the little understood or appreciated black influence on Southern speech here demonstrates its function as a regional and social conduit, carrying South Midland forms into the lower prairie and Southern pronunciation into the upper reaches of the state.

A cursory glance at a single variant in a small part of the territory must be taken as nothing more than a diagnostic consideration to be evaluated with systematic study. As an illustration of the descriptive effectiveness of the technical alphabet, however, the brief example brings these phonological variables to the surface: the phonemic contrasts of ⟨a, e, i⟩ in *French* and ⟨h, (h)⟩ in *harp*, as well as the crucial phonetic contrast in the latter, that is, ⟨är, ä(r)⟩, where the contrast is established by the vowel. None of the other five writing systems communicates phonemic, phonetic, and zero data in a

single code that approximates the conventions of the English alphabet.

With consistent notation of prosodic stress and the distinction of weakly stressed vowels, ABC offers those six resources for LAGS editors of the *Descriptive Materials*. Like a summary in *Ericsson Technics*, this report aims only to share intelligence with other students in the form of an interim report. And, like all work in linguistic geography, experience will demonstrate the adequacy of this alphabet in terms of self-consistency, completeness, and simplicity. Should it work effectively in LAGS and should anyone else find it useful, perhaps ABC could approach the status and realize the generalized function implicit in the designation ETA.

Notes

1. *Ericsson Technics* 1 (1959), Fant (1973, 32).

2. For applications of the chain at the features level (S), see Pederson (forthcoming).

3. This process is implicit in textual conversions. The descriptive essays, however, follow a deductive process, but American linguistic geographers discuss neither synthesis nor analysis in their work. As a result, the intuitively organized text for word geography leads to autonomous morphological and phonological studies that find integration only in the composition of isoglosses after the linguistic description is complete. Notice the chronology: Kurath (1949), Atwood (1953), Kurath and McDavid (1961), and, more recently, Allen (1973; 1975; 1976). All of those pioneering essays in each of the sets could have been combined as integrated word geography.

4. Consonant strings are written in italics here to distinguish them from vowels. Elsewhere, the mutually exclusive codes are divided by virgules when written as word strings, as, for example, *glass* FAA UAA / OBA / KAA.

5. That is to say that, with the five letters and three diacritics, the code could report 15 stressed vowels and five weakly stressed vowels if needed to describe a set of idiolects.

5. With some Mississippi informants offering several synonyms, other variants (with incidence in parens) include *harp* (36), *harmonica* (25), and *mouth harp* (8). Fourteen informants gave no response to this item, and most of these were natives of the northwestern sector of the state, the upper reaches of the Mississippi-Yazoo Delta, units J, M, and P in Figure 1.

7. For the earliest reports on these correspondences in the Dialect Survey of Rural Georgia, the LAGS pilot project, see Pederson (1972; 1973).

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LAGS WORKING PAPERS, THIRD SERIES (1985)

WORKING PAPER NUMBER TWO

A Survey in Deductive Phonetics

Lee Pederson

A SURVEY IN DEDUCTIVE PHONETICS

Lee Pederson

As the first step toward synthesis or the final step in analysis, phonetics lays foundations for accurate language description. Dialect study ordinarily proceeds inductively from the segmental units of the text toward abstract classes of meaning, form, and sound because its data base is a corpus of narrow phonetic notation. But, encoded as phonetic features, that notation can also lead deductively from segments to the elements of speech. This adjustment gives linguistic geography a resource necessary in the solution of problems, the complementary functions of analysis and synthesis.[1]

To make those functions operational, description needs a context, a specific explanation of how those approaches to problem solving interact. This requires a bidirectional system that recognizes the steps of study as links in a descriptive chain. As a process of study, the chain suggests recursive operations of analysis, synthesis, further analysis, and resynthesis, continued until the descriptive problem has been solved. And dialect study needs a tool of this kind to carry out complicated tasks of diagnosis, analysis, and inventory.

With freedom to advance in either direction, analysis can move from phone to feature, from phoneme to phone, or from feature to phone within those three links of a descriptive chain. Extended to word level, the process could distinguish synonyms on the basis of form, as, for example, a deleted syllable, or on the basis of pronunciation. Thus these three pronunciations of *wheelbarrow* [hwilbæro ~ wilbæro ~ hwilbar] offer three variants for word study, and these are as justifiable as the traditional attention to *spigot* and

spicket. A descriptive chain accommodates the full range of analytic and synthetic issues in a single process.

As printed, systematic phonetics is a tool for the inventory of segmental units.[2] But, as realized in a survey of stressed vowels, it provides a terminal link in the descriptive chain. The code classifies phonetic features of consonants and vowels recorded in LAGS protocols, rewriting narrow phonetic notation in simple alphabetic strings, usually in triads, such as ABC. In this way, systematic phonetics adds a fifth analogue to the LAGS tape/text and demonstrates a computer-assisted application of deductive phonetics.[3]

This report summarizes four details in the first extended test of the code: 1) a survey of 15 stressed vowels in five phonetic environments that include systematically contrastive pronunciations from the complete sample of LAGS informants, 1,121 native speakers from the eight-state region; 2) the results of a computer-assisted inventory, illustrated here with the dominant Gulf States pronunciations of vowels summarized in 74 positions; 3) the implications of the survey and the code in the context of a descriptive chain of writing systems; and 4) the expectations of deductive phonetics, lessons to be learned and tasks to be completed before retirement to the status of a final situation.

1. THE SURVEY. During the spring and summer of 1984, shortly after the essay "Systematic Phonetics" was accepted for publication, Nancy-Laurel Pettersen and I converted the stressed vowels of 1,121 LAGS idiolect synopses, following the prescribed code. Figure 1 illustrates a synopsis and shows five positions for 15 stressed vowels, classified according to the unitary phonemic analysis of American atlas projects.[4] The data recorded in those first 15 lines of each synopsis yielded approximately 80,000 stressed vowels.

LINGUISTIC ATLAS OF THE GULF STATES
IDIOLECT SYNOPSIS
548

FLY 69 1A
MB/78:LP/79

UM DREW
DM 348.01

/ɪ/	hwɪt ᵊp	kɪ̥ɪ·· ᵊb	tˈɪ̃·n	hɪ·ᵊɫz	* ɪ·ɚ
/ɛ/	nɛ·ᵊk	lɛ·ᵊgz	* tˈɛ̃ə̃n	nɛ́·ᵊʃɨ̆	mɜ́·rɨ̆
/æ/	glæ·ᵋs	bæ·ᵋg	hæ̃·ᵋmɚ̆	pˈǽ·ᵋʃɨ̆t	* mǽ·rɨ̆d
/ʊ/	pˈʊ·ʃ	wʊ́·ᵊd rǽ·ᵋk	* wʊ́·ᵊmn̩̆	* pˈʊ·l̩	* ʃʊᵊ
/ʌ/	ʃʌ·ᵊt	* hʌ́·ᵊzbn̩̆	sʌ́·nʌ̀·ᵊp	bɤ·ᵊɫb	
/ɑ/	kra·ᵊp	grǽ··ⁿn fa·ðɚ̆	dʒá··nɨ̆	kˈá·l̩ɨdʒ	* kˈa··ɚ
/i/	ˀi··st	* θɾ̥i·i·	* bi·i·nz	fi··ᵊɫ	bʲɪ··ɚd
/e/	ˀeɪt	me·ɪ	s̩tre·ɪn	re·ɪɫ	mɛ́·rɪ̆·
/u/	tˈʉ̞ʉθ	bǽ·ᵋtʔn̩̆ / rʉ̞̃ʉʒ̥	wʉ̞̃ʉnᵈ	mjʊʉɫz	* pˈo·ɚ
/o/	kˈo·ʊt	əgó·ʊ	ho·ʊm	kˈo·ʊɫ	hɔ··ᵊs
/ɔ/	dɔ̞ɔ́·ɔ̞rɚ̆	* dɔ·ɔ̞g	* gɔ̃·ɔn	* sɔ·ɔ·ɫt	* hɔ·ɔs
/ɜ/	* tʃɚ·tʃ	θɚ·d	ɚ́·θwɚ̀mz	gɚ·ᵊɫz	wɜ́·ᵊrɨ̆
/aɪ/	ra··ᵋt	ra·ᵋd	na·ᵋn	ma·ᵋɫz	wɑ·ɚ
/aʊ/	* ha·əs	* kˈa·əz	* da·ə̞n	* aɜ·ʊɫ	* flá·wɚ̆z
/ɔɪ/	ɔ́·ɪstəz	* pˈɔ·ɔ́·əzn̩̆	dʒɔ·ə·nts	* ɔ··ə·ɫ	—
PL	pˈo·ʊstɨ̆s	pˈæ·ʊndz	sɾɪ̃·ᵊmp	wɒ·ᵊst	dɛ́·ᵊskɨ̆z
FW	mɪ̂·nɨts tɨ̆ɫ	* tə̆wó·ɚdz	ɪ́·ntʉ̀	ɪ̄t ɪ̀·ᵊz stʌ́̃ᵊmɨ̆k	—

ra·ᵋz / rɪ́·ᵊz / rɪ́·ᵊzə̆	dra·ᵋv / — / dro·ʊv
dræ·ᵋg / — / —	i··t / i··t ~ ɛ·ᵊt / —
drɪ·ŋk / dræ̃·ᵋŋk / —	hɛ·ᵊp ~ hɛ·p ~ hɛ·ᵊp / — / —
da··ᵋv / da··ᵋv / do··ʊv	kla·ᵋm / kl̩a·ᵋmd / kl̩a·ᵋmd

fá·ɚ dɔ̀·ɔ·gz	mæ̃·ᵋnl̩̆	kˈa͡ɪʉ̞ pˈɪ̃·ᵊn	—
* pˈé·ɪpɚ̆ sæ̀·ᵋk	* kró··ʊkɚ̆ sæ̀·ᵋk	hɚ̀má̃·ᵊnɨ̆ko·ʊ̀	sí·i· sɒ̞·ᵊ
* bá·tˀɨ̆ wɪ̀·ᵊk	* flæ·ᵋt bo·ʊts	pˈʊ́·ʃɨ̆ bo·ʊ̀n	* bǽ·ᵋt̬ə ke·ɪks
sa·ʊs	ka·ʃɨ̆dʒ / tʃi··z	mʌ·ᵊʃ	—
klɪ́·ɚ sì·i·d	* gʉ̞ʉbɚ̆z	tˈá·mɨ̆tò·ʊz	grí··n bí··nz
* pˈɛ́·kɚ̆wʊ̀·ᵊd	* rɛ́·ᵊdwɚ̀mz	* kˈʊʉt̬ə̆	krɔ́·ɔ·fɪ̀·ʃ
* skí··tə̆ hʊ̀··ᵊk	rɛ́·ᵊd bʌ̀·ᵊgz	sɚ́·ɪ̆ne·ɪd	ə̆ lɪ̂·ᵊt̬ɨ̆ bɪ̀·t ɛ́·kstrɪ̆

FIGURE 1: SYNOPSIS 548

Entered on disks with IBM Personal Computers, the collection was sorted, inventoried, and printed by programs written by William H. McDaniel and Susan Leas McDaniel. All of the machine operations, including proofreading and correcting the full corpus, were done by Susan Leas McDaniel. The inventory includes 74 files, one for each phonetic position, and each file is indexed with a summary. Although the materials are suitable for publication in their present forms--on disks or in print--their disposition will be determined by the LAGS publication schedule.

Because the survey covered only stressed vowels, the following summary identifies only the syllabic code, but the consonant code reports the same kinds of information--all distinctive phonetic features systematically observed by LAGS scribes. Both codes abstract and illustrate the focus of phonetic notation as developed by eight LAGS scribes over a 13 year period.[5]

Concentrating on essential elements of notation--a record that identifies all systematic contrasts in the protocols--the syllabic code includes primary, secondary, and tertiary components, ordered to reflect a hierarchy of phonological signals and designed to resolve itself into ultimate units through mechanical deduction. Among stressed vowels, for example, primary (positional) features include 20 components, each of which represents a discrete position on the LAGS vowel quadrant, Figure 2. Each of those primary features is a complex, implying vocalization and indicating lingual and mandible actions. Secondary (conditional) features include six more considerations: unmarked, tense, long, nasal, retroflex, and round, with the last five of these listed in all possible combinations within the code. All secondary features are phonologically, geographically, or socially contrastive within the LAGS collection. Finally, tertiary (modificational) features include the narrowest markings of LAGS phonetic notation, indicating vowels in

FIGURE 2: LAGS VOWEL QUADRANT

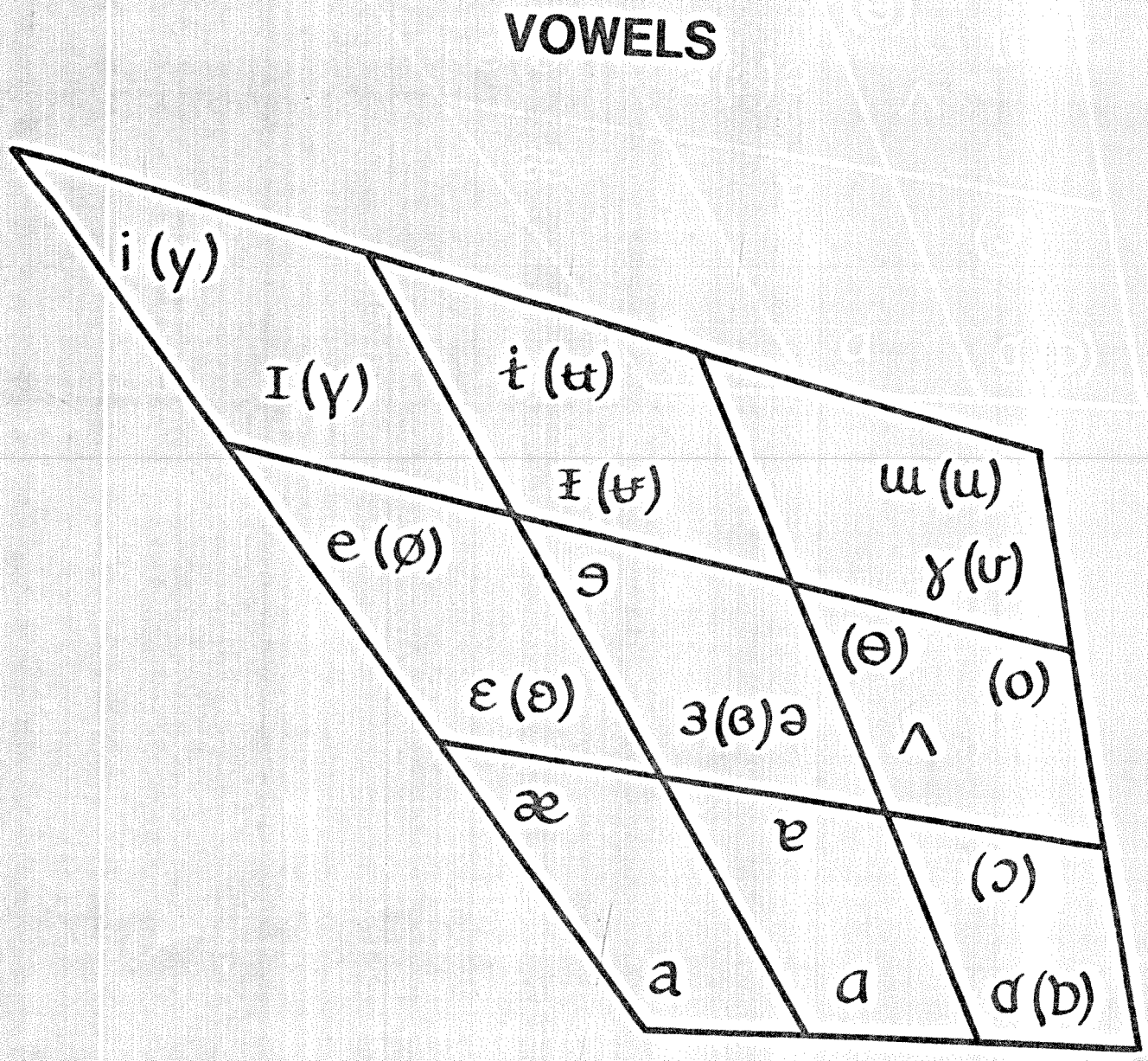
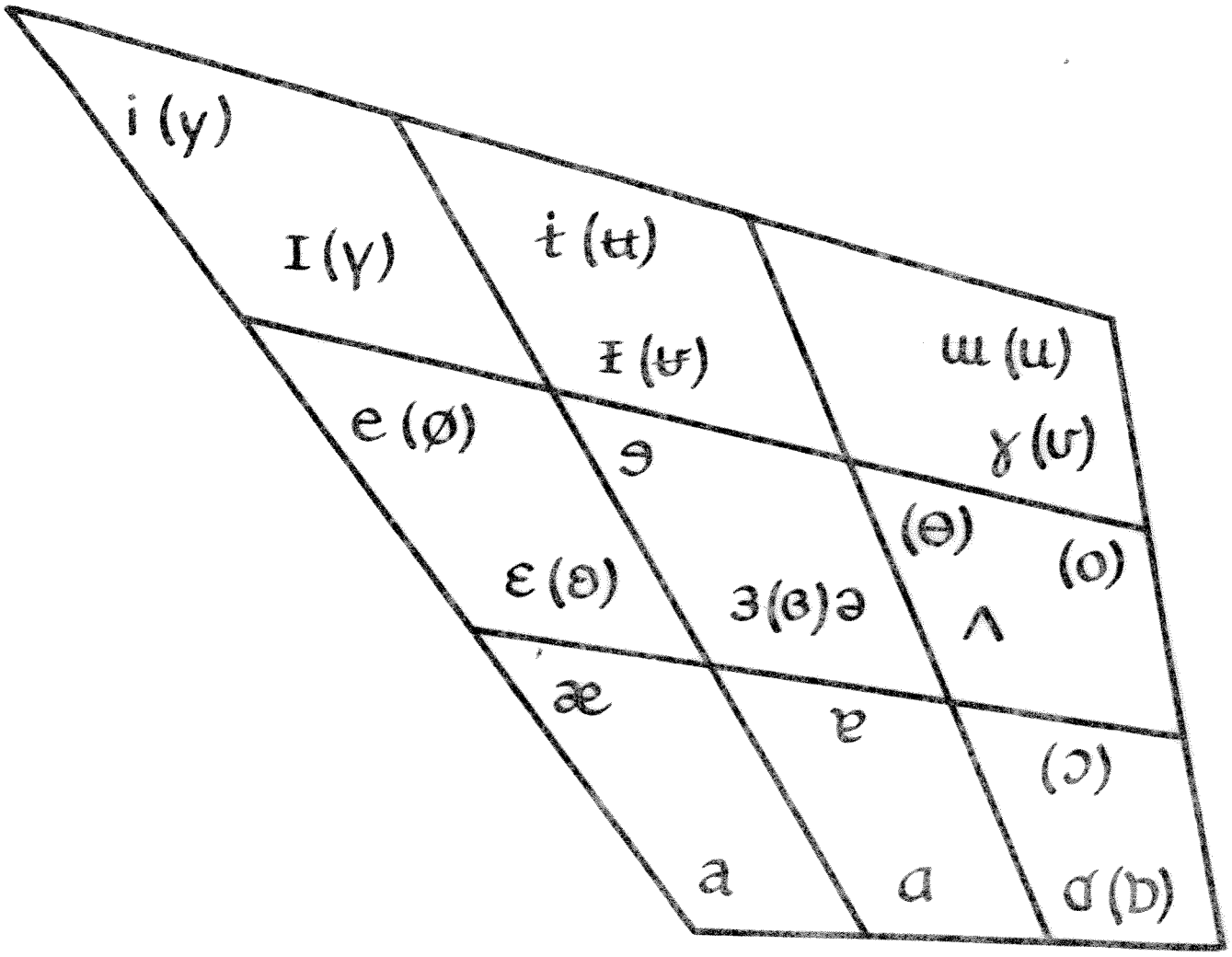
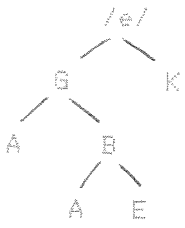


FIGURE 2: LAGS VOWEL QUADRANT



raised, lowered, retracted, or advanced positions from the norms established on the quadrant, vowels weakly realized in articulation (transcribed above the base line in protocol and synopsis notation), and vowels distinguished by glottalization. Like secondary features, these are also coded in all possible combinations.[6]

Figure 3 outlines the code for stressed vowels. With those letters, augmented by numbers in the secondary and tertiary sets, syllabics are coded in three-character strings. For example, the monophthong [e˞] is rewritten GBE to indicate 1) a higher mid-front position (G), tense condition (B), and retracted (lingual) modification (E). Sorted and indexed alphabetically in the computer program, the string yields an analysis that deduces specific details, from class modificational features:



Class

I

II

III

In that succession, [e] (G) is distinguished from the other common variant [ɛ] (K) in the class /e/ at the level of primary feature. At the secondary level, its tenseness (B) contrasts with unmarked forms (A), and at the tertiary level, its retracted articulation (E) contrasts with unmarked forms (A) at that level.

Diphthongs and triphthongs are rewritten with successions of sets in the same order as that of the monophthong form: the nuclear, core, or most prominent element of a syllabic complex appears in uppercase letters; the non-nuclear, peripheral, or glide element appears in lowercase letters, whether an onglide or an offglide. Thus, the string efa-BJA rewrites one syllable [e̯a] (a diphthong marked by a peripheral onset or ongliding feature) and another as

FIGURE 3: SYSTEMATIC PHONETICS, VOWEL CODE

I. PRIMARY FEATURES (POSITIONAL):

A. i		B. ɨ		C. ɯ
D. ɪ		E. ɘ		F. ɤ
G. e	H. ə		I. ɵ	J. o̞
K. ɛ	L. ɜ	M. ɐ	N. ʌ	
O. æ		P. ɞ		Q. ɔ̝
R. a		S. ɑ		T. ɒ

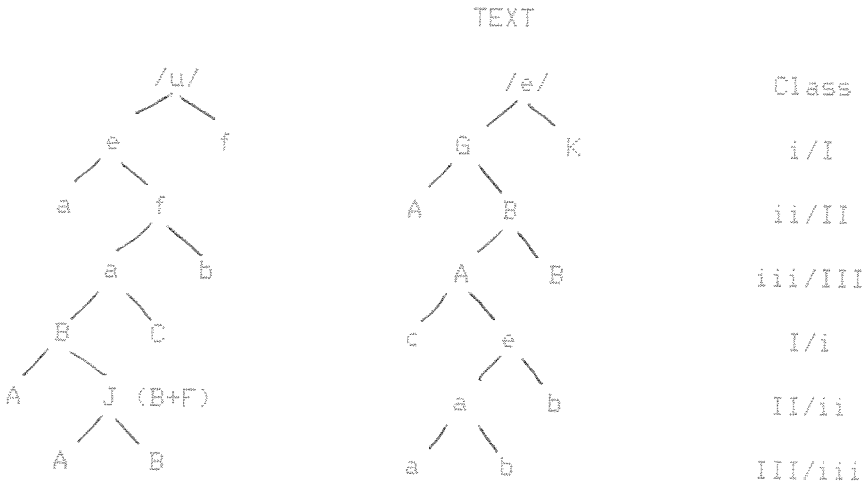
II. SECONDARY FEATURES (CONDITIONAL):

A. Unmarked	I. B + E	Q. B + C + D	Y. C + E + F
B. Tense	J. B + F	R. B + C + E	Z. D + E + F
C. Long	K. C + D	S. B + C + F	1. B + C + D + E
D. Nasal	L. C + E	T. B + D + E	2. B + C + D + F
E. Retroflex	M. C + F	U. B + D + F	3. B + C + E + F
F. Round	N. D + E	V. B + E + F	4. B + D + E + F
G. B + C	O. D + F	W. C + D + E	5. C + D + E + F
H. B + D	P. E + F	X. C + D + F	6. B + C + D + E + F

III. TERTIARY FEATURES (MODIFICATIONAL):

A. Unmarked	J. Weak	S. Glottal	2. S + J
B. Raised	K. J + B	T. S + B	3. S + K
C. Lowered	L. J + C	U. S + C	4. S + L
D. Advanced	M. J + D	V. S + D	5. S + M
E. Retracted	N. J + E	W. S + E	6. S + N
F. B + D	O. J + F	X. S + F	7. S + O
G. B + E	P. J + G	Y. S + G	8. S + P
H. C + D	Q. J + H	Z. S + H	9. S + Q
I. C + E	R. J + I	1. S + I	0. S + R

GBE-eaa [e>ɪ] (a diphthong marked by a peripheral offset or ongliding feature). Although these vowels, appearing in Synopsis 548 in the notations of *mules* and *strain*, respectively, are entered in separate files,[7] their respective specifications can be compared according to the analysis of the index:



In that way, the code and program record a deductive analysis of the phonetic features that can be extended to radicals by parsing primary features according to mandible (high/mid/low) and lingual (front/central/back) and designating voice (+/-).[8]

Figure 4 codes the 73 stressed vowel texts of Synopsis 548. In the five columns of data, from left to right, syllabics are ordered in these environments: 1) before a voiceless obstruent, 2) before a voiced obstruent or open juncture (/+/), 3) before a nasal resonant, 4) before a lateral resonant, and 5) before the historical reflex of a retroflex resonant.[9]

2. FINDINGS. The entry, sorting, and printing programs yielded four applications of the systematic phonetics code. Figure 5 reproduces the Mississippi file for the vowel of *crop*, components of the class /a/ before a voiceless obstruent. The file illustrates 1) the deductive analysis realized in the sorting program, 2) the composition of variants, 3) the regional

FIGURE 4: SYNOPSIS 548, STRESSED VOWELS

ORTHOGRAPHIC TEXTS AND SYSTEMATIC CODES

/ɪ/	whip	FFH-maj	crib	DCB-maj	tin	DDB	hills	BAB-maj	ear	DAB-mea	
/ɛ/	neck	KAB-maj	legs	KAB-eaj	ten	KDF	Nelly	KAC-maj	merry	LAB	
/æ/	glass	OAB-kaj	bag	OAB-kak	hammer	ODB-kdj	pallet	OAB-kbj	married	OAB	
/ʊ/	push	EFB	wood rack	FFF-maj	woman	FFD-maj	pull	FFF	sure	EFA-maj	
/ʌ/	shut	NAD-maj	husband	NAD-maj	sunup	NAD	bulb	FAH-maj	----		
/ɑ/	crop	SAE-maj	grandfather	SAE	Johnny	SCE	college	SCA	car	SCE-mea	
/i/	yeast	AGW	three	abi-ABE	beans	abi-ABE	field	ABE-maj	beard	DCB-mea	
/e/	eight	GBS-eaa	May	GBI-eaa	strain	GBE-eaa	rail	GBE-eaa	Mary	KCB	
/u/	tooth	eaa-BJA	Baton Rouge	eda-BUA	wound	eda-BUA	mules	efa-BJA	poor	JJC-mea	
/o/	coat	LMA-efa	ago	JJD-efa	home	JJD-efa	coal	JJD-efa	hoarse	QMB-maj	
/ɔ/	daughter	QAH-qfb	dog	QFC-qaf	gone	QOC-qoa	salt	QFC-qfb	horse	QFB-maa	
/ɜ/	church	MIA	third	MEH	earthworms	MEA	girls	MLA-maj	worry	LCA-maj	
/aɪ/	right	RCE-kaj	ride	RAE-kaj	nine	RAE-kaj	miles	RAE-kaj	wire	TAD-mea	
/aʊ/	house	RCB-maa	cows	RAB-maa	down	RAB-mfa	owl	RCF-efa	flowers	RCB	
/ɔɪ/	oysters	QFB-eaa	poison	QMB-maa	joints	QFB-mab	oil	QMB-mab	----		

FIGURE 5

Vowel	Book	Protocol	Sx	Cl	Rc	Age	Ed	Soch	City (County)	St	Sc
PAA --- ---	529	DJ 334.01	M	M	Y	81	3	cult	Marks (Quitman)	UM	LD 1
	542	DL 346.01	M	I	Y	65	1	folk	Oxford (Lafayette)	UM	LD 2
	555	DN 352.03	M	L	X	68	1	folk	Brooksville (Noxubee)	UM	LD 3
	583	DT 377.01	M	L	Y	77	2	comm	Trenton (Smith)	LM	LD 4
PCA --- ---	537	DK 340.02	M	M	X	77	2	comm	Pontotoc (Pontotoc)	UM	LD 1
	577	DS 372.02	F	M	X	77	1	folk	Vicksburg (Warren)	LM	LD 2
	600	DW 387.05	M	L	X	84	1	folk	Soso (Jones)	LM	GR 3
RCA --- ---	611	DZ 399.04	F	U	X	75	3	cult	Woodville (Wilkinson)	LM	GR 1
SAA --- ---	584	DT 377.02	F	M	Y	65	3	cult	Wicker (Smith)	LM	PE 1
	603	DX 388.01	M	I	Y	72	1	folk	Baxterville (Lamar)	LM	LP 2
SAA maj ---	552	DN 351.03	F	L	X	66	2	folk	Columbus (Lowndes)	UM	LP 1
SAB --- ---	523	DH 328.01	F	M	X	18	2	comm	Ripley (Tippah)	UM	SL 1
	532	DK 338.02	M	M	X	73	1	folk	Houston (Chickasaw)	UM	SL 2
	547	DL 347.01	M	M	X	30	3	cult	Crowder (Panola)	UM	SL 3
	556	DN 352.01	M	M	Y	77	2	comm	Macon (Noxubee)	UM	PE 4
	574	DR 371.01	F	M	Y	63	1	folk	Pleasant Hill (Yazoo)	LM	LD 5
	605	DX 392.01	F	M	Y	85	1	folk	Weathersby (Simpson)	LM	SL 6
	627	EB 406.02	M	L	X	79	1	folk	Carriere (Pearl River)	GM	PE 7
SAD --- ---	614	DZ 400.04	M	M	X	58	3	cult	Natchez (Adams)	LM	SL 1
SAE --- ---	522	DH 327.01	F	M	Y	15	2	comm	Corinth (Alcorn)	UM	GR 1
	524	DH 328.02	F	M	Y	18	2	comm	Ripley (Tippah)	UM	GB 2
	526	DI 330.01	F	A	Y	75	3	cult	Holly Springs (Marshall)	UM	LP 3
	527	DI 332.01	F	U	Y	85	2	cult	Hernando (De Soto)	UM	MB 4
	530	DJ 335.01	M	L	X	74	1	folk	Sherard (Coahoma)	UM	PE 5
	531	DJ 335.02	M	U	Y	85	2	comm	Friars Point (Coahoma)	UM	SL 6
	533	DK 338.01	M	M	Y	25	3	cult	Houston (Chickasaw)	UM	SL 7
	536	DK 340.01	M	M	Y	86	1	folk	Toxish (Pontotoc)	UM	PE 8
	541	DL 345.01	F	M	Y	18	2	cult	Charleston (Tallahatchie)	UM	MB 9
	545	DL 346.04	F	M	X	63	3	cult	Oxford (Lafayette)	UM	PE 10
	546	DL 346.05	M	U	Y	80	3	cult	Burgess (Lafayette)	UM	SL 11
	549	DM 349.01	M	U	Y	81	3	cult	Benoit (Bolivar)	UM	MB 12
	550	DM 350.01	F	L	X	63	1	folk	Leland (Washington)	UM	SL 13
	551	DM 350.02	M	U	Y	51	3	cult	Greenville (Washington)	UM	MB 14
	553	DN 351.01	M	U	Y	47	3	cult	Columbus (Lowndes)	UM	SL 15
	557	DN 354.01	F	M	Y	81	2	comm	Starkville (Oktibbeha)	UM	SL 16
	559	DO 356.01	M	M	Y	83	2	comm	Chester (Choctaw)	UM	SL 17
	561	DO 359.01	M	L	Y	58	1	folk	Kosciusko (Attala)	UM	LP 18
	565	DP 361.01	F	L	Y	80	1	folk	Jefferson (Carroll)	UM	GB 19
	566	DP 361.02	F	L	X	31	2	folk	Vaiden (Carroll)	UM	SL 20
	568	DP 363.01	M	M	Y	56	2	comm	Greenwood (Leflore)	UM	LP 21
	570	DQ 365.01	F	M	Y	75	1	folk	Lockhart (Lauderdale)	LM	SL 22
	572	DQ 367.01	M	M	Y	44	2	comm	Boque Chitto (Neshoba)	LM	SL 23
	576	DR 371.02	M	U	Y	42	1	comm	Pleasant Hill (Yazoo)	LM	PE 24
	578	DS 372.03	F	L	Y	68	1	folk	Redwood (Warren)	LM	PE 25
	580	DS 374.02	M	L	X	78	1	folk	Mayersville (Issaquena)	LM	SL 26
	581	DS 374.01	F	U	Y	77	3	cult	Mayersville (Issaquena)	LM	MP 27
	587	DU 379.02	M	M	X	77	1	folk	Edwards (Hinds)	LM	GB 28
	588	DU 379.05	M	M	Y	78	1	folk	Raymond (Hinds)	LM	SL 29
	589	DU 379.07	F	M	X	13	2	comm	Jackson (Hinds)	LM	SL 30
	594	DV 381.02	M	L	Y	68	2	comm	Lorman (Jefferson)	LM	LP 31
	595	DV 381.03	F	L	Y	50	1	folk	Lorman (Jefferson)	LM	LP 32
	598	DW 386.01	F	M	X	81	3	cult	Hattiesburg (Forrest)	LM	MP 33
	599	DW 386.02	F	M	Y	19	3	cult	Hattiesburg (Forrest)	LM	MB 34
	602	DW 387.04	F	L	X	40	3	comm	Soso (Jones)	LM	SL 35
	608	DY 396.03	F	M	Y	72	2	comm	Brookhaven (Lincoln)	LM	MB 36
	612	DZ 400.01	F	I	X	70	1	folk	Sibley (Adams)	LM	SL 37
	616	EA 401.03	M	U	Y	75	2	comm	Vancleave (Jackson)	GM	GB 38
	618	EA 401.01	M	A	Y	83	2	cult	Moss Point (Jackson)	GM	MP 39
	619	EA 402.02	M	L	Y	85	1	folk	Biloxi (Harrison)	GM	LP 40
	620	EA 402.04	M	M	X	87	1	folk	Biloxi (Harrison)	GM	MP 41

	623	EA 402.01	F	M	Y	66	2	comm	Saucier (Harrison)	GM	SL	42
	624	EA 404.01	F	M	X	33	3	cult	Red Creek (Stone)	GM	MB	43
	625	EB 405.01	M	L	Y	84	2	comm	Kiln (Hancock)	GM	MB	44
SAE maj ---	520	DH 325.01	M	L	Y	72	2	folk	Iuka (Tishomingo)	UM	LP	1
	528	DJ 333.01	M	U	Y	87	1	comm	Tunica (Tunica)	UM	LP	2
	534	DK 339.02	M	M	Y	69	1	folk	Saltillo (Lee)	UM	MP	3
	539	DL 343.01	M	M	Y	64	3	comm	Holcomb (Grenada)	UM	LP	4
	540	DL 345.02	M	M	Y	70	1	folk	Enid (Tallahatchie)	UM	LP	5
	548	DM 348.01	F	L	Y	69	1	folk	Drew (Sunflower)	UM	LP	6
	562	DO 359.04	F	M	Y	85	2	comm	McCool (Attala)	UM	LP	7
	569	DQ 364.01	M	M	X	73	2	comm	Klondike (Kemper)	LM	SL	8
	575	DR 371.04	F	U	Y	80	3	cult	Freerun (Yazoo)	LM	LP	9
	582	DT 375.01	M	M	Y	76	1	folk	Quitman (Clarke)	LM	LP	10
	592	DU 379.01	F	M	Y	70	3	cult	Jackson (Hinds)	LM	MB	11
	604	DX 388.02	F	M	Y	78	2	comm	Lumberton (Lamar)	LM	LP	12
	607	DY 396.02	M	M	Y	85	2	comm	Boque Chitto (Lincoln)	LM	LP	13
	609	DZ 399.02	M	L	X	85	1	folk	Lesslev (Wilkinson)	LM	SL	14
	613	DZ 400.02	M	M	Y	52	2	comm	Natchez (Adams)	LM	LP	15
	621	EA 402.03	M	L	Y	53	2	comm	Biloxi (Harrison)	GM	LP	16
	622	EA 402.06	F	M	X	17	2	comm	Gulfport (Harrison)	GM	MB	17
SAG --- ---	544	DL 346.03	F	M	Y	75	3	cult	Taylor (Lafayette)	UM	PE	1
	554	DN 352.02	F	L	Y	99	1	folk	Mashulaville (Noxubee)	UM	SL	2
	560	DO 356.02	M	M	Y	69	2	comm	Ackerman (Choctaw)	UM	SL	3
	573	DR 371.03	M	L	X	87	1	folk	Eden (Yazoo)	LM	SL	4
	596	DV 382.01	M	M	X	78	1	folk	Little Springs (Franklin)	LM	SL	5
	606	DY 394.01	M	M	Y	95	1	folk	Holmesville (Pike)	LM	SL	6
	610	DZ 399.03	M	L	X	73	2	comm	Woodville (Wilkinson)	LM	SL	7
SCA --- ---	543	DL 346.02	M	L	X	64	1	folk	Lafayette Springs (Lafayette)	UM	LP	1
	567	DP 363.02	M	U	Y	86	2	comm	Greenwood (Leflore)	UM	GR	2
SCA maj ---	563	DO 359.05	F	M	Y	46	2	comm	Kosciusko (Attala)	UM	LP	1
	564	DO 359.06	M	M	X	37	3	cult	Kosciusko (Attala)	UM	LP	2
	593	DV 381.01	M	L	X	74	1	folk	Lorman (Jefferson)	LM	LP	3
SCB maj ---	617	EA 401.02	M	L	Y	51	2	comm	Pascagoula (Jackson)	GM	GR	1
SCD --- ---	535	DK 339.01	F	M	Y	67	2	comm	Tupelo (Lee)	UM	GR	1
	615	DZ 400.03	F	A	Y	79	3	cult	Natchez (Adams)	LM	PE	2
SCE --- ---	521	DH 325.02	F	M	Y	80	3	cult	Iuka (Tishomingo)	UM	LP	1
	629	EB 406.03	M	M	Y	27	3	cult	Picayune (Pearl River)	GM	SL	2
SCE maj ---	538	DK 340.03	F	M	Y	81	2	comm	Pontotoc (Pontotoc)	UM	LP	1
	571	DQ 367.02	F	L	X	24	2	comm	Philadelphia (Neshoba)	LM	MP	2
	585	DT 378.01	M	L	X	52	1	folk	Pulaski (Scott)	LM	LP	3
	590	DU 379.03	F	M	X	66	3	cult	Jackson (Hinds)	LM	LP	4
TAA --- ---	558	DW 354.03	F	L	X	22	3	comm	Starkville (Oktibbeha)	UM	SL	1
	579	DS 372.01	M	A	Y	87	3	cult	Vicksburg (Warren)	LM	RM	2
TAD --- ---	525	DI 330.02	M	M	X	82	1	folk	Holly Springs (Marshall)	UM	PE	1
	586	DU 379.04	M	L	X	88	2	folk	Edwards (Hinds)	LM	SL	2
	591	DU 379.06	M	M	Y	19	3	cult	Jackson (Hinds)	LM	SL	3
	597	DW 384.01	M	M	Y	78	2	comm	Leakesville (Greene)	LM	SL	4
	626	EB 405.02	M	U	Y	70	2	comm	Kiln (Hancock)	GM	LP	5
TCB --- ---	601	DW 387.03	F	L	Y	69	2	comm	Soso (Jones)	LM	PE	1
TFD --- ---	628	EB 406.01	F	L	Y	73	1	folk	White Chapel (Pearl River)	GM	PE	1

for SDP

FIGURE 5

voicless.sp

Vowel	Book	Protocol	Sx	Cl	Rc	Age	Ed	Spch	City (County)	St	Sc	
PAA --- ---	529	DJ 334.01	M	M	Y	81	3	cult	Marks (Quitman)	UM	LD	1
	542	DL 346.01	M	I	Y	65	1	folk	Oxford (Lafayette)	UM	LD	2
	555	DN 352.03	M	L	X	68	1	folk	Brooksville (Noxubee)	UM	LD	3
	583	DT 377.01	M	L	Y	77	2	comm	Trenton (Smith)	LM	LD	4
PCA --- ---	537	DK 340.02	M	M	X	77	2	comm	Pontotoc (Pontotoc)	UM	LD	1
	577	DS 372.02	F	M	X	77	1	folk	Vicksburg (Warren)	LM	LD	2
	600	DW 387.05	M	L	X	84	1	folk	Soso (Jones)	LM	GR	3
RCA --- ---	611	DZ 399.04	F	U	X	75	3	cult	Woodville (Wilkinson)	LM	GR	1
SAA --- ---	584	DT 377.02	F	M	Y	65	3	cult	Wicker (Smith)	LM	PE	1
	603	DX 388.01	M	I	Y	72	1	folk	Baxterville (Lamar)	LM	LP	2
SAA maj ---	552	DN 351.03	F	L	X	66	2	folk	Columbus (Lowndes)	UM	LP	1
SAB --- ---	523	DH 328.01	F	M	X	18	2	comm	Ripley (Tippah)	UM	SL	1
	532	DK 338.02	M	M	X	73	1	folk	Houston (Chickasaw)	UM	SL	2
	547	DL 347.01	M	M	X	30	3	cult	Crowder (Panola)	UM	SL	3
	556	DN 352.01	M	M	Y	77	2	comm	Macon (Noxubee)	UM	PE	4
	574	DR 371.01	F	M	Y	63	1	folk	Pleasant Hill (Yazoo)	LM	LD	5
	605	DX 392.01	F	M	Y	85	1	folk	Weathersby (Simpson)	LM	SL	6
	627	EB 406.02	M	L	X	79	1	folk	Carriere (Pearl River)	GM	PE	7
SAD --- ---	614	DZ 400.04	M	M	X	58	3	cult	Natchez (Adams)	LM	SL	1
SAE --- ---	522	DH 327.01	F	M	Y	15	2	comm	Corinth (Alcorn)	UM	GR	1
	524	DH 328.02	F	M	Y	18	2	comm	Ripley (Tippah)	UM	GB	2
	526	DI 330.01	F	A	Y	75	3	cult	Holly Springs (Marshall)	UM	LP	3
	527	DI 332.01	F	U	Y	85	2	cult	Hernando (De Soto)	UM	MB	4
	530	DJ 335.01	M	L	X	74	1	folk	Sherard (Coahoma)	UM	PE	5
	531	DJ 335.02	M	U	Y	85	2	comm	Friars Point (Coahoma)	UM	SL	6
	533	DK 338.01	M	M	Y	25	3	cult	Houston (Chickasaw)	UM	SL	7
	536	DK 340.01	M	M	Y	86	1	folk	Toxish (Pontotoc)	UM	PE	8
	541	DL 345.01	F	M	Y	18	2	cult	Charleston (Tallahatchie)	UM	MB	9
X →	545	DL 346.04	F	M	X	63	3	cult	Oxford (Lafayette)	UM	PE	10
	546	DL 346.05	M	U	Y	80	3	cult	Burgess (Lafayette)	UM	SL	11
	549	DM 349.01	M	U	Y	81	3	cult	Benoit (Bolivar)	UM	MB	12
	550	DM 350.01	F	L	X	63	1	folk	Leland (Washington)	UM	SL	13
	551	DM 350.02	M	U	Y	51	3	cult	Greenville (Washington)	UM	MB	14
	553	DN 351.01	M	U	Y	47	3	cult	Columbus (Lowndes)	UM	SL	15
	557	DN 354.01	F	M	Y	81	2	comm	Starkville (Oktibbeha)	UM	SL	16
	559	DO 356.01	M	M	Y	83	2	comm	Chester (Choctaw)	UM	SL	17
	561	DO 359.01	M	L	Y	58	1	folk	Kosciusko (Attala)	UM	LP	18
	565	DP 361.01	F	L	Y	80	1	folk	Jefferson (Carroll)	UM	GB	19
	566	DP 361.02	F	L	X	31	2	folk	Vaiden (Carroll)	UM	SL	20
	568	DP 363.01	M	M	Y	56	2	comm	Greenwood (Leflore)	UM	LP	21
	570	DQ 365.01	F	M	Y	75	1	folk	Lockhart (Lauderdale)	LM	SL	22
	572	DQ 367.01	M	M	Y	44	2	comm	Bogue Chitto (Neshoba)	LM	SL	23
	576	DR 371.02	M	U	Y	42	1	comm	Pleasant Hill (Yazoo)	LM	PE	24
	578	DS 372.03	F	L	Y	68	1	folk	Redwood (Warren)	LM	PE	25
	580	DS 374.02	M	L	X	78	1	folk	Mayersville (Issaquena)	LM	SL	26
U →	581	DS 374.01	F	[illegible]	Y	77	3	cult	Mayersville (Issaquena)	LM	MP	27
	587	DU 397.02	M	M	X	77	1	folk	Edwards (Hinds)	LM	GB	28

	623	EA	402.01	F	M	Y	66	2	comm	Saucier (Harrison)	GM SL	42
	624	EA	404.01	F	M	X	33	3	cult	Red Creek (Stone)	GM MB	43
	625	EB	405.01	M	L	Y	84	2	comm	Kiln (Hancock)	GM MB	44
SAE maj ---	520	DH	325.01	M	L	Y	72	2	folk	Iuka (Tishomingo)	UM LP	1
	528	DJ	333.01	M	U	Y	87	1	comm	Tunica (Tunica)	UM LP	2
	534	DK	339.02	M	M	Y	69	1	folk	Saltillo (Lee)	UM MP	3
	539	DL	343.01	M	M	Y	64	3	comm	Holcomb (Grenada)	UM LP	4
	540	DL	345.02	M	M	Y	70	1	folk	Enid (Tallahatchie)	UM LP	5
	548	DM	348.01	F	L	Y	69	1	folk	Drew (Sunflower)	UM LP	6
	562	DO	359.04	F	M	Y	85	2	comm	McCool (Attala)	UM LP	7
	569	DQ	364.01	M	M	X	73	2	comm	Klondike (Kemper)	LM SL	8
	575	DR	371.04	F	U	Y	80	3	cult	Freerun (Yazoo)	LM LP	9
	582	DT	375.01	M	M	Y	76	1	folk	Quitman (Clarke)	LM LP	10
	592	DU	379.01	F	M	Y	70	3	cult	Jackson (Hinds)	LM MB	11
	604	DX	388.02	F	M	Y	78	2	comm	Lumberton (Lamar)	LM LP	12
	607	DY	396.02	M	M	Y	85	2	comm	Boque Chitto (Lincoln)	LM LP	13
	609	DZ	399.02	M	L	X	85	1	folk	Lessley (Wilkinson)	LM SL	14
	613	DZ	400.02	M	M	Y	52	2	comm	Natchez (Adams)	LM LP	15
	621	EA	402.03	M	L	Y	53	2	comm	Biloxi (Harrison)	GM LP	16
	622	EA	402.06	F	M	X	17	2	comm	Gulfport (Harrison)	GM MB	17
SAG --- ---	544	DL	346.03	F	M	Y	75	3	cult	Taylor (Lafayette)	UM PE	1
	554	DN	352.02	F	L	Y	99	1	folk	Mashulaville (Noxubee)	UM SL	2
	560	DO	356.02	M	M	Y	69	2	comm	Ackerman (Choctaw)	UM SL	3
	573	DR	371.03	M	L	X	87	1	folk	Eden (Yazoo)	LM SL	4
	596	DV	382.01	M	M	X	78	1	folk	Little Springs (Franklin)	LM SL	5
	606	DY	394.01	M	M	Y	95	1	folk	Holmesville (Pike)	LM SL	6
	610	DZ	399.03	M	L	X	73	2	comm	Woodville (Wilkinson)	LM SL	7
SCA --- ---	543	DL	346.02	M	L	X	64	1	folk	Lafayette Springs (Lafayette)	UM LP	1
	567	DP	363.02	M	U	Y	86	2	comm	Greenwood (Leflore)	UM GR	2
SCA maj ---	563	DO	359.05	F	M	Y	46	2	comm	Kosciusko (Attala)	UM LP	1
	564	DO	359.06	M	M	X	37	3	cult	Kosciusko (Attala)	UM LP	2
	593	DV	381.01	M	L	X	74	1	folk	Lorman (Jefferson)	LM LP	3
SCB maj ---	617	EA	401.02	M	L	Y	51	2	comm	Pascagoula (Jackson)	GM GR	1
SCD --- ---	535	DK	339.01	F	M	Y	67	2	comm	Tupelo (Lee)	UM GR	1
	615	DZ	400.03	F	A	Y	79	3	cult	Natchez (Adams)	LM PE	2
SCE --- ---	521	DH	325.02	F	M	Y	80	3	cult	Iuka (Tishomingo)	UM LP	1
	629	EB	406.03	M	M	Y	27	3	cult	Picayune (Pearl River)	GM SL	2
SCE maj ---	538	DK	340.03	F	M	Y	81	2	comm	Pontotoc (Pontotoc)	UM LP	1
	571	DQ	367.02	F	L	X	24	2	comm	Philadelphia (Neshoba)	LM MP	2
	585	DT	378.01	M	L	X	52	1	folk	Pulaski (Scott)	LM LP	3
	590	DU	379.03	F	M	X	66	3	cult	Jackson (Hinds)	LM LP	4
TAA --- ---	550	DN	354.03	F	L	X	22	3	comm	Starkville (Oktibbeha)	UM SL	1
	579	DS	372.01	M	A	Y	87	3	cult	Vicksburg (Warren)	LM RM	2
TAD --- ---	525	DI	330.02	M	M	X	82	1	folk	Holly Springs (Marshall)	UM PE	1
	586	DU	379.04	M	L	X	88	2	folk	Edwards (Hinds)	LM SL	2
	591	DU	379.06	M	M	Y	19	3	cult	Jackson (Hinds)	LM SL	3
	597	DW	384.01	M	M	Y	78	2	comm	Leakesville (Greene)	LM SL	4
	626	EB	405.02	M	U	Y	70	2	comm	Kiln (Hancock)	GM LP	5
TCB --- ---	601	DW	387.03	F	L	Y	69	2	comm	Soso (Jones)	LM PE	1
TFD --- ---	628	EB	406.01	F	L	Y	73	1	folk	White Chapel (Pearl River)	GM PE	1

for SDP

FIGURE 5

voicless.sp

Vowel	Book	Protocol	Sx	Cl	Rc	Age	Ed	Spch	City (County)	St	Sc	
PAA --- ---	529	DJ 334.01	M	M	Y	81	3	cult	Marks (Quitman)	UM	LD	1
	542	DL 346.01	M	I	Y	65	1	folk	Oxford (Lafayette)	UM	LD	2
	555	DN 352.03	M	L	X	68	1	folk	Brooksville (Noxubee)	UM	LD	3
	583	DT 377.01	M	L	Y	77	2	comm	Trenton (Smith)	LM	LD	4
PCA --- ---	537	DK 340.02	M	M	X	77	2	comm	Pontotoc (Pontotoc)	UM	LD	1
	577	DS 372.02	F	M	X	77	1	folk	Vicksburg (Warren)	LM	LD	2
	600	DW 387.05	M	L	X	84	1	folk	Soso (Jones)	LM	GR	3
RCA --- ---	611	DZ 399.04	F	U	X	75	3	cult	Woodville (Wilkinson)	LM	GR	1
SAA --- ---	584	DT 377.02	F	M	Y	65	3	cult	Wicker (Smith)	LM	PE	1
	603	DX 388.01	M	I	Y	72	1	folk	Baxterville (Lamar)	LM	LP	2
SAA maj ---	552	DN 351.03	F	L	X	66	2	folk	Columbus (Lowndes)	UM	LP	1
SAB --- ---	523	DH 328.01	F	M	X	18	2	comm	Ripley (Tippah)	UM	SL	1
	532	DK 338.02	M	M	X	73	1	folk	Houston (Chickasaw)	UM	SL	2
	547	DL 347.01	M	M	X	30	3	cult	Crowder (Panola)	UM	SL	3
	556	DN 352.01	M	M	Y	77	2	comm	Macon (Noxubee)	UM	PE	4
	574	DR 371.01	F	M	Y	63	1	folk	Pleasant Hill (Yazoo)	LM	LD	5
	605	DX 392.01	F	M	Y	85	1	folk	Weathersby (Simpson)	LM	SL	6
	627	EB 406.02	M	L	X	79	1	folk	Carriere (Pearl River)	GM	PE	7
SAD --- ---	614	DZ 400.04	M	M	X	58	3	cult	Natchez (Adams)	LM	SL	1
SAE --- ---	522	DH 327.01	F	M	Y	15	2	comm	Corinth (Alcorn)	UM	GR	1
	524	DH 328.02	F	M	Y	18	2	comm	Ripley (Tippah)	UM	GB	2
	526	DI 330.01	F	A	Y	75	3	cult	Holly Springs (Marshall)	UM	LP	3
	527	DI 332.01	F	U	Y	85	2	cult	Hernando (De Soto)	UM	MB	4
	530	DJ 335.01	M	L	X	74	1	folk	Sherard (Coahoma)	UM	PE	5
	531	DJ 335.02	M	U	Y	85	2	comm	Friars Point (Coahoma)	UM	SL	6
	533	DK 338.01	M	M	Y	25	3	cult	Houston (Chickasaw)	UM	SL	7
	536	DK 340.01	M	M	Y	86	1	folk	Toxish (Pontotoc)	UM	PE	8
	541	DL 345.01	F	M	Y	18	2	cult	Charleston (Tallahatchie)	UM	MB	9
X →	545	DL 346.04	F	M	X	63	3	cult	Oxford (Lafayette)	UM	PE	10
	546	DL 346.05	M	U	Y	80	3	cult	Burgess (Lafayette)	UM	SL	11
	549	DM 349.01	M	U	Y	81	3	cult	Benoit (Bolivar)	UM	MB	12
	550	DM 350.01	F	L	X	63	1	folk	Leland (Washington)	UM	SL	13
	551	DM 350.02	M	U	Y	51	3	cult	Greenville (Washington)	UM	MB	14
	553	DN 351.01	M	U	Y	47	3	cult	Columbus (Lowndes)	UM	SL	15
	557	DN 354.01	F	M	Y	81	2	comm	Starkville (Oktibbeha)	UM	SL	16
	559	DO 356.01	M	M	Y	83	2	comm	Chester (Choctaw)	UM	SL	17
	561	DO 359.01	M	L	Y	58	1	folk	Kosciusko (Attala)	UM	LP	18
	565	DP 361.01	F	L	Y	80	1	folk	Jefferson (Carroll)	UM	GB	19
	566	DP 361.02	F	L	X	31	2	folk	Vaiden (Carroll)	UM	SL	20
	568	DP 363.01	M	M	Y	56	2	comm	Greenwood (Leflore)	UM	LP	21
	570	DQ 365.01	F	M	Y	75	1	folk	Lockhart (Lauderdale)	LM	SL	22
	572	DQ 367.01	M	M	Y	44	2	comm	Bogue Chitto (Neshoba)	LM	SL	23
	576	DR 371.02	M	U	Y	42	1	comm	Pleasant Hill (Yazoo)	LM	PE	24
	578	DS 372.03	F	L	Y	68	1	folk	Redwood (Warren)	LM	PE	25
	580	DS 374.02	M	L	X	78	1	folk	Mayersville (Issaquena)	LM	SL	26
U →	581	DS 374.01	F	U	Y	77	3	cult	Mayersville (Issaquena)	LM	MP	27
	587	DU 397.02	M	M	X	77	1	folk	Edwards (Hinds)	LM	GB	28

distribution of these subsets, and 4) the social distribution of the strings that comprise the subsets. With each entry listed alphabetically (under *voic(e)less.sp/Vowel*), the printout reports these facts:

Book: Primary Informant Number, corresponding to the 1121 books that form the LAGS concordance;

Protocol: the Grid Unit, County, and Serial codes;

S(e)x: F (female); M (male);

Cl(ass): Social Class: A (aristocratic); U (upper to upper-middle); M (middle); L (lower-middle to lower); I (indigent) classes;

R(a)c(ial Caste): X (Black); Y (White);

Age: at the time of the interview;

Ed(ucation): 1 (elementary-school education); 2 (secondary-school education); 3 (college education);

Sp(ee)ch Type: cult(ured); comm(on); folk;

City (County);

St(ate Sector): UM (Upper Mississippi); LM (Lower Mississippi); GM (Gulf Mississippi);

Sc(ribe): GB (Guy H. Bailey, III), MB (Marvin W. Bassett); LD (Louise A. DeVere); PE (Polly R. Edmundson); SL (Susan Leas McDaniel); RM (Raven I. McDavid, Jr.); LP (Lee Pederson); MP (Michael Pendergrass); GR (Gail Richardson).

The final column gives a running count of incidence within each subset. Those subsets combine in an index for each file, and these are printed as components of the primary class, the phoneme. Figure 6 reproduces the index for the five files under class S.p, (/a/) for primary informants.

These summaries mark the probable terminal strings of LAGS phonological description. Unless analysis requires a reduction to phonetic radicals--the

Totals from Vowel Files

FIGURE 6

voicless.sp	PAA --- ---	4	nasal.sp	SCA --- ---	2	lateral.sp	xxx xxx xxx	3	retroflx.sp	PAA maa ---	1
voicless.sp	PCA --- ---	3	nasal.sp	SCA maj ---	1	retroflx.sp	PAA maa ---	1	retroflx.sp	PCA maa ---	1
voicless.sp	RCA --- ---	1	nasal.sp	SCB maj ---	1	retroflx.sp	PCA maa ---	1	retroflx.sp	PKA --- ---	1
voicless.sp	SAA --- ---	2	nasal.sp	SCD --- ---	1	retroflx.sp	PKA --- ---	1	retroflx.sp	QMC maj ---	1
voicless.sp	SAA maj ---	1	nasal.sp	SCE --- ---	15	retroflx.sp	QMC maj ---	1	retroflx.sp	SAA mej ---	1
voicless.sp	SAB --- ---	7	nasal.sp	SCE maj ---	13	retroflx.sp	SAA mej ---	1	retroflx.sp	SAB --- ---	1
voicless.sp	SAD --- ---	1	nasal.sp	SCE mak ---	1	retroflx.sp	SAB --- ---	1	retroflx.sp	SAB maj ---	3
voicless.sp	SAE --- ---	44	nasal.sp	SCG --- ---	2	retroflx.sp	SAB maj ---	3	retroflx.sp	SAB mea ---	1
voicless.sp	SAE maj ---	17	nasal.sp	SCG maj ---	1	retroflx.sp	SAB mea ---	1	retroflx.sp	SAE --- ---	1
voicless.sp	SAG --- ---	7	nasal.sp	SCG mfj ---	1	retroflx.sp	SAE --- ---	1	retroflx.sp	SAE maa ---	1
voicless.sp	SCA --- ---	2	nasal.sp	SCG qfj ---	1	retroflx.sp	SAE maa ---	1	retroflx.sp	SAE maj ---	3
voicless.sp	SCA maj ---	3	nasal.sp	SDA --- ---	1	retroflx.sp	SAE maj ---	3	retroflx.sp	SAE mea ---	16
voicless.sp	SCB maj ---	1	nasal.sp	SDB --- ---	1	retroflx.sp	SAE mea ---	16	retroflx.sp	SAE mej ---	2
voicless.sp	SCD --- ---	2	nasal.sp	SDE --- ---	1	retroflx.sp	SAE mej ---	2	retroflx.sp	SAE taa ---	1
voicless.sp	SCE --- ---	2	nasal.sp	SDE mdj ---	1	retroflx.sp	SAE taa ---	1	retroflx.sp	SAG --- ---	1
voicless.sp	SCE maj ---	4	nasal.sp	SDG --- ---	2	retroflx.sp	SAG --- ---	1	retroflx.sp	SAG maj ---	1
voicless.sp	TAA --- ---	2	nasal.sp	SKA --- ---	2	retroflx.sp	SAG maj ---	1	retroflx.sp	SAG mea ---	2
voicless.sp	TAD --- ---	5	nasal.sp	SKA mdj ---	1	retroflx.sp	SAG mea ---	2	retroflx.sp	SCA mea ---	2
voicless.sp	TCB --- ---	1	nasal.sp	SKB --- ---	1	retroflx.sp	SCA mea ---	2	retroflx.sp	SCB maa ---	1
voicless.sp	TFD --- ---	1	nasal.sp	SKB mdj ---	2	retroflx.sp	SCB maa ---	1	retroflx.sp	SCB maj ---	2
voiced.sp	PCA --- ---	2	nasal.sp	SKE --- ---	2	retroflx.sp	SCB maj ---	2	retroflx.sp	SCD mea ---	1
voiced.sp	PCC --- ---	2	nasal.sp	SKE mdj ---	5	retroflx.sp	SCD mea ---	1	retroflx.sp	SCE --- ---	2
voiced.sp	SAA --- ---	1	nasal.sp	TAB qfj ---	1	retroflx.sp	SCE --- ---	2	retroflx.sp	SCE maa ---	2
voiced.sp	SAB --- ---	5	nasal.sp	TAD maj ---	1	retroflx.sp	SCE maa ---	2	retroflx.sp	SCE maj ---	3
voiced.sp	SAB maj ---	3	nasal.sp	TCB maj ---	1	retroflx.sp	SCE maj ---	3	retroflx.sp	SCE mea ---	13
voiced.sp	SAD --- ---	1	nasal.sp	TCD --- ---	1	retroflx.sp	SCE mea ---	13	retroflx.sp	SFE maa ---	1
voiced.sp	SAE --- ---	25	nasal.sp	TCD maj ---	2	retroflx.sp	SFE maa ---	1	retroflx.sp	SFE mea ---	1
voiced.sp	SAE maj ---	10	nasal.sp	TCF maj ---	1	retroflx.sp	SFE mea ---	1	retroflx.sp	SKE mna ---	1
voiced.sp	SAE mak ---	1	nasal.sp	TKA --- ---	1	retroflx.sp	SKE mna ---	1	retroflx.sp	SMG mea ---	1
voiced.sp	SAE tfa ---	1	nasal.sp	TMA maj ---	2	retroflx.sp	SMG mea ---	1	retroflx.sp	SOE --- ---	1
voiced.sp	SAF --- ---	2	nasal.sp	TMF maj ---	1	retroflx.sp	SOE --- ---	1	retroflx.sp	TAA mea ---	1
voiced.sp	SAG --- ---	8	nasal.sp	TXB mdj ---	1	retroflx.sp	TAA mea ---	1	retroflx.sp	TAD maj ---	5
voiced.sp	SCA --- ---	5	lateral.sp	PAA --- ---	4	retroflx.sp	TAD maj ---	5	retroflx.sp	TAD mea ---	3
voiced.sp	SCB --- ---	3	lateral.sp	PAC --- ---	1	retroflx.sp	TAD mea ---	3	retroflx.sp	TAD pan mea	1
voiced.sp	SCB maj ---	1	lateral.sp	PCA --- ---	1	retroflx.sp	TAD pan mea	1	retroflx.sp	TCA --- ---	1
voiced.sp	SCD --- ---	1	lateral.sp	PCC --- ---	1	retroflx.sp	TCA --- ---	1	retroflx.sp	TCA maa ---	1
voiced.sp	SCE --- ---	6	lateral.sp	RCA --- ---	1	retroflx.sp	TCA maa ---	1	retroflx.sp	TCA maj ---	3
voiced.sp	SCE maj ---	11	lateral.sp	RCE --- ---	1	retroflx.sp	TCA maj ---	3	retroflx.sp	TCA mea ---	2
voiced.sp	SKE --- ---	1	lateral.sp	SAA --- ---	3	retroflx.sp	TCA mea ---	2	retroflx.sp	TCB maa ---	1
voiced.sp	SME --- ---	1	lateral.sp	SAB --- ---	4	retroflx.sp	TCB maa ---	1	retroflx.sp	TCD --- ---	2
voiced.sp	SME tfa ---	1	lateral.sp	SAD --- ---	2	retroflx.sp	TCD --- ---	2	retroflx.sp	TCD maa ---	3
voiced.sp	TAA --- ---	1	lateral.sp	SAE --- ---	38	retroflx.sp	TCD maa ---	3	retroflx.sp	TCD maj ---	8
voiced.sp	TAA tfb ---	1	lateral.sp	SAE maj ---	6	retroflx.sp	TCD maj ---	8	retroflx.sp	TCD mea ---	3
voiced.sp	TAD --- ---	5	lateral.sp	SAF --- ---	2	retroflx.sp	TCD mea ---	3	retroflx.sp	TCF maa ---	1
voiced.sp	TAD maj ---	1	lateral.sp	SAG --- ---	4	retroflx.sp	TCF maa ---	1	retroflx.sp	TCG maa ---	1
voiced.sp	TCA --- ---	2	lateral.sp	SAG maj ---	1	retroflx.sp	TCG maa ---	1	retroflx.sp	TFB maj ---	1
voiced.sp	TCD --- ---	1	lateral.sp	SCA --- ---	12	retroflx.sp	TFB maj ---	1	retroflx.sp	TFD maj ---	1
voiced.sp	TCD maj ---	3	lateral.sp	SCB --- ---	1	retroflx.sp	TFD maj ---	1	retroflx.sp	TMA maj ---	1
voiced.sp	TFA --- ---	1	lateral.sp	SCB maj ---	1	retroflx.sp	TMA maj ---	1	retroflx.sp	TMA mea ---	1
voiced.sp	TFB --- ---	2	lateral.sp	SCE --- ---	8	retroflx.sp	TMA mea ---	1	retroflx.sp	TMF --- ---	1
voiced.sp	TFF maa ---	1	lateral.sp	SCE maj ---	4	retroflx.sp	TMF --- ---	1			
voiced.sp	TMA maj ---	1	lateral.sp	SCF --- ---	1						
nasal.sp	PAC --- ---	2	lateral.sp	SCG maj ---	1						
nasal.sp	PCA --- ---	1	lateral.sp	SFE --- ---	2						
nasal.sp	PKC --- ---	1	lateral.sp	TAA --- ---	1						
nasal.sp	SAA --- ---	1	lateral.sp	TAB --- ---	1						
nasal.sp	SAE --- ---	10	lateral.sp	TAD --- ---	3						
nasal.sp	SAE maj ---	15	lateral.sp	TCD --- ---	1						
nasal.sp	SAG --- ---	6	lateral.sp	TFD --- ---	1						
nasal.sp	SAG maj ---	4	lateral.sp	TMD maj ---	1						

For SDP

FIGURE 6

Totals from Vowel Files

voiclass.sp

PAA	---	---	4
PCA	---	---	3
RCA	---	---	1
SAA	---	---	2
SAA	maj	---	1
SAB	---	---	7
SAD	---	---	1
SAE	---	---	44
SAE	maj	---	17
SAG	---	---	7
SCA	---	---	2
SCA	maj	---	3
SCB	maj	---	1
SCD	---	---	2
SCE	---	---	2
SCE	maj	---	4
TAA	---	---	2
TAD	---	---	5
TCD	---	---	1
TFD	---	---	1

voiced.sp

PCA	---	---	2
PCC	---	---	2
SAA	---	---	1
SAB	---	---	5
SAB	maj	---	3
SAD	---	---	1
SAE	---	---	25
SAE	maj	---	10
SAE	mak	---	1
SAE	tfa	---	1
SAF	---	---	2
SAG	---	---	8
SCA	---	---	5
SCB	---	---	3
SCE	maj	---	1
SCD	---	---	1
SCE	---	---	6
SCE	maj	---	11
SKE	---	---	1
SME	---	---	1
SME	tfa	---	1
TAA	---	---	1
TAA	tfb	---	1
TAD	---	---	5
→ TAD	maj	---	x1
TCA	---	---	2

voiced.sp

TCD	---	---	1
TCD	maj	---	3
TFA	---	---	1
TFD	---	---	2
TFF	maa	---	1
TMA	maj	---	1

nasal.sp

PAC	---	---	2
PCA	---	---	1
PKC	---	---	1
SAA	---	---	1
SAE	---	---	10
SAE	maj	---	15
SAG	---	---	6
SAG	maj	---	4
SCA	---	---	2
SCA	maj	---	1
SCB	maj	---	1
SCD	---	---	1
SCE	---	---	15
SCE	maj	---	13
SCE	mak	---	1
SCB	---	---	2
SCG	maj	---	1
SCG	mfj	---	1
SCG	qfj	---	1
SDA	---	---	1
SDB	---	---	1
SDE	---	---	1
SDE	mdj	---	1
SDG	---	---	2
SKA	---	---	2
SKA	mdj	---	1
SKB	---	---	1
SKB	mdj	---	2
SKE	---	---	2
SKE	mdj	---	5
TAB	qfj	---	1
TAD	maj	---	1
TCB	maj	---	1
TCD	---	---	1
TCD	maj	---	2
TCF	maj	---	1
TKA	---	---	1
TMA	maj	---	2
TMF	maj	---	1
TXB	mdj	---	1

lateral.sp

PAA	---	---	4
PAC	---	---	1
PCA	---	---	1
PDC	---	---	1
RCA	---	---	1
RCE	---	---	1
SAA	---	---	3
SAB	---	---	4
SAD	---	---	2
SAE	---	---	38
SAE	maj	---	6
SAF	---	---	2
SAG	---	---	4
SAG	maj	---	1
SCA	---	---	12
SCB	---	---	1
SCB	maj	---	1
SCE	---	---	8
SCE	maj	---	4
SCF	---	---	1
SCG	maj	---	1
SFE	---	---	2
TAA	---	---	1
TAB	---	---	1
TAD	---	---	3
TCD	---	---	1
TFD	---	---	1
TMD	maj	---	1
xxx	xxx	xxx	3

retroflex.sp

PAA	maa	---	1
PCA	maa	---	1
PKA	---	---	1
QMC	maj	---	1
SAA	maj	---	1
SAB	---	---	1
SAB	maj	---	3
SAB	nea	---	1
SAE	---	---	1
SAE	maa	---	1
SAE	maj	---	3
SAE	mea	---	16
SAE	maj	---	2
SAE	taa	---	1
SAG	---	---	1
SAG	maj	---	1
SAG	mea	---	2

retroflex.sp

SCA	mea	---	2
SCB	maa	---	1
SCB	maj	---	2
SCD	mea	---	1
SCE	---	---	2
SCE	maa	---	2
SCE	maj	---	3
SCE	mea	---	13
SFE	maa	---	1
SFE	mea	---	1
SKE	maa	---	1
SMG	mea	---	1
SDE	---	---	1
TAA	mea	---	1
TAD	maj	---	5
TAD	mea	---	3
TAD	pan	mea	1
TCA	---	---	1
TCA	maa	---	1
TCA	maj	---	3
TCA	mea	---	2
TCB	maa	---	1
TCD	---	---	2
TCD	maa	---	3
TCD	maj	---	9
TCD	mea	---	3
TCF	maa	---	1
TCG	maa	---	1
TFB	maj	---	1
TFD	maj	---	1
TMG	maj	---	1
TMA	mea	---	1
TMF	---	---	1

FIGURE 6

Totals from Vowel Files

voicless.sp

PAA	4
PCA	3
RCA	1
SAA	2
SAA maj	1
SAB	7
SAD	1
SAE	44
SAE maj	17
SAG	7
SCA	2
SCA maj	3
SCB maj	1
SCD	2
SCE	2
SCE maj	4
TAA	2
TAD	5
TCB	1
TFD	1

voiced.sp

PCA	2
PCC	2
SAA	1
SAB	5
SAB maj	3
SAD	1
SAE	25
SAE maj	10
SAE mak	1
SAE tfa	1
SAF	2
SAG	8
SCA	5
SCB	3
SCB maj	1
SCD	1
SCE	6
SCE maj	11
SKE	1
SME	1
SME tfa	1
TAA	1
TAA tfb	1
TAD	5
TAD maj	21
TCA	2

voiced.sp

TCD	1
TCD maj	3
TFA	1
TFB	2
TFF maa	1
TMA maj	1

nasal.sp

PAC	2
PCA	1
PKC	1
SAA	1
SAE	10
SAE maj	15
SAG	6
SAG maj	4
SCA	2
SCA maj	1
SCB maj	1
SCD	1
SCE	15
SCE maj	13
SCE mak	1
SCG	2
SCG maj	1
SCG mfj	1
SCG qfj	1
SDA	1
SDB	1
SDE	1
SDE mdj	1
SDG	2
SKA	2
SKA mdj	1
SKB	1
SKB mdj	2
SKE	2
SKE mdj	5
TAB qfj	1
TAD maj	1
TCB maj	1
TCD	1
TCD maj	2
TCF maj	1
TKA	1
TMA maj	2
TMF maj	1
TXB mdj	1

lateral.sp

PAA	4
PAC	1
PCA	1
PCC	1
RCA	1
RCE	1
SAA	3
SAB	4
SAD	2
SAE	38
SAE maj	6
SAF	2
SAG	4
SAG maj	1
SCA	12
SCB	1
SCB maj	1
SCE	8
SCE maj	4
SCF	1
SCG maj	1
SFE	2
TAA	1
TAB	1
TAD	3
TCD	1
TFD	1
TMD maj	1
xxx xxx xxx	3

retroflx.sp

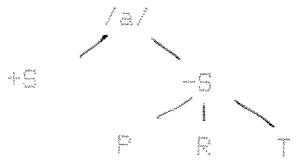
PAA maa	1
PCA maa	1
PKA	1
QMC maj	1
SAA mej	1
SAB	1
SAB maj	3
SAB mea	1
SAE	1
SAE maa	1
SAE maj	3
SAE mea	16
SAE mej	2
SAE taa	1
SAG	1
SAG maj	1
SAG mea	2

retroflx.sp

SCA mea	2
SCB maa	1
SCB maj	2
SCD mea	1
SCE	2
SCE maa	2
SCE maj	3
SCE mea	13
SFE maa	1
SFE mea	1
SKE mna	1
SMG mea	1
SOE	1
TAA mea	1
TAD maj	5
TAD mea	3
TAD pan mea	1
TCA	1
TCA maa	1
TCA maj	3
TCA mea	2
TCB maa	1
TCD	2
TCD maa	3
TCD maj	8
TCD mea	3
TCF maa	1
TCG maa	1
TFB maj	1
TFD maj	1
TMA maj	1
TMA mea	1
TMF	1

problem mentioned in note 7—these files record the final link in the descriptive chain. They do not, however, signal the end of the analysis. The strings ordered in Figure 5, and vowel of *crop*, (S.p/voic(e)less), for example, project several kinds of diagnostic information that recommends comparative study at the features level and then at successive articulations of phonetic, phonemic, morphemic, and lexical analysis.

Including 20 different strings and four different primary features (P, R, S, and T), the file yields immediate geographical and social correspondences at the very first analytical division:



Class

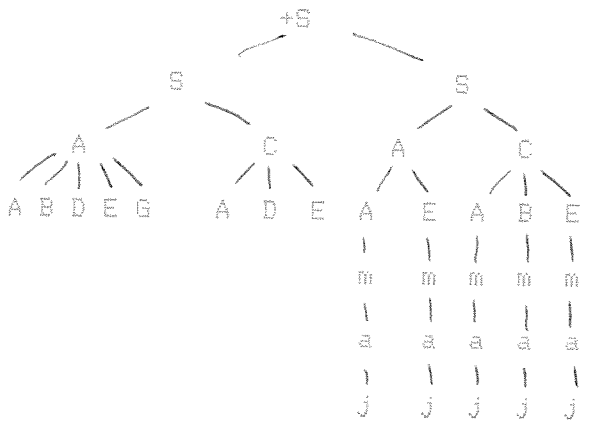
I

Including 17 strings (P, R, T), the recessive set (-S) has seven subsets, all of which are monophthongal: PAA (4), PCA (3), RCA (1), TAA (2), TAD (5), TCB (1), and TFD (1). These divide evenly in two distinctive sets:

-T (P, R) +T

The first (-T) has an even number of informants from Upper and Lower Mississippi, but all eight are at least age 65, with a black majority (5 of 8).[10] The second (+T) includes younger well-educated informants and a smaller proportion of blacks (3 of 9), but seven of these nine strings were recorded in Lower or Gulf Mississippi.

Within the dominant set (+S), two basic patterns emerge, contrasting monophthongal and diphthongal strings:



Set

I

II

III

i

ii

iii

Here, the analysis provided by the inventory establishes the kinds of distinctions and illustrations usually restricted to syntactic parsing. In the process, the factored subsets show contrastive patterns. For example, the monophthongs (S) have five variants proceeding from unmarked secondary features, SA + A, B, D, E, G, but those monophthongs marked for length, SC, have only three variants, + A, D, E. Among the diphthongs, however, the patterns proceeding from unmarked and lengthened secondary features are quite similar, and all show identical glides.

Laid out in this way, the phones can be compared structurally before the sociolinguistic, historical, and geographical considerations enter the analysis. When that happens, one tends to seek generalizations, and these may be less interesting, especially at this level, than the phonic composition of the forms. In the chain (+S), 13 subsets comprise the small system, and they show this incidence:

S (67)

SAA (2)

SAB (7)

SAD (1)

SAE (44)

SAG (7)

S (26)

SAA-maj (1)

SAE-maj (17)

SCA-maj (3)

SCB-maj (1)

SCE-maj (4)

SCA (2)

SCD (2)

SCE (2)

Combined with the 17 strings of the recessive set (-S), these 93 strings complete the inventory of 110 primary informants in Mississippi. Although an exhaustive listing of social characteristics here will show a higher proportion of blacks, older, and less educated members of lower social classes among the (+S) set and a higher proportion of younger and better-educated members of all social classes, as well as a racial balance reflecting the composition of the Mississippi sample, within the (S) set, those contrasting diphthongal and monophthongal sets are less important here than the descriptive resource that defines them.

One need only reconvert these short alphabetic strings into narrow phonetic notation, place them in columns, and read them in order to recall the complexity of conventional notation. As suggested in Note 7, the International Phonetic Alphabet (IPA) was organized to reproduce speech sounds in writing. It was not designed for efficient technical reading--scanning, registering, and reproducing targeted data with the resources of a microcomputer. As a result, American atlas projects have been unable to exploit the full informational range of their enormous data bases, recorded in narrow phonetic notation.

As a single set of examples, the tables in Figure 7 report more explicit information about allophonic variation than one will find in any of the earlier American projects. Reflecting nothing but a technological advancement, the availability of a simple features code and microcomputers, indexes of this kind establish a baseline in deductive phonetics. And, if such findings prove useful, the evidence of the classic American works can be

FIGURE 7: STRESSED VOWELS IN THE GULF STATES

	+ Voiceless		+ Voiced		+ Nasal		+ Lateral		+ Retroflex	
/ɪ/	DAE	(283)	DAE-maj	(225)	DAE	(135)	DAB-maj	(220)	DAB-mea	(201)
/ɛ/	KAA	(166)	KAB-eaj	(134)	KAB	(96)	KAE	(264)	KAE-mea	(222)
/æ/	OAA-kaj	(219)	OCA-kaj	(214)	OAA-kaj	(195)	OAA-kaj	(239)	OCA-mea	(123)
/ʊ/	FFD	(321)	FFD	(333)	FFD	(81)	FFD	(334)	FFD-mea	(177)
/ɑ/	NAD	(467)	NAD	(248)	NAD	(547)	NAD-maj	(164)	-----	
/ʌ/	SAE	(335)	SAE	(216)	SAE	(145)	SAE	(311)	SCE-mea	(148)
/i/	AGE	(200)	ABE	(397)	AGE	(258)	AGE-maj	(332)	DAB-mea	(125)
/e/	GBE-eaa	(251)	GBE-eaa	(250)	GBE-eaa	(298)	GGE-maj	(138)	KAE-mea	(94)
/u/	efa-BJA	(558)	efa-BJA	(540)	efa-BJA	(159)	efa-BJA	(249)	FFD-mea	(90)
/o/	JJD-efa	(298)	JJD-efa	(451)	JJD-efa	(237)	JJD-efa	(346)	JSC-mea	(118)
/ɔ/	QFC-qfb	(353)	QFC-qfb	(262)	QFC-qfb	(166)	QFC-qfb	(306)	QFB-mea	(208)
/ɜ/	MEA	(324)	MEA	(264)	MEA	(251)	MEA	(117)	MEA	(252)
/aɪ/	RAE-eaj	(220)	RAE-kaj	(97)	RAE-kaj	(82)	RAE-kaj	(118)	RAE-mea	(75)
/aʊ/	RAB-efa	(107)	RAB-efa	(87)	RAB-efa	(160)	OCA-jjd	(94)	RCB	(62)
/ɔɪ/	QFB-eaa	(155)	QFB-eaa	(195)	QFB-eaa	(142)	QFB-mab	(86)	QFC-qfb	(39)

ALLOPHONES OF /ɑ/ ELABORATED

1.	SAE	(335)	SAE	(216)	SAE	(145)	SAE	(311)	SCE-mea	(148)
2.	SAE-maj	(132)	SCE	(152)	SCE-maj	(121)	SCE	(108)	SAE-mea	(129)
3.	SAG	(73)	SCA	(80)	SCE	(117)	SCA	(101)	TAD-mea	(41)
4.	SCE	(69)	SAE-maj	(77)	SAE-maj	(93)	SAB	(54)	TCD-mea	(38)
5.	SAB	(68)	SCE-maj	(77)	SCA	(47)	SCE-maj	(50)	SCE-maj	(37)

converted into this code and analyzed as conveniently as was done by three people in a few months for the LAGS Project.

Those summaries of dominant forms in Figure 7 list first the preeminent allophone (with incidence in parens) in the five environments. The second summary elaborates the incidence of a single phoneme, recording the five leading allophones of that class, as recorded across the Gulf States. Information of this kind can be easily indexed for individual states, communities, or informants of particular social characteristics. And, in the form presented in Figure 7, the index suggests the deviation of any idiolect from the unity reported in the dominant form. For example, a comparison of the strings recorded in Figure 4 and Figure 7 can help a reader understand how far removed the folk speaker from Drew, Mississippi, is from the dominant patterns listed in the index.

3. IMPLICATIONS OF SYSTEMATIC PHONETICS. At the heart of this approach is basic deduction, but experimental work needs the flexibility of a bidirectional process of analysis. Dialect study will invariably proceed from general to specific, but then return to earlier synthesis to reform them on the basis of newfound information. For those reasons, deduction cannot be construed as a mechanical procedure without recourse to judgment or the application of an unpredictable number of recursive operations.

Such study implies the interaction of five writing systems--conventional orthography (C), unitary phonemics (U), broad phonics (B), narrow phonetics (N), and systematic phonetics (S):

C > U > B > N > S.

These indicate the operations of bidirectional analysis in a chain linked by recursive rules, (>): proceed toward greater specificity (analyze); (<):

proceed toward greater generalization (synthesize). Those are the tasks of linguistic geography when it aims at systematic description.

Although the chain is imperfect and needs an additional link between conventional writing and unitary phonemic segmenting, the system suggests the way descriptive dialect study must work. Unless it organize a plan along these or similar lines--the tactics themselves are less important than is a basic commitment to an explicit set of principles--the work will likely meander about and never do justice to the rigorous fieldwork that brought the data in. Systematic phonetics offers a descriptive discipline that matches the orderly requirements of adequate fieldwork.

By establishing a terminal link in the chain with systematic phonetics, one recognizes limitations as well as resources, and this is surely the most useful lesson that proceeded directly from the survey of stressed vowels. With a single addition, the chain extends from features to the written word and outlines an operational descriptive system. Nothing in the work recommends extending the analysis beyond the level of the word, and all systematic study in American linguistic geography begins with the word and moves toward the phoneme.[11]

For that reason, LAGS marks the limits of analysis, the end links of its descriptive chain, at the phonological word and the phonetic feature. In this project, the appropriate domain of linguistic geography is deductive word geography. Exclusive only in terms of direction and description, the tactic simplifies the tasks, adding clarity and promising greater precision. Thousands of phrases, sentences, and longer phonetic strings are recorded in the protocols, but these are permuted at word level in the concordance. From fieldwork to the proposed legendry organized in the format of a dictionary, every operation in LAGS has unconsciously moved on the analysis and

description of the word. If this limitation is recognized in the research design, the work can focus on microanalysis of small-scale facts and produce a description for general use. As organized, LAGS data will be readable by any student of language who takes his subject to be a class of classes, whether the approach be structural, transformational, or glossematic.

4. EXPECTATIONS. As mechanical routines of obligatory description, the operations of systematic phonetics would have only statistical value in linguistic geography, but the tool was not organized to add a further burden to complicated work. Instead, the graphically simple analysis of deductive phonetics raises the expectations of ordinary dialect study. As a deliberate extension of traditional aims and methods (note 11), deductive word geography should produce results comparable with those of the pioneering research of earlier American atlas projects.

The expectations of this approach include improved consistency, comprehensiveness, and simplicity, all of which reflect the economical design of deductive phonetics. Without adding labor to autonomous word geography, verb study, and phonology, the single bidirectional descriptive chain links the components of dialect study and makes possible several kinds of analysis and explanation at any juncture of the operation. By requiring phonological considerations in the discussion of every word, whether the focus is formal or semantic, deductive word geography promises delicacy and efficiency. Whereas autonomous essays in linguistic geography provide no explanation of the relationships among semantic, formal, and phonological patterns, the proposed chain addresses all three in every operation.

With each word in the study recognized as a conceptual missile--a text of phonological, grammatical, semantic, geographical, historical, and cultural

information--the work should proceed with the efficiency of systematic phonetics. In that way, a mechanical progress that moves from simple to complex matters, from written word to phonetic features, necessarily covers all the problems within its descriptive domain.

Specifically, the word in conventional orthography yields basic graphic symbols; realized in phonemics, the symbol is recast as a sequence of segments, linguistic signs, that offer further information concerning the tactics of the segments through addition, deletion, or rearrangement. At the formal, morphological, level the phonemic code identifies distinctive products through clipping, derivation, and inflection. As phonemic units, the segments mark the phonotactic, segmental, and suprasegmental patterns that characterize the word. These are further refined in broad phonic notation, where all secondary features, as, for example, tenseness, length, nasality, retroflex, and lip-rounding combine with the basic segmental units of phonetics. Narrow phonetics adds an exhaustive inventory of recorded features, refined for reading in systematic phonetics to complete the statement and structure of the descriptive chain.

With these abbreviations, word (W), morphology (M), and phonology (P), the interdependence of descriptive responsibilities is realized at these positions, with respect to the five writing systems listed earlier:

C (W) >< U (W/M/P) >< B (W/M/P) >< N (W/M/P) >< S (P).

Apart from the ends of the chain, the abstract symbolic word at one end and the concrete signal, the phonetic element, all interior links address symbol, substance, and sign--word, morph, and sound. And this chain enlarges expectation further with interdependent explanations in a bidirectional circuit.

For example, the phonetic features patterns in the file *S.p voic(e)less*,

the vowel of *crop*, offer sets of strings that suggest geographical, historical, and social correspondences. If the observation proved useful, it could engage any other word in the text--from symbol to its signs--as a source of additional relationships. In that way, the apparently terminal function of systematic, deductive phonetics becomes an initial tool, a preliminary step in diagnostic research.

For all those reasons, deductive phonetics in the LAGS Project is the bedrock, the foundation of its word geography. Read as a recursive process, terminated only when descriptive needs have been satisfied within the context of this research design, the method gives the LAGS Project a generative resource for the atomization of phonetic signs. In the process, strings are patterned and any of these sets may prove diagnostically useful in defining the relationships of language and culture in the Gulf States. As they point to formerly unrecognized patterns, the strings demonstrate an application of deductive study, illustrating data that can be developed in no other way. And, whether the subsets within the classes of consonants and vowels offer or fail to offer close correspondences of speech and social forms, the work improves the explanation of the form and substance of these phonological classes and components and in that way contributes to the formal classification of the phonological system.

Those great expectations comprise a large order and place a heavy burden on a small code. But, in following the example of that code, deductive word geography will probably record a larger number of facts and make a smaller number of errors. That is the greatest expectation of any deliberate study.

Notes

1. That approach seems consistent with the conclusions of Z. Harris, whose statements on the "Description of Language Structure" come down to these sentences: "The work of analysis leads right up to statements that enable anyone to synthesize or predict utterances in the language. These statements form a deductive system with axiomatically defined initial elements and with theorems concerning the relations among them. The final theorems would indicate the structure of the utterances of the language in terms of the preceding parts of the system." *Methods in Structural Linguistics* (Chicago: University of Chicago Press, 1950), 372-3.

In those lines, Harris recasts his classic essay in synthetic (inductive) linguistics in analytic (deductive) terms that parallel L. Hjelmslev's comments on metasemiology: "Metasemiological analysis will have to be carried out on the basis of the functions and according to the already indicated procedure, until the analysis is exhausted and until we have reached, here also, the ultimate variants in the face of which the point of view of cohesion is no longer fruitful and where the sought-for clarification by reason and causes must give way to a purely statistical description as the only possible one: the final situation of physics and deductive phonetics." *Prolegomena to a Theory of Language*, F. J. Whitfield, trans. (Madison: University of Wisconsin Press, 1961), 124-5.

2. L. Pederson, "Systematic Phonetics," *Journal of English Linguistics* 18 (1985), 14-24.

3. L. Pederson, "Tape/Text and Analogues," *American Speech* 49 (1974), 5-23. That report describes the relationships among four LAGS graphic systems: conventional orthography, unitary phonemics, broad phonics, and narrow phonetic notation. For an illustration of broad phonic notation sustained through an extended set of examples, see L. Pederson, "Grassroots Grammar in the Gulf States," *James B. McMillan: Essays in Linguistics by His Friends and Colleagues*, I. W. Russell and J. Raymond, eds. (University, Ala.: University of Alabama Press, 1977), 91-112.

4. Unitary phonemics admits no incidence of /ʌ/ before /r/ because, like the succession /ə r/, the pattern is subsumed under /ɜ/. Thus, the synopses report a maximum of 74 contrastive phonetic texts. And most, like Synopsis 548, lack examples of /ɔɪ/ + /r/ because *lawyer* and *sawyer* were not systematically investigated in the fieldwork.

The coded information beneath the title and above the matrix includes: F *female*; L *lower class*; Y *Caucasian*; 69 *age*; 1 *elementary-school education*; A *insular perspective*; MB *initials of fieldworker*; LP *initials of scribe*; 1978/1979 *dates of respective tasks*; UM *Upper Mississippi*; DM *grid unit* (Yazoo-Mississippi Delta); 348 *Sunflower County*; 01 *the first subject interviewed in Sunflower County*.

5. For a summary of scribal training in the project, see L. Pederson, "The Linguistic Atlas of the Gulf States: Interim Report Two," *American Speech* 49 (1974), 215-223; *A Compositional Guide to the LAGS Project*, 2nd ed., in *The Linguistic Atlas of the Gulf States: The Basic Materials* (Ann Arbor: University Microfilms International, 1981), Fiche 1183-4.

6. Other features were excluded because their restricted incidence recommended an indexing of fourth, fifth, and sixth classes of forms within the framework of the aforementioned hierarchy. Those features include voiceless, ingressive, and smeared pronunciations of vowels, as well as several paralinguistic signals of pharyngeal and laryngeal rasping and tonal modifications. Like denture whistle, all those features were marked by scribes, but none of them deserves indexing as a basic characteristic of Southern speech.

7. These include five subsets under each of the full classes and four subsets under the short set (/^/), as explained in note 4.

8. At present, such analysis is beyond the descriptive needs of the project, but the distinction is important, if only as an epistemological consideration. Unlike the elements of chemistry, phonetics has no radicals realized as speech sounds. Each sound is a compound, and the elements of phonetics, invariably combined in the shorthand of phonetic notation, are rarely noted beyond the context of distinctive features analysis.

For that reason, the work of acoustic engineering offers the most useful guidance in deductive phonetics. Although the present work is concerned with classification and description of a corpus of phonetic notation and not the correspondences between sound waves and orthographic symbols, the essays of Gunnar Fant gathered in *Speech Sounds and Features* (Cambridge, Mass.: MIT Press, 1973) have offered the most valuable instruction in organizing this work.

9. More properly a part of the results of that survey, two strings in Synopsis 548 illustrate the only ambiguous products that appeared in rewriting the 80,000 vowels. The offglide in *eight*, *strain*, and similar words [ɪ̈] and the onset in *tooth* [u̽] are both coded *eaa* (to represent unrounded, lax, high-central vowels), but, as the phonetics indicate, the former is unrounded and the latter, derounded. As written, the system fails to make that distinction.

The problem is interesting because it raises a larger question about the accuracy of the phonetic notation, more important than the adequacy of the code. The latter can be easily adjusted; the former makes suspect the recognition of derounded vowels, as opposed to unrounded vowels, in a scribal operation that depended exclusively upon auditory signals with no visual reference to labial action in the articulation of such vowels. Adjustment in reading the code requires nothing more than a statement of the fact and a recognition that minimal pairs, such as [saɪ̈] in *sigh* and [sau̽] in *sow* (female hog), have not yet turned up in the LAGS collection.

10. Although the statistics are at best suggestive, to serve that function they must be read in the context of the Mississippi sample, summarized here according to sector (SEC), sex, mean age (AGE), caste, and formal education, according to the descriptors in the first paragraph of this section:

SEC	SEX	AGE	BLACK: EDUCATION TYPE			WHITE: EDUCATION TYPE		
	F/M		1	2	3	1	2	3
UM	21/28	63	6	5	3	7	14	14
LM	22/25	67	10	5	4	11	9	8
GM	4/10	64	2	1	1	2	6	2

11. Both the *Linguistic Atlas of New England* and the *Linguistic Atlas of the Upper Midwest* began description with word geography. Kurath combined LANE findings with those from the Middle and South Atlantic States in his first

volume, *A Word Geography of the Eastern United States* (Ann Arbor: University of Michigan Press, 1949). In Allen's first volume, *The Linguistic Atlas of the Upper Midwest*, Vol. 1: *The Project and the Lexicon* (Minneapolis: University of Minnesota Press, 1973), he combined the handbook and word geography of the survey. Both word studies began with texts in conventional orthography without explanation of how the phonetic notation, from which the orthographics came, was converted.

Their approach was not only acceptable, it was the only sensible way to get right to the information. But the work involved intuitive processes that should have been recognized and related to an explicit set of descriptive procedures. Instead, the autonomous word geographies were followed by autonomous verb morphologies, with autonomous phonologies concluding the respective works. The only integrated description in this approach appears in composite isoglosses, but those are geographical, not systematic linguistic, statements.

For that reason, the implication of deductive phonetics points toward improving standard procedures, not condemning them. The older methods were developed carefully over a century of trial and error. When a new method or a revised old method, as is the case here, becomes operational, pioneers and newcomers deserve the resources the work has produced, whether those tools concern analysis, description, technology, or a combination of all three.

LAGS WORKING PAPERS, THIRD SERIES (1985)
WORKING PAPER NUMBER THREE

An Electronic Atlas in Microform

Lee Pederson

AN ELECTRONIC ATLAS IN MICROFORM

Lee Pederson

During the first century of development in European and American dialectology, the form and function of the linguistic atlas have changed considerably. The massive folio productions of Gilli&ron, Wenker and Wrede, Jaberg and Jud, and Kurath have given way to more efficient and simplified formats. Whereas the great pioneer atlases transmitted data bases and linguistic contrasts on a single plane, later efforts of Orton (England), McDavid (Middle and South Atlantic States, USA), and Allen (Upper Midwest, USA) introduced list manuscript publication and base-map overprinting to improve the referential value of the work and to reduce publication costs. Current research in the Linguistic Atlas of the Gulf States (LAGS) Project reflects the influence of all those European and American works and draws heavily upon the resources of present-day technology in the composition of its informational chain.[1]

The LAGS *Basic Materials* (1981) and the concordance (forthcoming) record and index the full protocol collection of the survey in fewer than 2,000 fiche.[2] Those tools offer more nearly coherent and comprehensive representations of the data that forms a linguistic atlas than any gathering of maps or list manuscripts can possibly provide. This report outlines a plan for an electronic atlas in microform (EAM) that suggests a further application of computer technology in dialect study. Although a mainframe schedule can easily be developed from this plan, the microcomputer format aims to serve a larger number of users than those with direct or network access to a major system.

EAM will include a set of programs and files capable of projecting

hundreds of thousands of dialect maps on the monitor screen of a microcomputer, and, when needed, the maps can be printed for hard copy reproduction. The method combines data already stored on diskettes ("floppy disks," hereafter *disks*) with a regional electronic grid map, a graphic plotter grid.[3] The programs merge the files and produce maps in response to a simple set of commands. As a research tool, this forms the final application of the computer in the survey and the most abstract projection of findings in the informational chain.[4]

Because EAM is one of several descriptive formats used in the project, the files selected for computer mapping must be representative of the full texts published in microform, the basic materials and their exhaustive concordance. Like those collections, this abstraction aims primarily to provide research needs as a reference instrument. In that respect, EAM closely follows the design of the pioneer atlas publications in the production of charts that lay out information for analysis by the reader, without the prescriptive limitations of interpretative conclusions prior to a full disclosure of the facts.

To illustrate the resources of EAM, this report extends the discussion from earlier working papers[5] and depends on them in documenting some of the procedures mentioned here in cursory remarks. Here, the outline aims to show the kinds of files, maps, and information transmitted on a set of 10 disks, including an operations disk and nine data disks that store 250 linguistic files. The programs of the operations disk will produce lists and maps of data in the files in several kinds of linguistic, social, and geographical configurations. The first part of this report explains the composition of linguistic files, forms that function independently as list-manuscript data and collectively with the graphic plotter grid as microcomputer maps.

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FIGURE 2

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	FW	Sc	
** Lexical File: mantel -- C -- fireboard **												
001	A 001.04	F	L	Y	99	1	folk	Neva (Johnson)	ET	LP	LP	1
002	A 001.01	M	L	Y	82	1	folk	Laurel Bloomery (Johnson)	ET	LP	LP	2
003	A 001.03	M	M	Y	79	1	common	Shady Valley (Johnson)	ET	LP	LP	3
004	A 001.05	F	L	Y	38	2	common	Laurel Bloomery (Johnson)	ET	MMc	LP	4
005	A 001.02	F	M	Y	78	3	cultured	Laurel Bloomery (Johnson)	ET	LP	LP	5
008	A 002.01	M	L	Y	67	1	common	Carter (Carter)	ET	DAC	LP	6
011	B 005.01	M	L	Y	66	1	folk	Jackson Chapel (Greene)	ET	LP	LP	7
012	C 006.01	F	L	Y	73	1	folk	Big Creek (Sullivan)	ET	LP	LP	8
017	C 007.01	M	M	Y	84	1	folk	St. Clair (Hawkins)	ET	LP	LP	9
018	D 009.01	F	I	Y	43	1	folk	Rankin (Cocke)	ET	LP	LP	10
019	D 009.02	M	M	Y	76	2	common	Bat Harbor (Cocke)	ET	LP	LP	11
020	D 009.03	M	M	Y	72	3	cultured	Cosby (Cocke)	ET	LP	LP	12
021	D 010.01	M	M	Y	81	1	folk	Talbott (Jefferson)	ET	LP	LP	13
023	E 014.01	M	M	Y	80	1	folk	Little Sycamore (Claiborne)	ET	LP	LP	14
025	F 015.01	M	M	Y	76	1	folk	Wear Valley (Sevier)	ET	LP	LP	15
036	H 019.02	M	L	Y	80	1	folk	Jacksboro (Campbell)	ET	LP	LP	16
042	J 024.01	M	L	Y	89	2	folk	Kingston (Roane)	ET	LP	LP	17
044	J 026.01	F	L	Y	86	1	folk	Sequatchie Valley (Cumberland)	ET	BR	LP	18
047	K 028.03	M	L	Y	78	1	folk	Spring City (Rhea)	ET	SL	SL	19
061	O 036.01	M	L	Y	81	1	folk	Ellijay (Gilmer)	UG	MMc	RIM	20
064	O# 001.01	F	M	Y	86	1	folk	Blairsville (Union)	UG	EH-2	LP	21
069	O 043.01	F	L	Y	63	1	folk	Jasper (Pickens)	UG	KED	MP	22
072	O# 004.01	M	L	Y	80	1	folk	Dahlonega (Lumpkin)	UG	LP	LP	23
073	O# 005.01	F	M	Y	64	3	cultured	Cleveland (White)	UG	AM	SL	24
079	R 047.01	F	U	Y	68	3	cultured	Rome (Floyd)	UG	CWU	LP	25
080	R 048.01	M	M	Y	76	2	common	Menlo (Chattooga)	UG	JMF	LP	26
084	S 051.01	M	L	X	69	1	folk	Conyers (Rockdale)	UG	BR	LP	27
088	S# 009.01	F	M	Y	74	1	folk	Toccoa (Stephens)	UG	IR	SL	28
092	S# 014.01	F	M	Y	63	2	common	Hartwell (Hart)	UG	LD-1	LP	29
095	T 052.04	F	M	Y	78	2	folk	Lithonia (De Kalb)	UG	EWB	GR	30
116	X 063.02	M	L	X	80	1	folk	Newnan (Coweta)	UG	SB-1	LP	31
136	Z 070.01	M	L	Y	70	1	folk	Thomaston (Upson)	UG	AB	SL	32
152	AC# 042.02	F	L	Y	70	2	common	Swainsboro (Emanuel)	LG	BR	PE	33
184	AG 098.02	M	M	Y	60	2	common	Ocilla (Irwin)	LG	SMH	SL	34
196	AH 100.01	F	M	Y	55	2	common	Tifton (Tift)	LG	MB	LP	35
210	AM 116.01	M	M	X	74	1	folk	Ray City (Berrien)	LG	AB	GB	36
290	BA 185.01	F	L	Y	65	1	folk	Forbus (Fentress)	MT	BR	LP	37
315	BH 206.01	F	L	Y	81	1	folk	Waverly (Humphreys)	MT	RP	LD	38
317	BH 207.01	F	L	Y	81	2	folk	Only (Hickman)	MT	BR	LD	39
318	BH 207.02	M	M	Y	72	2	common	Whitehouse (Hickman)	MT	BR	LP	40
321	BI 209.01	M	M	Y	81	3	common	Spencer (Van Buren)	MT	BR	LD	41
338	BN 225.04	F	M	Y	64	2	common	Stevenson (Jackson)	UA	MB	LP	42
348	BO 229.01	F	M	Y	50	2	common	Town Creek (Lawrence)	UA	AW	MB	43
350	BP 230.01	M	L	Y	64	2	common	Lexington (Lauderdale)	UA	AB-1	MP	44
355	BR 234.01	F	M	Y	69	1	folk	Blountsville (Blount)	UA	JH-1	LP	45
359	BS 237.01	M	M	Y	78	2	common	Haleyville (Winston)	UA	SL	SL	46
363	BS 238.01	M	M	X	42	2	common	Bexar (Marion)	UA	EC-2	MB	47
365	BS 239.02	F	M	Y	45	2	common	Belgreen (Franklin)	UA	CWF	LP	48
376	BV 244.06	M	M	Y	80	1	folk	Duncanville (Tuscaloosa)	UA	GB	PE	49
388	BX 251.03	M	L	Y	78	1	folk	Shelby (Shelby)	UA	AMF	SL	50
420	CD 273.02	M	L	Y	74	1	folk	Macedonia (Lowndes)	LA	GB	MP	51
435	CF 279.03	M	M	Y	73	2	common	Troy (Pike)	LA	GB	GB	52
438	CF 281.01	M	L	X	73	1	folk	Greenville (Butler)	LA	GB	LP	53
440	CF 281.02	F	M	Y	55	2	common	Greenville (Butler)	LA	GB	MB	54
450	CI 289.02	M	L	Y	78	2	common	Leroy (Washington)	LA	BR	MP	55
465	CL 299.02	F	I	Y	72	1	folk	Laurel Hill (Okaloosa)	WF	BR	PE	56

FIGURE 3

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** Lexical File: mantel -- G -- mantel board **
063   O 037.02  M  L  Y  86  1  folk     Chatsworth (Murray)          UG  JMF  LP   1
096   T 053.11  M  L  X  70  1  folk     Atlanta (Fulton)             UG  MNT  GR   2
187   AH 101.01 M  L  Y  82  1  folk     Sumner (Worth)               LG  AB   SL   3
193   AJ 107.01 M  M  Y  70  2  common   Georgetown (Quitman)         LG  GM   MB   4
212   AN 121.01 F  M  Y  74  1  folk     Moultrie (Colquitt)          LG  GM   PE   5
216   AO 123.03 F  M  Y  70  3  common   Camilla (Mitchell)           LG  LY   GB   6
225   AP 129.01 M  L  Y  83  1  common   Donalsonville (Seminole)     LG  BR   LP   7
236   AR 134.04 M  M  Y  46  2  common   Hopeful Church (Columbia)    EF  BR   PE   8
239   AT 141.01 F  M  Y  52  2  common   Tallahassee (Leon)           EF  MB   SL   9
301   BE 198.01 F  I  Y  82  1  folk     Gainesboro (Jackson)         MT  BR   LD   10
318   BH 207.02 M  M  Y  72  2  common   Whitehouse (Hickman)         MT  BR   LP   11
402   CA 261.01 M  M  Y  68  2  common   Sorott (Perry)               LA  GB   LP   12
411   CC 268.04 M  M  Y  45  2  common   Opelika (Lee)                LA  DS   MP   13
415   CD 271.01 M  M  Y  71  2  common   Union Springs (Bullock)      LA  MB   MB   14
431   CE 278.01 M  M  Y  84  1  folk     Geneva (Geneva)              LA  MB   PE   15
438   CF 281.01 M  L  X  73  1  folk     Greenville (Butler)          LA  GB   LP   16
439   CF 281.03 M  M  Y  68  1  folk     Shacklesville (Butler)       LA  BSS  SL   17
440   CF 281.02 F  M  Y  55  2  common   Greenville (Butler)          LA  GB   MB   18
442   CG 282.02 M  M  Y  77  2  common   New Brockton (Coffee)        LA  MB   GR   19
444   CG 283.01 M  M  Y  76  1  folk     Gantt (Covington)            LA  GB   LP   20
446   CH 284.01 F  L  Y  59  2  common   Damascus (Escambia)          LA  EH-1 LP   21
451   CI 289.01 M  L  Y  85  1  folk     Needham (Choctaw)            LA  MB   LP   22
460   CK 296.01 F  L  Y  87  1  folk     Rock Hill (Washington)       WF  BR   LD   23
465   CL 299.02 F  I  Y  72  1  folk     Laurel Hill (Okaloosa)       WF  BR   PE   24
467   CM 300.01 F  M  Y  77  1  folk     Jay (Santa Rosa)             WF  GB   LP   25
472   CN 302.03 M  L  Y  74  1  folk     Stockton (Baldwin)           GA  MB   SL   26
505   DE 320.02 F  M  X  65  1  folk     Covington (Tipton)           WT  MB   LP   27
525   DI 330.02 M  M  X  82  1  folk     Holly Springs (Marshall)     UM  EC   PE   28
530   DJ 335.01 M  L  X  74  1  folk     Sherard (Coahoma)            UM  GM   PE   29
534   DK 339.02 M  M  Y  69  1  folk     Saltillo (Lee)               UM  MB   MP   30
536   DK 340.01 M  M  Y  86  1  folk     Tokish (Pontotoc)            UM  EC   PE   31
559   DQ 356.01 M  M  Y  83  2  common   Chester (Choctaw)            UM  EC   SL   32
580   DS 374.02 M  L  X  78  1  folk     Maversville (Issaquena)      LM  GM   SL   33
582   DT 375.01 M  M  Y  76  1  folk     Quitman (Clarke)             LM  MB   LP   34
583   DT 377.01 M  L  Y  77  2  common   Trenton (Smith)              LM  BR   LD   35
584   DT 377.02 F  M  Y  65  3  cultured Wicker (Smith)               LM  BR   PE   36
600   DW 387.05 M  L  X  84  1  folk     Soso (Jones)                 LM  BR   GR   37
605   DX 392.01 F  M  Y  85  1  folk     Weathersby (Simpson)         LM  MB   SL   38
697   FE 453.01 F  M  X  84  1  folk     Helena (Phillips)            AR  MMc  PE   39
740   FM 488.01 F  M  Y  77  1  folk     Hearn (Clark)                AR  MMc  LP   40
744   FN 494.02 M  M  Y  86  1  folk     Texarkana (Miller)           AR  EC   SL   41
750   FO 501.04 F  M  Y  62  2  common   Strong (Union)               AR  MB   LP   42
758   FQ 508.01 F  L  Y  83  2  folk     Oak Grove (W. Carroll)       WL  MB   SL   43
763   FR 514.03 M  L  Y  92  1  folk     Spearsville (Union)          WL  BR   LP   44
772   FS 518.02 M  M  Y  73  1  folk     Antioch (Lincoln)            WL  GM   MP   45
773   FS 521.01 M  M  Y  77  1  folk     Germantown (Webster)         WL  GM   LP   46
774   FT 523.06 M  I  X  82  1  folk     Shreveport (Caddo)           WL  BR   LP   47
782   FU 525.01 M  L  Y  80  1  folk     Coushatta (Red River)        WL  MB   SL   48
791   FV 528.03 M  M  Y  51  2  common   Hawthorne (Vernon)           WL  GM   GB   49
795   FW 532.01 M  M  Y  85  2  common   Colfax (Grant)               WL  MB   SL   50
800   FX 536.02 M  M  Y  76  1  folk     Enterprise (Catahoula)       WL  BR   SL   51
837   GE 579.01 F  M  Y  86  3  common   Greenville (Hunt)            UT  MB   PE   52
840   GE 584.01 F  L  Y  79  1  folk     Denton (Denton)              UT  SF   SL   53
856   GH 611.06 M  L  Y  98  1  folk     Huntsville (Walker)          UT  JNR  SL   54
Total: 54
```

The Files

With the form and contents of the operations disk explained elsewhere (Pederson and McDaniel, *forthcoming*), the linguistic files are most conveniently recognized as summaries reduced to an alphabetic code and merged with data files to produce specific lexical, morphological, or phonological registers. These instruments can be produced independently as lists for onscreen or hard-copy printing. They underlie the four projections of LAGS material in EAM: the onscreen and printed versions of lists and maps.

Linguistic files will include 250 items, 100 lexical, 50 morphological, 50 phonemic, and 50 phonetic sets. Although final selections will be drawn from a much larger gathering of files, the essential format can be suggested in these terms:

1. Lexical Files: including most of the items in Kurath (1949) with additions from Atwood (1962), such as *chigger/red bug*, *lagniappe/pilon*, and *shivaree*, and the LAGS work sheets (1972/1974/1981), such as *tommyto* ("small tomato"), *gopher* ("burrowing land turtle"), and *moonshine/white lightning/shinny* (unlicensed potable alcoholic blends);[6]
2. Morphological Files: including function words and inflectional forms recorded in Atwood (1962) with additions from the LAGS work sheets, as, for example, principal parts of all plotted verb forms and zero patterns of inflection (number and tense), function words (articles, prepositions, verb auxiliaries), and linking verbs (the deleted copula);[7]
3. Phonemic Files: including the incidence of consonants and vowels recorded in Kurath and McDavid (1962), this set presents the most

orthodox gathering of forms in EAM. The authoritative selection, analysis, and description of unitary phonemes in PEAS offers a guide that requires no immediate modification in the Gulf States;[9]

4. Phonetic Files: including the realization of consonant and vowel phonemes as strings of phonetic features, this set extrapolates findings from Pederson (1985) and the aforementioned survey in deductive phonetics. Although most of these files are drawn from the idiolect synopses (*Basic Materials*: Fiche 6-16), some report evidence directly from the protocols (*op cit.*: Fiche 17-1134).[9]

Each set of files will be open to all kinds of geographical, historical, and social analysis controlled by the operations disk.

A summary of the contents of a lexical file identifies the code, a synopsis of incidence, and the register for a synonym within the set. Figure 1, "MANTEL: Code and Count," combines two files, the code and combinations file and the totals file. These identify the 32 synonyms coded A-Z/aa-af, the 46 patterns of combinations in which the synonyms occur, two inappropriate responses excluded from the list, and a summary of incidence in parens for all synonyms.[10]

The forms were elicited with this item from work sheet eight:

4. The lamp is on the) mantel *mantelshelf, *mantelpiece, *tussock, *clock shelf, *fireboard, *mantel board, *manteltree

L[owman]: Up above the fireplace to set vases on.

M[cDavid]: What would you call the place above the fireplace where you might put an ornament or picture or something like that?[11]

Although the general form *mantel* and the dominant Lower Southern form *mantelpiece* are too numerous to list in a short report, the files including *fireboard* (Figure 2) and *mantel board* (Figure 3) are suggestive of EAM data in

tabular form. Each list records informant data in 13 fields. For example, the first entry under *fireboard* reports this information:

1) 001: the Book Number, the number assigned all primary informants, 001-914 in the listing of protocols in the *Basic Materials* and all other analogues, as, for example, the idiolect synopses and the concordance. Each of those 914 numbers has a position on the graphic plotter grid.[12]

2) A 001.04: the Protocol Number, the number assigned each field record and protocol during the composition of the sample. This number appears on every protocol page in the *Basic Materials*. The letter *A* identifies a set of counties with common geographical terrain and social history, here, the East Tennessee counties of Johnson and Carter; see Figure 4, "The LAGS Grid." The number 001 identifies Johnson County, Tennessee, the first of 665 counties and parishes indexed for the LAGS survey. The complemental number .04 indicates that this is the fourth interview conducted in Johnson County.[13]

3) F: the gender code, F(emale)/M(ale).

4) L: the social class code, A(ristocratic)/U(pper Middle)/M(iddle)/L(ower)/I(ndigent). These are simplified to U(pper: A+U)/M(iddle)/L(ower: L+I) in EAM projections.[14]

5) Y: the racial caste code, X(black)/Y(white).

6) 99: the age of the informant in years.

7) 1: the educational code, 1(elementary school)/2(high school)/3(college).

8) folk: the speech type, as suggested by comments of field workers and scribes. Although these descriptors tend to be circular, they are sometimes useful in correlating LAGS data with findings of other

American atlas projects, where informants are classified I(folk)/ II(common)/III(cultured).

9) Neva (Johnson): the locality (community) or town (county/parish) represented by the informant. Virtually all LAGS primary informants are natives and lifelong residents of the places designated in this field.

10) ET: the sector code, here E(ast) T(ennessee) as outlined in Figure 4, grid units A-N.

11) LP: initials of field worker, here, Lee Pederson.

12) LP: initials of scribe, here, Lee Pederson.

13) 1: number in running count of incidence within a list, useful in cursory assessments of subregional distribution.

This information can be printed as shown in Figures 1-3 or projected on the matrix of the graphic plotter grid. In tabular form, the lists are most useful in comparing social factors, but they are also suggestive in approximating subregional distribution.

For example, Figure 2, "Fireboard," includes 72 instances of the form. Nineteen of these occur among the 60 informants of East Tennessee, with 13 more in Upper Georgia, 14 more in Middle Tennessee and Upper Alabama, and 11 in Arkansas. Those five of 18 sectoral subdivisions (Figure 4) comprise 57 of 72 instances of the term. Most of that territory is north of the Piedmont and well within the domain of the historical South Midland dialect area, suggesting that the term is a solid regional marker.

The incidence of *mantel board* (Figure 3) suggests a historical extension of the pattern of relic *fireboard*. Perhaps a blend of *mantel* or *mantelpiece* and *fireboard*, *mantel board* occupies much of the South Midland territory outlined in Figure 2, but it also shows heavy occurrence in the Pine Woods

areas of Georgia, Lower Alabama, West Florida, and Lower and Gulf Mississippi. In those places, a vestige of the relic form may remain, and, with it, the pattern leaves a reminder of the cultural origin of those Pinelanders, who migrated westward across the lower reaches of the territory. They moved out of the Carolina Pine Barrens, the birthplace of Andrew Jackson, and moved south and west, settling in those unproductive lands now called the Wire Grass in Georgia, the Sand Hills in Alabama, and the Pine Woods (or Piney Woods) in Florida, Mississippi, and Louisiana. And they carried with them those old-fashioned Southern forms, still distinguishable from the plantation varieties of regional speech.

The Maps

The lists are suggestive of regional patterns, but they are not easily committed to or sustained in memory without graphic assistance. Linguistic geography has always exploited the map as its singularly powerful descriptive tool. As stated above, without the inventorial responsibilities of the pioneer atlases, modern mapping has been limited mainly to interpretative studies, essays that follow the publication of a linguistic atlas. Because such works require long periods of time to complete, few maps accompany interim reports because they are difficult to compose and expensive to reproduce. The maps of EAM produced on the matrix of a graphic plotter grid are composed automatically with simple programs and reproduced at the same cost for the printing of a single page of type from a microcomputer.[15]

As explained in the working paper on the subject, the graphic plotter grid is a minimal matrix, a map that aims at representation of the Gulf States territory on a plane of 914 uninterrupted points. The goal was realized in

six of the eight states, but, in Florida and Texas, land mass and settlement history complicated the problem that required additional space for solution.[16] The base form map for EAM includes 914 points within the state boundaries outlined in Figure 5, "Informant Positions on the LAGS Graphic Plotter Grid."

This format accommodates a large quantity of data in small space. For example, Figure 6, "mantel/mantelpiece," plots the incidence of the two most common terms recorded in the survey, including more than 800 instances of the synonyms. That combination of the most common term, *mantel*, and the most frequently elicited regionalism, *mantelpiece*, covers the territory quite evenly. But the much higher incidence of *mantel* in the South Midland territory of Tennessee and the New Southern territory of urban Florida does not suggest a common dialect area. In the north, the pattern signals the probable presence of a different regional term; in Florida, the absence of a regional term among urban speakers, especially younger ones.

Conversely, the terms *fireboard* and *mantel board* show much more distinctive patterns of distribution. Figure 7, "fireboard," outlines the historical South that lay beyond the influence of the great plantation cultures of the coast and the interior plains. Figure 8, "mantel board," shows an extension of that domain into subregions of the Old South, but mainly following the settlement pattern of the migrants from the Pine Barrens. Figure 9, "fireboard/mantel board," illustrates the general pattern mentioned earlier, a regional subculture that stands apart from the old plantation areas marked by *mantelpiece*.

Because the programs offer a tool for geographical and social listing and plotting of forms, each of the data maps (figures 6–9) could be reformed to show distribution according to sex, social class, racial caste, age (as, for example, in three groups: under 50, 50–69, and over 69), education, and speech

type. With the resources of geographical and social lists and maps, EAM will provide an ultimate descriptive statement. Its capacities make possible the identification of patterns that may escape the attention of editors in the composition of the hard copy maps and their legends, the materials of the legendry, but the evidence will be available for readers to produce a virtually inexhaustible variety of configurations.

Those applications, however, are beyond the range of the LAGS survey. As a research tools project for the National Endowment for the Humanities, the present work aims only to put the materials in order for students of general dialectology and of American English. EAM will advance the current editorial program by organizing the data for hard copy publication. Upon completion of the map and legendry volumes, LAGS will be finished, but those texts and, especially, the electronic atlas in microform, will reaffirm the assertion of Jaberg and Jud that linguistic geography in its radical form is a research instrument.[17]

NOTES

1. In "A Matrix for Word Geography" (Pederson *forthcoming*), the tools of research in linguistic geography are distinguished as data (the components of an informational chain) and codes (the components of a descriptive chain). Combined, they form an expressive matrix that outlines the domain of American linguistic geography.

2. L. Pederson, C. E. Billiard, G. H. Bailey, M. W. Bassett, and S. E. Leas, eds., *Linguistic Atlas of the Gulf States: The Basic Materials* (Ann Arbor: University Microfilms International, 1981); L. Pederson, S. L. McDaniel, and M. W. Bassett, "The LAGS Concordance," *American Speech* (59: 1984), 332-39; Linguistic Atlas of the Gulf States: Concordance of the Basic Materials (*forthcoming*).

3. Pederson, "A Graphic Plotter Grid" (*forthcoming*).

4. The format described here can easily be transferred to tape for mainframe application that would greatly improve the speed and efficiency of the tool. Here, the microform format is presented because it is the most accessible and least expensive means of electronic sorting and mapping.

5. In addition to the essays mentioned in earlier notes, these published and forthcoming reports explain the use of the microcomputer in the LAGS Project: "Systematic Phonetics," *Journal of English Linguistics* (18: 1985), 14-24; "An English Technical Alphabet," (*forthcoming*); "A Survey in Deductive Phonetics," (*forthcoming*); "Microcomputing: Files and Maps for the LAGS Project," (with S.

FIGURE 2 (continued)

520	DH	325.01	M	L	Y	72	2	folk	Iuka (Tishominoo)	UM	EC	LP	57
600	DW	367.05	M	L	X	84	1	folk	Soso (Jones)	LM	BR	GR	58
674	FA	432.01	M	M	Y	82	1	folk	Piggott (Clay)	AR	MMc	LP	59
681	FB	439.01	M	L	Y	65	1	folk	Cave City (Sharp)	AR	GM	MP	60
684	FB	439.02	M	M	Y	62	2	common	Evening Shade (Sharp)	AR	GM	LP	61
689	FC	444.02	F	L	Y	82	2	folk	Forrest City (St. Francis)	AR	MMc	PE	62
694	FD	450.02	M	M	Y	70	1	folk	Des Arc (Prairie)	AR	MMc	LP	63
713	FH	459.01	F	M	Y	86	2	common	Greenbrier (Faulkner)	AR	MMc	PE	64
715	FH	462.01	F	L	Y	77	1	folk	Pee Dee (Van Buren)	AR	MMc	LP	65
716	FI	463.01	M	M	Y	84	1	folk	Mountain Home (Baxter)	AR	MMc	LD	66
717	FI	465.01	F	M	Y	71	1	folk	Hilltop (Searcy)	AR	MMc	PE	67
726	FJ	473.01	F	L	Y	86	1	folk	Mulberry (Crawford)	AR	MMc	GR	68
733	FK	480.01	M	M	Y	70	1	folk	Gate (Scott)	AR	EC	SL	69
786	FU	526.03	M	L	Y	67	1	folk	Provencal (Natchitoches)	WL	BR	GB	70
823	GB	558.02	M	L	Y	37	2	common	Harmony (Nacogdoches)	UT	BR	PE	71
838	GE	582.01	M	M	Y	93	1	folk	Denison (Grayson)	UT	MB	MP	72

Total: 72

L. McDaniel *forthcoming*).

All microcomputer programs used in the conduct of those projects were written by W. H. McDaniel and S. L. McDaniel, as are those in the organization of EAM.

6. LAGS description departs from H. Kurath, *A Word Geography of the Eastern United States* (Ann Arbor: University of Michigan Press, 1949), and E. B. Atwood, *The Regional Vocabulary of Texas* (Austin: University of Texas Press, 1962) in these ways. First, it excludes animal calls because they fall beyond the range of a definition of language as interpersonal communication. Second, it interprets function words, as, for example, the prepositions of *a quarter to*, *a quarter till*, or *a quarter of the hour*, as morphological, not lexical, features. And, finally, it recognizes a phonological dimension in word geography, as in the retroflex or vocalized reflexes of historical /r/ in *andirons*, *dog irons*, and *fire dogs*.

7. E. B. Atwood, *A Survey of Verb Forms in the Eastern United States* (Ann Arbor: University of Michigan Press, 1953). For files and maps of zero forms, see Pederson and McDaniel (*forthcoming*).

8. H. Kurath and R. I. McDavid, Jr., *The Pronunciation of English in the Atlantic States* (Ann Arbor: University of Michigan Press, 1961).

9. The survey, with list, sort, and summary, of 74 stressed vowels for all 1,121 informants (primary and secondary), is summarized in "A Survey in Deductive Phonetics" (*forthcoming*).

10. Although the files of synonyms do not tabulate inappropriate forms or instances of no response, both can be retrieved with programs on the operations disk. For example, full description of the 72 informants who offered no response to the *mantel* item is listed with the cue (-), the symbol for "no response" in all linguistic files.

11. Work sheet 8 appears at page 109 in all three editions of the LAGS Manual.

12. For criteria used in 1980 for the classification of primary and secondary informants, see L. Pederson, S. L. McDaniel, G. Bailey, and M. Bassett, "Chapter 1, Methods," Linguistic Atlas of the Gulf States, Vol. 1, Handbook for the Linguistic Atlas of the Gulf States (University of Georgia Press, *forthcoming*).

13. The sequential listing of informants with counties and parishes (in Louisiana) is a cue that is sometimes useful in dating a form within the data base.

14. For criteria used in social classification, see "Methods" in the forthcoming handbook.

15. It is useful to recognize that the graphic plotter grid makes no use of graphics in the technical sense of the term, that is, as it is applied in the vocabulary of computer technology. No special software--such as a "graphics package," is needed to produce these simple linear maps. That fact contributes substantially to their ease, speed, and economy of reproduction. The graphic plotter grid is graphic in that it aims at a graphic

representation, a reasonable facsimile of the Gulf States territory, formed by the position of 914 points on a matrix. The phrase *plotter grid* reflects the influence of A. R. Thomas, whose *Areal Analysis of Dialect Data by Computer: A Welsh Example* (Cardiff: University of Wales Press, 1980), offered inspiration and instruction for the LAGS graphic plotter grid. As explained in the forthcoming essay, "A Graphic Plotter Grid," it is necessary to understand that, at this time, LAGS research makes no promise to match the elegance of Thomas's work.

16. For an elaboration of these factors, see "The Geography of the Gulf States" in the forthcoming handbook. For an immediate application of those factors, see the forthcoming "A Graphic Plotter Grid."

17. K. Jaberg and J. Jud, *Der Sprachatlas als Forschungsinstrument: kritische Grundlegung und Einführung in den Sprach- und Sachatlas Italiens und der Südschweiz* (Halle: M. Niemeyer, 1928).

LAGS WORKING PAPERS, THIRD SERIES (1985)

WORKING PAPER NUMBER FOUR

A Graphic Plotter Grid

Lee Pederson

Both of these show a redundant use of symbols and an imperfect understanding of the possibilities of the tool. Throughout the synopses of the Loganville data (1972: 127-9), the charts repeat superfluous markings of the informant types, all of which hold constant positions throughout the 46 patterns recorded there. Including phonological (phonetic and phonemic), morphological, and lexical incidence in the speech of four Loganville informants (C/4 on the grid map), these patterns show lesser-educated black (BI), lesser-educated white (WI), better-educated black (BII), and better-educated white (WII) in fixed positions. And, as indicated in Figure 2, "Loganville Phonetic Patterns," the designations are unnecessary and distracting.

With a brief gloss describing the linguistic information and the informant positions marked as

B1 W1
B2 W2

the patterns of Figure 2 could have been projected more effectively in this form:

1) +−
   ++

2) ++
   +−

3) ++ (or) −−
   −− ++

Adding not only clarity and economy, that projection would have aligned the work immediately with the resources of graphic plotting.

In the second essay (1973), the method of positional marking was extended to include the 25 North Georgia communities. Figure 3, "The Nucleus of *Bird* as [ɜɪ]," (202) shows another form of redundancy in the early plotting. Here, distinctive symbols are used to distinguish black (x) and white (o)

LAGS WORKING PAPERS, THIRD SERIES (1985)
WORKING PAPER NUMBER FIVE

Mapping Phonetics in the Gulf States

Lee Pederson

MAPPING PHONETICS IN THE GULF STATES

Lee Pederson

Descriptive phonetics orders linguistic variety in prescribed terms. Before any survey gets underway, observers--whether field workers, scribes, or technicians--have a fairly clear notion of the range of speech forms that will receive systematic attention. Those targets are made explicit at the outset of phonetic study in the Linguistic Atlas of the Gulf States (LAGS) Project and direct the phonological description of native speech in the eight state region.

Generally, this work recognizes the resources and limitations of conventional linguistic geography. By addressing its data base as a rich collection of word-level phonology, the investigation aims to contribute to the understanding of Southern speech. Specifically, it outlines a sound pattern in an alphabetic code and reduces the analysis of phonetic elements to a deductive procedure. The code makes possible a phonological index of dominant and recessive forms and suggests the implications of the scribal habits in terms of predetermined phonetic features. As the only large-scale inventorial survey of small-scale phonetic facts, linguistic atlas research has a responsibility to general linguistics and an opportunity to refine its own methods. Without reaching beyond the goals outlined by Gilliéron, Jaberg, and Kurath, students today can get useful results through the application of new tools to old problems.

The present report includes four considerations that relate to mapping phonetics in the Gulf States: 1) the published evidence is related to the tape/text and the aims of the survey; 2) a review of the phonetic code

summarizes the features identified in vowel notation; 3) those features illustrate a set of phonetic forms in the LAGS inventory; 4) a subset of those forms is mapped across the territory (Figure 1) from microcomputer files.

1. THE LAGS DATA BASE

Recording the usage of 1,121 natives of Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and East Texas, the LAGS data base preserves its primary information in 5,200 hours of conversational speech. The initial phonetic notations of this collection form the core of the *Basic Materials* (1981), described in the *Handbook* (1986) and indexed in the *Concordance* (1986).

Each LAGS protocol includes 108 pages of phonetic notation with an additional 27 pages added in 164 urban interviews. Figure 2, protocol page 71, shows responses to questions that aim primarily to illustrate pronunciation features. As the marginal code indicates, the sheet records the usage of a male (M), lower class (L), Caucasian (Y), age 85, with an elementary-school education (1), and an insular perspective (A). This retired farmer, logger, and sawmill worker from Needham, Alabama, is a native of Choctaw County (289) of grid unit CI (Figure 1). The suffixed numeral (.01) indicates this was the earliest LAGS record made in Choctaw County, Alabama.

In addition to the 1,121 protocols of the *Basic Materials*, that collection also includes a set of idiolect synopses, abstracts of the phonological, morphological, and lexical characteristics of each informant. Figure 3 illustrates the contents of the Needham synopsis, identifying the record as Book 451, the field worker as Marvin Bassett (MB), and the scribe as Lee Pederson (LP), with the years (19)78/79, indicating the dates the respective tasks were completed.

complicated lexical sets. Here, for example are 46 *pine* forms, elicited as synonyms for *lightwood*, abstracted from the concordance:

pine
pine chips
pine, dead
pine fat
pine, fat
pine, fat lighterd
pine, fatwood
pine, heart of the
pine, heart of
pine hearts
pine kindling
pine, kindling
pine kindling, fine
pine knots
pine knots, black
pine knots, rich-
pine, knotty
pine lighter
pine, lighter
pine lighterd
pine, lighterd
pine, little chips of
pine, little pieces of
pine, pitch
pine, pure rich-
pine resin
pine, resin
pine, rich-
pine richerd
pine, rich lighterd
pine, rich piece of
pine, rich resin
pine shavings
pine, slits of
pine, soft
pine splinters
pine splinters, fat
pine splinters, rich
pine sticks
pine tar
pinewood
pinewood, fat
pinewood, fat lighterd
pinewood, rich
pinewood, splinters of
pinewood, white

2. SYSTEMATIC PHONETICS

To incorporate the sorting and mapping capacities of ordinary microcomputers, as, for example, the IBM PC, the survey introduces a code for the conversion of narrow phonetic notation into simple alphabetic strings, sets of three characters. This approach identifies primary, secondary, and tertiary features for all consonants and vowels, records them in files, and prints the information in registers or mappings with commands from several operations programs.

Within the project, the work aims to develop appropriate data for LAGS maps and their legends; for general application, the system of registration and mapping may have broader interest in finding ways to chart complicated patterns of pronunciation in a format that can be easily composed, reproduced, and read.

Although the principles of phonetic mapping are converted routinely to comparable interpretations of morphological and lexical materials in the project, the primary resource is the code "systematic phonetics" that puts complicated phonetic notation into a simple alphabetic string. Vowels, for example, are characterized as primary (positional), secondary (conditional), and tertiary (modificational) features.

A systematic phonetics classification aims to inventory phonology in an exhaustive way. With that completed, even for a small fraction of the full corpus, analysis can move ahead more comfortably with broad phonic designations. The code distinguishes all phones, consonants and vowels, in terms of positional, conditional, and modificational features. The consonant code requires two sets of positional descriptors because different articulators and points of articulation are involved. The vowels are simpler because lingual, and mandible actions are implicit in the respective positional distinctions, front/central/back (for the tongue) and high/mid/low (for the jaw). Other characters of vowel articulation are conveniently summarized in terms of conditional and modificational features with little ambiguity.

The vowel code includes these positional features:

	Front	Advanced Central	Central	Advanced Back	Back
High					
Lower High					
Mid					
Lower Mid					
Higher Low					
Low					

Those include all vowel symbols used by LAGS scribes and underlie the code of 20 primary features:

A. High Front	K. Lower Mid Front
B. High Central	L. Lower Mid Advanced Central
C. High Back	M. Lower Mid Central
D. Lower High Front	N. Lower Mid Advanced Back
E. Lower High Central	O. Higher Low Front
F. Lower High Back	P. Higher Low Central
G. Mid Front	Q. Higher Low Back
H. Mid Advanced Central	R. Low Front
I. Mid Advanced Back	S. Low Central
J. Mid Back	T. Low Back

These conditional features provide secondary characteristics:

A. Unmarked	I. B + E	Q. B + C + D	Y. C + E + F
B. Tense	J. B + F	R. B + C + E	Z. D + E + F
C. Long	K. C + D	S. B + C + F	1. B + C + D + E
D. Nasalized	L. C + E	T. B + D + E	2. B + C + D + F
E. Retroflex	M. C + F	U. B + D + F	3. B + C + E + F
F. Rounded	N. D + E	V. B + E + F	4. B + D + E + F
G. B + C	O. D + F	W. C + D + E	5. C + D + E + F
H. B + D	P. E + F	X. C + D + F	6. B + C + D + E + F

The third set includes these modificational features:

A. Unmarked	G. B + E	M. J + D	S. Glottal	Y. S + G	5. S + M	
B. Raised	H. C + D	N. J + E	T. S + B	Z. S + H	6. S + N	
C. Lowered	I. C + E	O. J + F	U. S + C	1. S + I	7. S + O	
D. Advanced	J. Weak	P. J + G	V. S + D	2. S + J	8. S + P	
E. Retracted	K. J + B	Q. J + H	W. S + E	3. S + K	9. S + Q	
F. B + D	L. J + C	R. J + I	X. S + F	4. S + L	0. S + R	

These modificational features cover glottalized vowels and two peculiarities of American atlas notation. In the tradition of Kurath, Lowman, and McDavid, LAGS scribes routinely marked vowels that seemed raised [o˄], lowered [o˅], advanced [o˂], or retracted [o˃] in relation to the norms observed in this atlas.

The notation also combines these designations as, for example, raised and retracted [o˃˄] or lowered and advanced [o˂˅]. The second set of modificational features marks vowels that are weakly realized and transcribed as superscripts. These are almost always the final elements in diphthongs or triphthongs. Weakly realized elements are less frequently marked with shift signs, but some scribes did so routinely, so the feature was essential in the

description.

Here are the coded forms of the 71 stressed vowels illustrated in the first 15 lines of the Needham synopsis (Figure 9):

	A	B	C	D	E
/ /	EAA	DAB-maj	DDE	DCB-maj	DAB-mea
/ /	KBF-maj	KAB-eaj	KDA	KAB	KCA
/æ/	OBB-kbj	OCA-kbj	OBA-kaj	OCB-kaj	KCB
/ /	FFF	FFD-maj	FFD	FFB	EFA-mea
/ /	NAD	NAE-maj	NAD	NJD-maj	———
/ /	SCE-maj	SAE-maj	SAE	SCE	SCE-maj
/i/	dae-ABE	ABE	AGE	AGE-maj	DAB-mea
/e/	GBE-eaa	GBE-eaa	GBE-eaa	GBE-eaa	KKB
/u/	eaa-BJA	efa-BJA	eaa-BSA	efa-BJA	EFA-mea
/o/	JJD-efa	JJD-efa	JJD-efa	JJD-efa	JSC-mea
/ /	QFC-qfb	QFC-qfb	QFB-jjc	TCA-qfb	QMB-mea
/ /	MLA	MEA	MEA	MLA	NAH-maj
/a /	RAE-kaj	RAE-kaj	RAE-kaj	RAE-kaj	RCE-maj-mea
/a /	RAG-maj	RAF-maa	RAB-maa	OAC-efa	RAB-efa
/ /	QFF-mab	QFB-mab	QFB-mab	QMB-maj	———

3. THE COMPUTER INVENTORY

To test the usefulness of the systematic phonetic code, in 1984, the LAGS staff entered 80,000 stressed vowels on diskettes for index and analysis. A microcomputer program ordered the evidence in subsets and, in the process, produced a mechanical register of deductive phonetics. Following the alphabetic code, the program recorded forms in a sequence that reflects the deductive process of ordinary analysis. The phonetic sort yields a simple index of phonetic features, combined as consonants and vowels.

In two parts, this file includes an exhaustive listing of all recorded responses with informant characteristics presented in this way:

Book	Protocol	S	Cl	Rc	Age	Ed	Speech	Locality (Community)	SEC	Sc
001	A 001.04	F	L	Y	99	1	Folk	Neva (Johnson)	ET	LP

according to the phonetic sort of consonant or vowel features. The second basic sort lists the incidence of all recorded allophones (or members)

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phoneme (or contrastive set). Here, for example, is a register of 1,121 vowels recorded in the context *R/voiceless*, the syllabic nucleus in *right* and similar words:

PAH eaa	1	RAE eal	6	RCA eaj	77	RCE maa	1
PCA ea2	1	RAE eaq	1	RCA eal	1	RCE maj	3
PCA eaa	2	RAE kab	1	RCA eam	1	RCE mak	1
PCA eaj	2	RAE kaj	45	RCA eas	1	RCE mam	1
RAA	2	RAE kak	10	RCA kaj	18	RCG	1
RAA eaa	16	RAE kal	1	RCA kak	1	RCG daj	2
RAA eab	1	RAE kan	2	RCA kan	2	RCG eaa	8
RAA ead	2	RAE maj	6	RCA kap	1	RCG eaj	32
RAA eaj	32	RAE mak	1	RCA maj	10	RCG maj	1
RAA eak	1	RAE rab daj	1	RCA mak	1	RGA eaa	1
RAA kaj	5	RAF eaj	1	RCB	3	RKA eda	1
RAA rag	1	RAG	27	RCB eaa	5	RKA mdj	1
RAB	8	RAG bbj	1	RCB eaj	20	RKE edj	1
RAB daa	1	RAG daj	1	RCB eak	1	SAB eaj	1
RAB dab	1	RAG eaa	16	RCB kaj	2	SCA daj	1
RAB eaa	6	RAG eaj	92	RCB mak	1	SCA eaj	1
RAB eaj	81	RAG eak	10	RCE	18	SCD eaj	8
RAB kaj	12	RAG eal	1	RCE daa	2	SCE eaa	1
RAB kak	1	RAG kaj	2	RCE daj	1	SCE eaa	1
RAC eaj	1	RAG kak	1	RCE eaa	25	SKA edj	1
RAD eaa	1	RAG maj	1	RCE eab	2	SKD mdj	1
RAE	5	RAG mam	1	RCE eac	1		
RAE daa	2	RCA	22	RCE ead	1		
RAE eaa	48	RCA bbj	1	RCE eaj	65		
RAE eab	4	RCA daa	1	RCE eak	1		
RAE eac	1	RCA daj	2	RCE eal	4		
RAE ead	1	RCA eaa	25	RCE kaj	39		
RAE eaj	220	RCA eab	2	RCE kak	2		
RAE eak	5	RCA eaf	1	RCE kan	1		

The inventory identifies the principal allophones, as, for example, RAE eaj [ ] (220), RAG eaj [ ], (92), RAB eaj (81), RCE eaj [ ] (65), RAE eaa [ ] (48), RAE kaj [ ] (45), RCE eaj [ ] (39), RCE eaj [ ] (32), RCG eaj [ ] (32). It also suggests several patterns of distribution, such as monophthongs versus diphthongs, long onsets versus short onsets, long glides versus short glides. In that way, the analysis offers as many insights into the phonetic corpus as allowed by the distinguished features.

As the nine principal allophones indicate, diphthongs with long offglides

are dominant. In fact, excluding only RCE *kaj*, diphthongs with long glides account for more than half the sample in the eight remaining forms (606 of 1121 instances). That distribution recommends attention to the recessive forms, the monophthongs and the short glides, as potential regional and social markers. Mapping these features also helps to calibrate scribal differences in the registration of forms.

Figure 4 lists 86 informants who use eight different monophthongs in the pronunciation of the diphthong /ai/ before a voiceless obstruent, as in *right*. The patterns show geographical coherence with two thirds of the instances recorded in the South Midland territory of Tennessee (24), Arkansas (5), Upper Georgia (9), Upper Alabama (11), and Texas (7), with substantial additions from the Wire Grass of Lower Georgia (8), as well as the Sand Hills of Lower Alabama and the Pine Woods of Lower Mississippi and East Louisiana.

The members of the eight sets also show a social pattern, including 38 informants ranked in the lower classes (I, indigent, and L, lower or lower-middle), 43 in the middle class, and only four in the upper-middle class, with no aristocratic representatives. And all four of those upper-middle class instances are recorded in the South Midland territories of East Tennessee, Upper Alabama, Arkansas, and Texas, suggesting a useful regional marker exclusive of aristocratic speech.

Figure 5 lists characteristics of 123 informants who share the short glides [a^{ε} ~ $a.^{\varepsilon}$] in this environment. These responses cover the same geographical and social territory as did the monophthongs, although here two elderly aristocrats are included at Natchez, MS, and Grand Cane, LA. Combined with the incidence of the monophthongs, these short diphthongs outline the South Midland territory in the north and the Wire Grass/Sand Hill/Pine Woods territory to the south, immediately beyond the Coastal Strip.

Figure 6 maps the the responses of primary informants on a graphic plotter grid. That form assigns a constant position for each LAGS primary informant, providing an economical reference for computational mapping. The grid complements the list with a graphic representation of distribution, the primary resource of linguistic geography. With the absence of those four forms in the Piedmont and plains of Georgia and Alabama, the deltas of Mississippi, Louisiana, Tennessee, and Arkansas, and the Coastal Plain of Upper Texas, the incidence of these monophthongs and short glides conforms with earlier assumptions about the pronunciation of this vowel in the South. In a voiceless environment the mapped forms recur most frequently outside the plantation divisions of the South, the hill country to the north and the pine barrens to the south.

These charts, however, also show the occurrence of the forms declining in the speech of the upper social classes and the better educated. Even in the hill country strongholds of South Midland speech, as, for example, Knoxville, Chattanooga, Nashville, and Little Rock, the incidence of these monophthongs and short glides is rare and suggestive of a possible rural marker throughout the territory. Evidence of this kind can only be realized through several kinds of interpretation, including indexes, tables, and charts.

Taken together, these registers also call attention to scribal differences and the problems they bring to analysis. As McIntosh pointed out, variation occurs when the work of any scribe is set beside that of another. The LAGS approach aims to focus on the differences and in the process, perhaps, learn more about perceptual differences in the interpretation of speech sounds. For example, scribes SL (Susan Leas McDaniel) and LP (Lee Pederson) show habitual use of two different notations in this context the raised and centered monophthong (RAG) in SL's records and the short upgliding

diphthongs (RAA-kaj, RAE-kaj, etc.) in LP's. Noting the positional similarities suggested by these notations and the shared geographical and social features of the informants reported under those notations, one might conclude that these sets of features mark a common sound. The fact need not be asserted here without spectrographic evidence, but the resources of this approach to phonetic description seem evident. Without suppressing scribal differences or insisting upon an overlap in notation habits, a linguistic atlas can order material with this system and allow readers to draw their own conclusions.

With data mapped in those ways, the work provides better insights into the nature of the research problems, as well as the social and regional distribution of forms. Linguistic geography can never match the delicacy of laboratory phonetics in the description of forms or the analytical rigor of systematic sampling, but it makes other contributions by concentrating on those tasks it does best. Students need to know the implications of a phonetic notation. Failure to bring the facts of an investigation to the surface prevents a reader from understanding the implications of the data base and the substance of the materials from which the generalizations are drawn. To acknowledge that phonetic notation reflects individual differences in perception is appropriate and useful, especially when those varieties can be calibrated in a common pattern. To exclude phonetics from linguistic geography is to ignore the primary responsibility of the work, a close attention to "small-scale facts."

✓ Retype for MPGS —

voicless.gsx RAA ___ ___

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
461	CK 296.02	M	M	Y	42	2	common	Wausau (Washington)	WF	PE
857	GH 611.02	F	M	X	71	3	cultured	Huntsville (Walker)	UT	LD

Total: 2

voicless.gsx RAB ___ ___

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
040	I 021.01	F	M	Y	38	2	common	Sweetwater (Monroe)	ET	SL
078	R 047.02	M	M	Y	52	2	common	Rome (Floyd)	UG	SL
159	AC# 056.02	F	M	Y	74	1	folk	Glennville (Tattnall)	LG	PE
368	BT 241.02	M	M	Y	55	1	common	Gadsden (Etowah)	UA	SL
601	DW 387.03	F	L	Y	69	2	common	Soso (Jones)	LM	PE
650A	EE 417.08	F	M	X	66	2	folk	New Orleans (Orleans)	EL	PE
793	FV 529.02	M	L	Y	67	2	common	De Ridder (Beauregard)	WL	PE
823	GB 558.02	M	L	Y	37	2	common	Harmony (Nacogdoches)	UT	PE

Total: 8

voicless.gsx RAE ___ ___

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
114	W# 022.02	M	L	Y	79	1	folk	Penfield (Greene)	UG	SL
118A	X 064.01	F	L	X	75	1	folk	Franklin (Heard)	UG	PE
152	AC# 042.02	F	L	Y	70	2	common	Swainsboro (Emanuel)	LG	PE
193A	AJ 107.02	M	L	Y	55	1	folk	Georgetown (Quitman)	LG	MP
497	DC 312.01	F	L	Y	76	1	folk	Dunbar (Decatur)	WT	LD

Total: 5

voiceless.qsx RAG ——— ———

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
038	H 020.03	M	M	Y	70	2	common	Oneida (Scott)	ET	MP
039	H 020.02	F	M	Y	18	2	common	Robbins (Scott)	ET	SL
054A	M 032.09	F	L	Y	52	1	folk	Chattanooga (Hamilton)	ET	SL
062	O 036.02	F	M	Y	61	2	common	East Ellijay (Gilmer)	UG	SL
074A	O# 006.02	F	M	Y	67	2	common	Cornelia (Habersham)	UG	SL
111A	W 061.01	M	L	X	85	1	folk	Jonesboro (Clayton)	UG	SL
162	AC# 059.02	F	M	X	45	2	common	Savannah (Chatham)	LG	SL
172	AE 089.01	F	L	Y	77	1	folk	Eelbeck (Chattahoochee)	LG	SL
175	AF 093.01	M	M	Y	66	3	cultured	Patterson (Pierce)	LG	SL
184	AG 098.02	M	M	Y	60	2	common	Ocilla (Irwin)	LG	SL
300	BD 196.01	M	M	Y	61	3	cultured	Tennessee Ridge (Houston)	MT	SL
306	BG 204.08	M	M	Y	53	1	folk	Nashville (Davidson)	MT	SL
328	BK 217.01	M	M	Y	68	3	cultured	Normandy (Bedford)	MT	SL
350	BP 230.01	M	L	Y	64	2	common	Lexington (Lauderdale)	UA	MP
353	BQ 233.01	M	L	Y	87	2	folk	Arab (Marshall)	UA	SL
358	BS 236.01	M	U	Y	64	3	cultured	Jasper (Walker)	UA	SL
360	BS 237.02	F	M	Y	49	3	common	Haleyville (Winston)	UA	SL
381	BV 246.01	M	M	Y	69	3	common	Fayette (Fayette)	UA	SL
388	BX 251.03	M	L	Y	78	1	folk	Shelby (Shelby)	UA	SL
433	CE 278.03	F	M	Y	78	2	cultured	Geneva (Geneva)	LA	SL
472	CN 302.03	M	L	Y	74	1	folk	Stockton (Baldwin)	GA	SL
498	DC 314.01	M	M	Y	69	2	common	Selmer (McNairy)	WT	SL
533	DK 338.01	M	M	Y	25	3	cultured	Houston (Chickasaw)	UM	SL
588	DU 379.05	M	M	Y	78	1	folk	Raymond (Hinds)	LM	SL
640	ED 413.03	M	L	X	67	1	folk	Zachary (E. Baton Rouge)	EL	SL
677A	FA 434.02	M	M	Y	39	3	cultured	Blytheville (Mississippi)	AR	SL
876	GL 625.01	F	L	Y	29	3	common	Victoria (Victoria)	LT	SL

Total: 27

From MPGS

of a phoneme (or contrastive set). Here, for example, is a register of 1,121 vowels recorded in the context *R/voiceless*, the syllabic nucleus in *right* and similar words:

PAH eaa	1	RAE eal	6	RCA eaj	77	RCE maa	1
PCA ea2	1	RAE eaq	1	RCA eal	1	RCE maj	3
PCA eaa	2	RAE kab	1	RCA eam	1	RCE mak	1
PCA eaj	2	RAE kaj	45	RCA eas	1	RCE mam	1
RAA	2	RAE kak	10	RCA kaj	18	RCG	1
RAA eaa	16	RAE kal	1	RCA kak	1	RCG daj	2
RAA eab	1	RAE kan	2	RCA kan	2	RCG eaa	8
RAA ead	2	RAE maj	6	RCA kap	1	RCG eaj	32
RAA eaj	32	RAE mak	1	RCA maj	10	RCG maj	1
RAA eak	1	RAE rab daj	1	RCA mak	1	RGA eaa	1
RAA kaj	5	RAF eaj	1	RCB	3	RKA eda	1
RAA rag	1	RAG	27	RCB eaa	5	RKA mdj	1
RAB	8	RAG bbj	1	RCB eaj	20	RKE edj	1
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RAC eaj	1	RAG kak	1	RCE eaa	25	SKA edj	1
RAD eaa	1	RAG maj	1	RCE eab	2	SKD mdj	1
RAE	5	RAG mam	1	RCE eac	1		
RAE daa	2	RCA	22	RCE ead	1		
RAE eaa	48	RCA bbj	1	RCE eaj	65		
RAE eab	4	RCA daa	1	RCE eak	1		
RAE eac	1	RCA daj	2	RCE eal	4		
RAE ead	1	RCA eaa	25	RCE kaj	39		
RAE eaj	220	RCA eab	2	RCE kak	2		
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phonetics

The inventory identifies the principal allophones, as, for example, RAE eaj [ə>•±] (220), RAG eaj [ə>̂•±], (92), RAB eaj (81) [ə^±], RCE eaj [ə·> ±] (65), RAE eaa [ə> ±] (48), RAE kaj [ə> ε] (45), RCE kaj [ə·> •ε] (39), RAA eaj [a± •] (32), RCG eaj [ə>̂· ±] (32). It also suggests several patterns of distribution, such as monophthongs versus diphthongs, long onsets versus short onsets, long glides versus short glides. In that way, the analysis offers as many insights into the phonetic corpus as allowed by the distinguished features.

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voicless.qsx RCA ~~~ ~~~

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
009	B 004.02	M	M	Y	82	3	common	Leesburg (Washington)	ET	LP
014	C 006.04	F	M	Y	73	3	common	Bluff City (Sullivan)	ET	LP
017	C 007.01	M	M	Y	84	1	folk	St. Clair (Hawkins)	ET	LP
055A	M 032.10	M	L	Y	20	2	common	Chattanooga (Hamilton)	ET	LP
066	P 038.01	M	L	X	63	1	folk	Rocky Face (Whitfield)	UG	LD
075A	R 045.02	M	M	Y	87	1	folk	Resaca (Gordon)	UG	PE
166	AD 086.03	F	M	Y	82	1	folk	Americus (Sumter)	LG	LD
203A	AL 113.01	F	L	Y	70	1	folk	Axson (Atkinson)	LG	LP
236	AR 134.04	M	M	Y	46	2	common	Hopeful Church (Columbia)	EF	PE
238	AS 139.02	M	L	Y	39	2	folk	Shady Grove (Taylor)	EF	LP
252	AV 150.03	M	M	Y	55	1	common	Cedar Key (Levy)	EF	LP
507	DE 321.02	F	L	X	76	1	folk	Fulton (Lauderdale)	WT	LD
520	DH 325.01	M	L	Y	72	2	folk	Iuka (Tishomingo)	UM	LP
542	DL 346.01	M	I	Y	65	1	folk	Oxford (Lafayette)	UM	LD
600C	DW 387.01	M	M	Y	85	2	folk	Union Line (Jones)	LM	LP
703	FF 456.01	F	M	Y	74	2	folk	White Oak (Cleveland)	AR	LP
717A	FI 465.02	M	I	Y	85	1	folk	Red Hill (Searcy)	AR	LP
728	FK 477.01	M	U	Y	85	2	common	Wing (Yell)	AR	LD
820	GA 547.01	F	M	Y	42	3	cultured	Wiergate (Newton)	UT	GR
836	GD 576.01	M	L	Y	61	1	folk	Belk (Lamar)	UT	LD
894	GO 651.03	M	M	Y	74	2	common	Encinal (Webb)	LT	LP
911	GQ 665.02	M	U	Y	43	3	cultured	Brownsville (Cameron)	LT	LP

Total: 22

voicless.qsx RCB ~~~ ~~~

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
208	AM 117.05	M	L	Y	30	2	common	Valdosta (Lowndes)	LG	PE
212	AN 121.01	F	M	Y	74	1	folk	Moultrie (Colquitt)	LG	PE
362	BS 238.02	M	L	Y	71	1	folk	Winfield (Marion)	UA	PE

Total: 3

voicless.gsx RCE ___ ___

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
004	A 001.05	F	L	Y	38	2	common	Laurel Bloomery (Johnson)	ET	LP
020	D 009.03	M	M	Y	72	3	cultured	Cosby (Cocke)	ET	LP
050	L 030.01	F	L	Y	69	1	common	Reliance (Polk)	ET	LP
052	M 032.08	F	L	X	68	1	folk	Ooltewah (Hamilton)	ET	LP
067	P 038.02	F	M	Y	24	2	common	Dalton (Whitfield)	UG	LD
165A	AD 086.01	F	L	X	40	1	folk	Koinonia (Sumter)	LG	LD
235	AR 134.01	F	L	Y	77	1	folk	Mason City (Columbia)	EF	LP
293	BB 191.01	M	M	Y	62	3	common	Portland (Sumner)	MT	LP
298A	BD 195.01	M	L	Y	67	1	folk	Hurricane Creek (Stewart)	MT	LP
301	BE 198.01	F	I	Y	82	1	folk	Gainesboro (Jackson)	MT	LD
302	BE 198.02	M	M	Y	61	1	common	Gainesboro (Jackson)	MT	LP
305	BF 202.02	F	M	Y	56	2	common	Statesville (Wilson)	MT	LP
321	BI 209.01	M	M	Y	81	3	common	Spencer (Van Buren)	MT	LD
337A	BN 225.03	M	L	X	88	1	folk	Hollywood (Jackson)	UA	LD
349	BP 230.03	M	L	Y	81	1	folk	Green Hill (Lauderdale)	UA	LD
367	BT 241.01	F	L	Y	89	1	folk	Altoona (Etowah)	UA	LP
600A	DW 387.07	M	L	Y	87	1	folk	Soso (Jones)	LM	LP
740	FM 488.01	F	M	Y	77	1	folk	Hearn (Clark)	AR	LP

Total: 18

voicless.gsx RCG ___ ___

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
051	L 031.02	M	U	Y	21	3	cultured	Cleveland (Bradley)	ET	SL

Total: 1

604	DX 388.02	F	M	Y	78	2	common	Lumberton (Lamar)	LM	LP
607	DY 396.02	M	M	Y	85	2	common	Bogue Chitto (Lincoln)	LM	LP
608	DY 396.03	F	M	Y	72	2	common	Brookhaven (Lincoln)	LM	MB
615	DZ 400.03	F	A	Y	79	3	cultured	Natchez (Adams)	LM	PE
620	EA 402.04	M	M	X	87	1	folk	Biloxi (Harrison)	GM	MP
626	EB 405.02	M	U	Y	70	2	common	Kiln (Hancock)	GM	LP
675	FA 432.02	F	M	Y	47	2	common	Piggott (Clay)	AR	GR
681	FB 439.01	M	L	Y	65	1	folk	Cave City (Sharp)	AR	MP
685	FB 440.01	F	U	Y	53	3	cultured	Salem (Fulton)	AR	MP
693	FD 448.01	F	M	Y	48	2	common	Searcy (White)	AR	PE
694	FD 450.02	M	M	Y	70	1	folk	Des Arc (Prairie)	AR	LP
708	FG 458.06	F	M	X	43	2	common	Little Rock (Pulaski)	AR	MP
717	FI 465.01	F	M	Y	71	1	folk	Hilltop (Searcy)	AR	PE
722	FJ 470.01	M	M	Y	75	1	common	Sulphur Springs (Benton)	AR	PE
~~723A~~	~~FJ 471.04~~	~~M~~	~~M~~	~~X~~	~~39~~	~~3~~	~~cultured~~	~~Fayetteville (Washington)~~	~~AR~~	~~LP~~
724	FJ 471.03	F	M	Y	33	2	common	West Fork (Washington)	AR	LP
729	FK 477.02	M	M	Y	42	3	cultured	Danville (Yell)	AR	PE
736	FK 481.01	F	M	Y	56	2	common	Mena (Polk)	AR	PE
739	FL 483.03	F	M	Y	23	3	cultured	Hot Springs (Garland)	AR	LP
741	FM 488.02	F	U	Y	40	3	cultured	Arkadelphia (Clark)	AR	MB
742	FN 491.02	M	M	Y	76	1	folk	De Queen (Sevier)	AR	PE
747	FN 497.01	M	M	Y	75	3	cultured	Cale (Nevada)	AR	LP
749	FO 501.03	F	M	Y	68	2	common	El Dorado (Union)	AR	PE
750	FO 501.04	F	M	Y	62	2	common	Strong (Union)	AR	LP
~~752A~~	~~FP 503.03~~	~~M~~	~~L~~	~~Y~~	~~76~~	~~1~~	~~folk~~	~~McGehee (Desha)~~	~~AR~~	~~MP~~
752	FP 503.02	M	M	Y	31	2	common	Arkansas City (Desha)	AR	LP
756	FQ 507.01	M	L	X	75	1	folk	Lake Providence (E. Carroll)	WL	PE
770	FR 515.04	M	U	Y	55	3	cultured	Monroe (Ouachita)	WL	PE
772	FS 518.02	M	M	Y	73	1	folk	Antioch (Lincoln)	WL	MP
~~774A~~	~~FT 523.05~~	~~F~~	~~L~~	~~X~~	~~60~~	~~1~~	~~folk~~	~~Blanchard (Caddo)~~	~~WL~~	~~PE~~
781	FU 524.01	F	A	Y	88	1	folk	Grand Cane (De Soto)	WL	LP
791	FV 528.03	M	M	Y	51	2	common	Hawthorne (Vernon)	WL	GB
796	FW 533.03	F	L	X	71	1	folk	Pineville (Rapides)	WL	PE
814	FZ 544.02	F	L	Y	87	1	folk	Bell City (Calcasieu)	WL	PE
831	GC 567.02	M	M	Y	32	3	cultured	Marshall (Harrison)	UT	PE
839	GE 583.01	M	L	Y	74	1	folk	Valley View (Cooke)	UT	LP
845	GF 586.01	F	M	Y	16	2	common	Dallas (Dallas)	UT	GB
855	GH 604.01	M	M	Y	74	1	folk	Caldwell (Burleson)	UT	MB
~~856B~~	~~GH 611.01~~	~~M~~	~~M~~	~~Y~~	~~78~~	~~2~~	~~common~~	~~Huntsville (Walker)~~	~~UT~~	~~PE~~
862	GI 616.04	M	M	Y	30	2	common	Port Arthur (Jefferson)	UT	PE
879	GL 629.01	M	M	Y	83	2	common	Goliad (Goliad)	LT	MP
~~886B~~	~~GN 645.06~~	~~M~~	~~L~~	~~X~~	~~51~~	~~1~~	~~folk~~	~~San Antonio (Bexar)~~	~~LT~~	~~PE~~

Total: 146

✓ (It's right even though it's 146) −26 sec. primary → (120)

K00 K00 000 ← vs. RC0 K00 000

22
2
42
66

(146) total (not 123)

13
59
3
80

voicless.gsx 000 k00 000

Book	Protocol	Sx	Cl	Rc	Age	Ed	Speech	Locality (Community)	Sec	Scr
001	A 001.04	F	L	Y	99	1	folk	Neva (Johnson)	ET	LP
002	A 001.01	M	L	Y	82	1	folk	Laurel Bloomery (Johnson)	ET	LP
003	A 001.03	M	M	Y	79	1	common	Shady Valley (Johnson)	ET	LP
005	A 001.02	F	M	Y	78	3	cultured	Laurel Bloomery (Johnson)	ET	LP
007	A 002.03	M	M	Y	72	3	common	Shell Creek (Carter)	ET	LP
011	B 005.01	M	L	Y	66	1	folk	Jackson Chapel (Greene)	ET	LP
012	C 006.01	F	L	Y	73	1	folk	Big Creek (Sullivan)	ET	LP
018	D 009.01	F	I	Y	43	1	folk	Rankin (Cocke)	ET	LP
019	D 009.02	M	M	Y	76	2	common	Bat Harbor (Cocke)	ET	LP
023	E 014.01	M	M	Y	80	1	folk	Little Sycamore (Claiborne)	ET	LP
024	E 014.02	F	U	Y	56	3	cultured	Little Sycamore (Claiborne)	ET	LP
025	F 015.01	M	M	Y	76	1	folk	Wear Valley (Sevier)	ET	LP
~~027A~~	~~F 016.01~~	~~F~~	~~L~~	~~Y~~	~~59~~	~~1~~	~~common~~	~~Maryville (Blount)~~	~~ET~~	~~LP~~
029	G 017.04	M	L	X	71	1	folk	Knoxville (Knox)	ET	LP
032	G 017.02	M	U	Y	60	3	common	Knoxville (Knox)	ET	LP
033	G 017.08	M	M	Y	17	2	common	Knoxville (Knox)	ET	LP
037	H 019.01	F	M	Y	50	3	cultured	La Follette (Campbell)	ET	LP
044	J 026.01	F	L	Y	86	1	folk	Sequatchie Valley (Cumberlan	ET	LP
049	K 028.01	M	M	Y	17	2	common	Dayton (Rhea)	ET	LP
~~051A~~	~~L 031.01~~	~~M~~	~~L~~	~~Y~~	~~78~~	~~1~~	~~folk~~	~~Cleveland (Bradley)~~	~~ET~~	~~LP~~
053	M 032.02	M	L	Y	62	1	folk	Chattanooga (Hamilton)	ET	LP
063	O 037.02	M	L	Y	86	1	folk	Chatsworth (Murray)	UG	LP
~~063A~~	~~O 037.01~~	~~M~~	~~L~~	~~Y~~	~~60~~	~~1~~	~~folk~~	~~Chatsworth (Murray)~~	~~UG~~	~~LP~~
064	O# 001.01	F	M	Y	86	1	folk	Blairsville (Union)	UG	LP
068	P 039.01	F	M	Y	69	2	common	Ringgold (Catoosa)	UG	LP
069	Q 043.01	F	L	Y	63	1	folk	Jasper (Pickens)	UG	MP
070	Q 044.01	F	M	Y	75	2	common	Hickory Flat (Cherokee)	UG	LP
~~071A~~	~~Q 044.05~~	~~M~~	~~M~~	~~Y~~	~~57~~	~~2~~	~~common~~	~~Woodstock (Cherokee)~~	~~UG~~	~~PE~~
072	Q# 004.01	M	L	Y	80	1	folk	Dahlonega (Lumpkin)	UG	LP
080	R 048.01	M	M	Y	76	2	common	Menlo (Chattooga)	UG	LP
084	S 051.01	M	L	X	69	1	folk	Conyers (Rockdale)	UG	LP
092	S# 014.01	F	M	Y	63	2	common	Hartwell (Hart)	UG	LP
~~099B~~	~~T 053.06~~	~~M~~	~~M~~	~~Y~~	~~62~~	~~2~~	~~common~~	~~East Point (Fulton)~~	~~UG~~	~~MP~~
~~113B~~	~~W 062.04~~	~~F~~	~~M~~	~~Y~~	~~93~~	~~3~~	~~cultured~~	~~Fayetteville (Fayette)~~	~~UG~~	~~MP~~
~~114A~~	~~W# 022.01~~	~~F~~	~~L~~	~~X~~	~~37~~	~~2~~	~~common~~	~~White Plains (Greene)~~	~~UG~~	~~LP~~
120	Y 065.01	F	U	Y	77	3	cultured	Jackson (Butts)	UG	MB
127	Y# 029.01	M	M	Y	62	2	folk	Warrenton (Warren)	UG	LP
149	AC 082.01	M	I	X	72	1	folk	Vienna (Dooly)	LG	LP
153	AC# 044.01	F	M	Y	71	1	folk	Hilltonia (Screven)	LG	LP
~~172B~~	~~AE 091.02~~	~~F~~	~~L~~	~~X~~	~~36~~	~~2~~	~~folk~~	~~Omaha (Stewart)~~	~~LG~~	~~LP~~
174	AF 093.02	M	M	Y	63	2	common	Blackshear (Pierce)	LG	LP
186	AH 100.01	F	M	Y	55	2	common	Tifton (Tift)	LG	LP
190	AI 103.03	M	M	Y	68	2	folk	Albany (Dougherty)	LG	LP
193	AJ 107.01	M	M	Y	70	2	common	Georgetown (Quitman)	LG	MB
197	AK 111.02	F	M	Y	72	1	folk	Folkston (Charlton)	LG	LP
198	AK 111.03	M	M	Y	76	1	common	Moniac (Charlton)	LG	LP
~~203B~~	~~AL 114.02~~	~~M~~	~~M~~	~~Y~~	~~77~~	~~1~~	~~folk~~	~~Homerville (Clinch)~~	~~LG~~	~~LP~~
203	AL 114.01	F	L	Y	57	2	common	Homerville (Clinch)	LG	LP
206	AM 117.06	F	L	Y	69	1	folk	Valdosta (Lowndes)	LG	LP
207	AM 117.01	F	L	X	47	1	folk	Valdosta (Lowndes)	LG	MB
216	AO 123.03	F	M	Y	70	3	common	Camilla (Mitchell)	LG	GB

R + k = 146 total.

Figure 6 maps the the responses of primary informants on a graphic plotter grid. That form assigns a constant position for each LAGS primary informant, providing an economical reference for computational mapping. The grid complements the list with a graphic representation of distribution, the primary resource of linguistic geography. With the absence of those four forms in the Piedmont and plains of Georgia and Alabama, the deltas of Mississippi, Louisiana, Tennessee, and Arkansas, and the Coastal Plain of Upper Texas, the incidence of these monophthongs and short glides conforms with earlier assumptions about the pronunciation of this vowel in the South. In a voiceless environment the mapped forms recur most frequently outside the plantation divisions of the South, the hill country to the north and the pine barrens to the south.

These charts, however, also show the occurrence of the forms declining in the speech of the upper social classes and the better educated. Even in the hill country strongholds of South Midland speech, as, for example, Knoxville, Chattanooga, Nashville, and Little Rock, the incidence of these monophthongs and short glides is rare and suggestive of a possible rural marker throughout the territory. Evidence of this kind can only be realized through several kinds of interpretation, including indexes, tables, and charts.

Taken together, these registers also call attention to scribal differences and the problems they bring to analysis. As McIntosh pointed out, variation occurs when the work of any scribe is set beside that of another. The LAGS approach aims to focus on the differences and in the process, perhaps, learn more about perceptual differences in the interpretation of speech sounds. For example, scribes SL (Susan Leas McDaniel) and LP (Lee Pederson) show habitual use of two different notations in this context the raised and centered monophthong (RAG) in SL's records and the short upgliding

voicless.gsx R00 k00 000

A = [a$^{\varepsilon}$ ~ a.$^{\varepsilon}$]

diphthongs (RAA-kaj, RAE-kaj, etc.) in LP's. Noting the positional similarities suggested by these notations and the shared geographical and social features of the informants reported under those notations, one might conclude that these sets of features mark a common sound. The fact need not be asserted here without spectrographic evidence, but the resources of this approach to phonetic description seem evident. Without suppressing scribal differences or insisting upon an overlap in notation habits, a linguistic atlas can order material with this system and allow readers to draw their own conclusions.

With data mapped in those ways, the work provides better insights into the nature of the research problems, as well as the social and regional distribution of forms. Linguistic geography can never match the delicacy of laboratory phonetics in the description of forms or the analytical rigor of systematic sampling, but it makes other contributions by concentrating on those tasks it does best. Students need to know the implications of a phonetic notation. Failure to bring the facts of an investigation to the surface prevents a reader from understanding the implications of the data base and the substance of the materials from which the generalizations are drawn. To acknowledge that phonetic notation reflects individual differences in perception is appropriate and useful, especially when those varieties can be calibrated in a common pattern. To exclude phonetics from linguistic geography is to ignore the primary responsibility of the work, a close attention to "small-scale facts."

NOTES

1. This interpretation differs from other American work only in its explicit references to the targets and tasks of phonetic mapping. In *The Pronunciation of English in the Atlantic States* (Ann Arbor, 1962), H. Kurath and R. I. McDavid, Jr., describe stressed vowels in the context of a word-level phonology and consistently report conclusions easily transliterated into the vocabulary of phonetic features.

At the same time, this interpretation departs radically from the approach outlined by A. McIntosh in his *Introduction to a Survey of Scottish Dialects* (Edinburgh, 1961). The chapter "The Phonetic Approach" (68-9) concludes with this paragraph:

> Here we must call attention to the fact that the material which a phonetician notes down from an informant is often and quite wrongly described as "raw material," as if he in some way captured the actual in their entirety. In fact what he returns with in his notebooks has, by the very act of being written down, gone through a stage of processing and is no longer "raw" at all. Just what the nature of that process is will depend partly on the problems inherent in any attempt to express sounds by written symbols and partly on the competence and preoccupations of the phonetician himself. But in any case, if he has had any experience, he will be well aware of all this, and both he and anybody else who is working on the material at a later stage will have to decide what implications it has when any question of analysing the material arises. An impressionistic transcription is essentially an individual and private matter; it is not for the public eye. Some form of synthesis of the material is therefore necessary, and invariably to print the material exactly as it was first written down by the

fieldworker would almost certainly be misleading. In the world of scholarship error can appear in a variety of forms, but one of the most dangerous is that which has a specious appearance of precision.

The LAGS approach recognizes the interpretive framework suggested by McIntosh, but it carries the implications forward to this conclusion: because notations reflect subjective factors, these transcriptions must be plotted closely from their initial forms so a reader can understand their significance and adjust his interpretations accordingly. For that reason, LAGS phonetics aims to make all materials open to public inspection, from the tape/text through each step of the phonological analysis.

Finally, this approach rejects the assumption of some that "impressionistic phonetics" lacks descriptive authority. From the outset of civilization, humans have advanced understanding with the resources of impressionistic phonetics, the resources of understanding that make language possible. To disregard the findings of direct observation is a mistake today, at a time when mechanical devices cannot yet offer the tools needed in linguistic geography. As B. Malmberg concluded in *Phonetics* (New York, 1963), 89, "The phonetician uses several different methods in his work to examine the sounds of language and their combinations. His most important apparatus is his ear, which will remain his most precious instrument in spite of all the technical inventions of our age." LAGS phonetics advances on that assumption with an appreciation of the imperfections shared by linguistic geographers, engineers and philologists.

2. For a description of this reference, its history and format, see L. Pederson, S. L. McDaniel, and M. W. Bassett, "The LAGS Concordance," *American Speech*.

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LAGS WORKING PAPERS, THIRD SERIES (1985)

WORKING PAPER NUMBER SIX

A Reference Tool for Southern Folklore Study

Lee Pederson and Susan Leas McDaniel

A REFERENCE TOOL FOR SOUTHERN FOLKLORE STUDY

Lee Pederson and Susan Leas McDaniel

The legendry is the central reference of the Linguistic Atlas of the Gulf States (LAGS). A set of alphabetically ordered map legends, the text records data in the format of a historical dictionary. It unites the indexed evidence of the Basic Materials with the interpretative statements of the Descriptive Materials.[1] And, in the process, the legendry operates as the main research tool in the LAGS collection for students of Southern language and culture.[2]

The LAGS coinage *legendry* aims to distinguish the orientation of this book from both the inclusive/diachronic/historical framework of a dialect dictionary, as, for example, the *Dictionary of American Regional English* (DARE), and the exclusive/synchronic/descriptive atlas method of interpretation, as, for example *A Word Geography of the Eastern United States*. Instead, the LAGS text reflects this assumption: if a linguistic atlas is a collection of maps, as the phrase indicates, the complex evidence of those illustrations deserves fully developed explanations. It follows that in a research tool those explanations should be organized in the most accessible form. The most accessible conventional reference medium is the hard-copy book, and the most effective reference format is the dictionary. With an alphabetized word list and obligatory entry styles, the legendry offers a convenient reference without sacrificing the empirical principles of coherence, comprehensiveness, and simplicity. Those are goals not easily realized in a descriptive index of a large corpus, but they are requisites that must be met if the tool is to serve the purposes for which it was

designed.[3]

This report explains resources of the LAGS legendry through the format of its entries. Here, these illustrate information about Southern language and culture recorded under 32 synonyms for "shelf over a fireplace." They include four types of legendry entries: the primary entry, *mantel*; five secondary entries, *mantelpiece, fireboard, shelf, mantel board, mantelshelf*; seven tertiary entries, *board, fireplace shelf, chimney shelf, fire mantel, fire shelf, shelf mantel*, and *whatnot shelf*; and of 19 line entries, *arch, arch rock, chimenea, chimney, chimney breast, chimneypiece, clock shelf, corniche, fireplace mantel, ledge, mantel log, mantel place, manteling, manteltree, medicine shelf, oak, shelf over the fireplace, stone mantel*, and *wooden mantel*. All of these, singularly or in combination, were abstracted from the LAGS field record, 5,200 hours of tape-recorded conversational interviews conducted in Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and East Texas during the years 1968-1980. See Figure 1.

Based on a questionnaire (work sheets) of more than one thousand items, the field record was transcribed as a set of phonetic texts, called *protocols*, by eight scribes during those same years. That collection of 129,000 pages was published in microform in 1981.[4] During the years 1981-1984, three editors converted the phonetic text to conventional orthographic writing and, with the help of several assistants, entered the entire corpus on the Emory mainframe to compose the LAGS concordance. The legendry derives its text indirectly from the concordance, the principal reference tool of the Basic Materials.

As described elsewhere, microcomputer programs help to reorganize concordance data in linguistic files for the composition of an electronic atlas in microform (EAM) that serves as research instrument in the preparation

of the legendry while forming an independent reference tool for other applications.[5] For editorial work in the legendry, the programs function in these ways. With a selection of target items, entry begins with a coding of concordance forms that are listed in files on diskettes ("floppy disks"). The programs then read the sequential files containing these lists and informant data, printing the information in three forms: 1) as a list of total occurrences, 2) as a register of the incidence of responses, and 3) as map versions of synonym distribution. For the item *mantel*, Figure 2 shows the totals list, Figure 3 reproduces the file for *fireboard*, and Figure 4, A-D, plots the incidence of (A) *mantel*, (B) *mantelpiece*, (C) *fireboard*, and (D) *mantel board* on a graphic plotter grid.[6]

To illustrate how the legendry combines descriptive and basic evidence, sample entries identify the informational fields and outline the data sources of the primary term *mantel*, of two principal regional synonyms (secondary entries) *mantelpiece* and *fireboard*, and of the 19 unique forms (line entries). The primary entry, *mantel*, serves as the control unit for the item, with all synonyms registered under that form. Each secondary entry includes evidence of distribution, with the essential geographical, historical, and social patterns listed under the dominant regionalism, here, *mantelpiece*. Tertiary entries are similar. Line entries provide several kinds of information in the composition of the legendry. They identify relics, such as *chimneypiece*; isolated instances of loanwords, such as French *corniche*; clipped forms, such as *chimney* (from *chimneypiece*); synecdochic forms, such as *oak* (from *oak -mantel, -shelf*, or *-board*); and improbable synonyms, such as *arch rock* and *manteling*, that require glosses for general understanding. Together, such legendry entries assist the reader of the atlas to recognize the sources and implications of recorded forms. And, as an abstraction of the full LAGS

collection, the legendry offers immediate access to information at any level of complexity. The entries identify, summarize, and illustrate the contents of the Basic Materials in the format of a descriptive index and guide to the tape/text, protocols, concordance, and maps in print and electronic media.

PRIMARY LEGENDRY ENTRY

A primary legendry entry, Figure 5, "mantel," has a format of fifteen fields of information. Ordered as fields of form, reference, control, and distribution, the contents of a primary entry include:

1. formal fields:
   a. entry word: *mantel*
   b. speech part: *n.* (noun)
   c. pronunciation: <man(t)(e)l ~ man[n](e)l>
   d. definition: work sheet gloss
2. reference fields
   a. total incidence (*Index*): 567
   b. page and line (*Protocol*): 008.4
   c. permuted texts (*Concordance*): 14311-14325
   d. microform file (*EAM*):
   e. descriptive atlas map:
3. control fields:
   a. synonyms:
   b. matrix:
4. distributional fields:
   a. statement on regional pattern
   b. statement on social pattern
   c. statement on usage
   d. illustrative texts

Of these, only the control fields are limited to primary entries. Secondary and tertiary entries include fields of form, reference, and distribution; line entries report unique forms in the LAGS collection, identifying informants and recording illustrative texts when available. The selection of primary entries reflects the composition of the LAGS work sheets and the informant responses to items in that form during the course of the investigation. For example, the work sheet entry, the form that field workers used to investigate the *mantel* item, coincides with the findings of the survey.

Primary Entry: mantel

mantel. n. <man(t)(e)l ~ man[n](e)l>. L: "Up above the fireplace to set vases on." Tot. 567. P/L 008.4. C 14311-14325. F 00; M 000.

Recurrent: mantelpiece (242), fireboard (72), shelf (62), mantel board (54), mantelshelf (36), board (6), fireplace shelf (3), chimney shelf (2), fire mantel (2), fire shelf (2), shelf mantel (2), whatnot shelf (2); Unique: arch, arch rock, chimenea, chimney, chimney breast, chimneypiece, clock shelf, corniche, fireplace mantel, ledge, mantel log, mantel place, manteling, manteltree, medicine shelf, oak, shelf over the fireplace, stone mantel, wooden mantel

		1	2	3	4	5	6	7
1	mantel	404	72	50	24	11	10	16
2	mantelpiece	72	188	8	12	10	3	6
3	fireboard	50	8	11	1	5	1	5
4	shelf	24	12	1	19	0	3	2
5	mantel board	11	10	5	0	33	1	3
6	mantelshelf	10	3	1	3	1	21	2
7	other terms	16	6	5	2	3	2	28

With the exception of the immediate New Orleans focal area, where mantelpiece prevails, all subregional and social dialect areas show mantel as the dominant form. In all of those contexts, mantel combines with mantelpiece, fireboard, or mantel board to mark distinctive patterns. Only younger informants, especially in the upcountry and urban areas, consistently report mantel as a single response.

MMY 18 2 Birmingham UA. Held clock, jars of candy, pictures, trophies.

FMY 75 1 Lockhart LM. They always had a mantelpiece across the mantel.

FUY-S 40 2 Roma LT. That's where you put your prize belongings.

Here is the full text of the work sheet entry:

8.4 The lamp is on the) mantel *mantelshelf, *mantelpiece, *tussock, *clock shelf, *fireboard, *mantel board, *manteltree

L: Up above the fireplace to set vases on.

M: What would you call the place above the fireplace where you might put an ornament or picture or something like that?

In this instance, the word *mantel* is the form in the initial cue sentence, and this corresponds with findings of the survey that show it to be the dominant term across the Gulf States. Another entry on the same sheet, however, shows a disparity between the work sheet form and the collected synonyms:

8.6 lightwood /fatty kindling sticks for starting a fire; are kindling and lightwood different?/

M: What would you call the kind of wood you use to start a fire? How about something you'd get when you cut down a pine tree, rich wood you could light directly from a match?

The complex findings under this item recommend *kindling*, not *lightwood*, as the primary entry for the explanation of a large and complicated set of synonyms.

As in the work sheets and concordance, legendry entries accept the authority of *Webster's Third New International Dictionary* for all spellings recorded in that book or in its earlier editions. Thus, the spelling *mantel* appears without the variants included in historical dictionaries. Similarly, speech part designations also follow the code of that dictionary. The pronunciation and semantic glosses, however, reflect LAGS method.[7]

As explained elsewhere, legendry pronunciation glosses appear in an alphabetic system called the Automatic Book Code (ABC). This system reflects the intuitive, or automatic, associations a reader of English makes in the interpretation of a phonetic string. Because the English alphabet is the most

accurate, efficient, and elegant phonemic system of the language, ABC follows it and the long tradition of writing in Western civilization, rather than the nonce orthographies of orthoepists and linguists, old and new.[8] In addition to the letters and diacritics, pronunciation glosses also include parens to show letters and syllables that are sometimes deleted, as, for example, <man(t)(e)l> to indicate the pronunciations <mantel>, <mantl>, <manl>, and <manel>, and brackets to show substitute letters, as, for example <man[n](e)l>, to indicate the pronunciations <mannel>, <mannl>, <manel>,and <manl>. The semantic gloss "up above the fireplace to set vases on" is the frame used by Guy H. Loman, Jr., in his work in the Atlantic States, marked [L] in the work sheet entry. Elsewhere, the glosses of Raven I. McDavid, Jr., or Lee Pederson are often used, marked [M] and [P], respectively. Wherever possible, the gloss is drawn directly from the work sheets to maintain self-consistency within the program. Like the cues in field work, these descriptors aim to provide the broadest possible context for appropriate forms. A linguistic atlas is a lexicological, not a lexicographical, study: it is a servant to dictionaries, not a dictionary. That comfortable understanding underlies the nonce form *legendry*.

The reference fields direct a reader to the sources of information within the LAGS collection. These references identify evidence in four forms. The totals figure reports the incidence of the term as recorded as a response to the work sheet item. The page and line reference identifies the position in the protocols as published in the Basic Materials. The permuted text reference identifies the pages of the *Concordance* that record all instances of the term in the collection. The microform file reference indicates the file according to disk number (2-10) in the electronic atlas in microform.[9] The map number refers to the volume of maps that will complete the atlas.

The control fields include information that appears only in primary entries. The synonym list gives the reader a full inventory of appropriate synonyms recorded in the survey and ordered elsewhere in the legendry. The matrix includes the principal recurrent forms in combinations through multiple responses. These fields help a reader evaluate the tabulations of single features and understand the problem of divided usage with respect to a dialect area, a community, or an idiolect, wherein the record shows two or more different responses to a target item.

The distributional fields describe regional and social incidence, as well as general usage, in brief statements and illustrate those observations with representative texts drawn from the concordance or the protocol collection. Each text includes geographical and social referents, marking the community and sector, as, for example, ET (East Tennessee) and designations of sex F/M (female/male), social class A/U/M/L/I (aristocratic/upper/middle/lower/indigent), racial caste X/Y (black/white), age, and formal education 1/2/3 (elementary school/high school/college).

SECONDARY LEGENDRY ENTRY

Secondary entries include all recurrent regional and social markers. These record evidence within formal, reference, and distributional fields as covered in primary entries, with the semantic glosses replaced with references to the base form, as, for example, *mantel*, in Figure 6, "mantelpiece." Here, description concentrates on the implications of distribution and develops that field most fully. Wherever convenient, subtotals are included in parens to support generalizations about regional and social patterns of usage.

The incidence of *mantelpiece* and *fireboard* combines to form an

approximate pattern of complementary distribution. As explained in Figure 7, "fireboard," the term is a South Midland relic that endures in a narrowly delimited geographical subregion, invariably within a clearly defined social context. Whereas the synonym *mantelpiece* prevails in the lower South as a term of general currency among all social groups, its regional counterpart *fireboard* recurs only in the South Midland upcountry and its isolated extensions across the wire grass, sand hills, and pine woods between the coastal strip and the plains. In all those places, *fireboard* is rare in black speech and among the young, the upper class, and the well-educated of both racial castes.

The distributional characteristics of the two terms help to distinguish two important types of secondary entry: the subregional term of general currency (*mantelpiece*) and the subregional relic (*fireboard*). Each is useful in its contribution to the regional description, but neither is a precise counterpart for the other in a regional or social sense. That patterning requires a South Midland general currency term, apparently *mantel* in the LAGS sample, and a Lower Southern relic, perhaps *mantel board*. That term remains essentially beyond the South Midland territory in the east, but merges with it in the west. And a comparison of informants using *fireboard* and *mantel board* shows that the geographic distinctiveness of the two sets is contrasted by almost identical social characteristics. With the exception of a substantial black representation, the informants using *mantel board* are the Southern counterparts of the elderly, uneducated, lower-class folk speakers who preserve the South Midland relic *fireboard*.

In the pronunciation gloss, Figure 7 also illustrates the treatment of historical /r/, its reflexes in postvocalic positions. As the gloss of *mantel* introduced the use of deleted and added letters, with parens and brackets,

FIGURE 7: FIREBOARD

ard n. <fi(r)[e]bo[a](r)d> See **mantel**

tances; 008.4; 7951-7952; 00; 00.

exclusive response, this old South Midland marker occurs in the speech
lderly, predominantly white (10/01), folk and common speakers, evenly
nting four sectors: ET, UG, UA, and AR. In combinations, e.g., with
(42) and *mantelpiece* (7), *fireboard* shows historical, geographical, and
patterns of distribution consistent with other relics of the speech

sponses from speakers over age 70 (52/20) with highest incidence in ET
G (13), UA (09), and AR (11); less common in middle and lower plains of
, LA (05), and UT (02); with single occurrences in WF, UM, LM, WL;
ded in EF, WT, GA, WT, GM, EL, and LT.

divided between lower- and middle-class speakers, only one instance of
rd occurred among upper-class informants (35/36/01); among atlas types
II), the term prevails in folk speech, showing substantial endurance in
(general) usage, but rarely in cultivated speech, with all four
nces recorded in ET and UG (45/23/04). Five of six instances in black
recorded among folk speakers over age 68.

B 1 Laurel Bloomery ET. The *mantel*, parents called it *fireboard*.

B 3 Rome UG. Country people called it *fireboard*, the old-timey name.

2 1 Piggot AR. Some calls it *mantel*; we called it *fireboard*.

Secondary Entry: fireboard

fireboard n. <fi(r)[e]bo[a](r)d> See **mantel**

72 instances; 008.4; 7951-7952; 00; 00.

As an exclusive response, this old South Midland marker occurs in the speech of 11 elderly, predominantly white (10/01), folk and common speakers, evenly representing four sectors: ET, UG, UA, and AR. In combinations, e.g., with mantel (42) and mantelpiece (7), fireboard shows historical, geographical, and social patterns of distribution consistent with other relics of the speech area.

Most responses from speakers over age 70 (52/20) with highest incidence in ET (13), UG (13), UA (09), and AR (11); less common in middle and lower plains of LG (04), LA (05), and UT (02); with single occurrences in WF, UM, LM, WL; unrecorded in EF, WT, GA, WT, GM, EL, and LT.

Evenly divided between lower- and middle-class speakers, only one instance of fireboard occurred among upper-class informants (35/36/01); among atlas types (I/II/III), the term prevails in folk speech, showing substantial endurance in common (general) usage, but rarely in cultivated speech, with all four occurrences recorded in ET and UG (45/23/04). Five of six instances in black speech recorded among folk speakers over age 68.

FLY 38 1 Laurel Bloomery ET. The mantel, parents called it fireboard.

FUY 68 3 Rome UG. Country people called it fireboard, the old-timey name.

MMY 82 1 Piggot AR. Some calls it mantel; we called it fireboard.

Secondary Entry: mantelpiece

mantelpiece n. <man[n](nte)lpes> See **mantel**

Tot. 242; 008.4; 000-000; 00; 00.

With mantel, this regional word outlines the domain of the historical Coastal pattern, but it shows much deeper and consistent interior penetration than recorded for other Coastal markers, such as mosquito hawk, red bug, and hoghead cheese. Rare in East Tennessee and Arkansas, where it shows highest incience in urban speech, the incidence of mantelpiece suggests both the power of the New Orleans focal area in the Central Gulf Coast and Lower Mississippi Valley and the durable vitality of an old Eastern form, resisted only in rural South Midland strongholds. Southern exclusive response, this old South Midland marker occurs in the speech of 11 elderly, predominantly white (10/01), folk and common speakers, evenly representing four sectors: ET, UG, UA, and AR.

High occurrence (74) among blacks of all types supports conservative lexical habits of the group.

respectively, the *fireboard* gloss <fi(r)[e]bo[a](r)d> sustains those designations and adds an essential notation in the description of Southern speech. This marking concerns the representation of nonsyllabic vowels that sometimes replace the loss of retroflex /r/. Extending the conventions of English spelling, the LAGS technical alphabet might make use of any letters in ordinary spelling when they do not interfere with understanding. For example, the vocalized /r/ of fire [faiə] is written <fie> without ambiguity, as is the same postvocalic unit in board ([boəd]), <boad>. Elsewhere, as in *poor* [po], the form could be written <poo>. Here, however, a single letter <e> is used for all non-syllabic vocalic reflexes of /r/. thus, <fie>, <boed>, and <poe>.

Figure 8 illustrates the line entries, or unique forms, elicited for the *mantel* work-sheet item. These entries include only a cross reference to the primary form, the social and geographical descriptors, and brief glosses if any were recorded by the scribe. Many of the unglossed line entries are self-explanatory, though some may require reference to the tape/text for further clarification.

With this system of organization, every appropriate synonym, grammatical variant, or phonological text will be ordered in an alphabetical word list. The incidence of any mapped word will be immediately accessible, as will be the resources to consider patterns of distribution within the collection. For example, one conveniently marks the historical, geographical, and social implications of a set of synonyms, such as the *mantel* forms, by consulting the entries. Legendry texts aim to provide as much explicit information on distribution as the data allow, but they also suggest many other possible associations of language and culture for students to pursue.

The suggestive content of legendry entries makes the reference a tool for

Line Entries (Unique Forms)

arch n. see **mantel** MLY 62 1 Winslow AR. They called arch rock the arch.

arch rock n. see **mantel** MLY 62 1 Winslow AR. Mantel lay across the arch rock.

chimenea n. see **mantel** MIY-S 71 2 San Ygnacio LT. Chimenea is the mantel.

chimney n. see **mantel** MUY-F 58 3 New Orleans EL. People often called the mantel this.

chimney breast n. see **mantel** FUY 33 3 Houston UT. In her present home.

chimneypiece n. see **mantel** FUY 68 3 Rome UG. Heard [suggested response].

clock shelf n. see **mantel** MMY 72 2 Whitehouse MT. [no gloss]

corniche n. see **mantel** FLX-F 55 1 Ridge WL. A shelf; French.

fireplace mantel n. see **mantel** MLY 61 1 Belk WL. [no gloss]

ledge n. see **mantel** MMY 30 2 Port Arthur UT. [no gloss]

mantel log n. see **mantel** MMY 77 1 Germantown WL. A mantel made from a log.

mantel place n. see **mantel** MLX 21 2 Mobile GA. [no gloss]

manteling n. see **mantel** MLY 34 2 Barrineau Park WF. [no gloss]

manteltree n. see **mantel** MLX 70 1 Atlanta UG. Heard, but wouldn't use it.

medicine shelf n. see **mantel** MLY 37 2 Harmony UT. [no gloss]

oak n. see **mantel** MMY 27 3 Picayune GM. Older people would say the oak.

shelf over the fireplace n. see **mantel** FLX 42 2 Miami EF. [no gloss]

stone mantel n. see **mantel** FMY 82 3 Chattanooga ET. [no gloss]

wooden mantel n. see **mantel** MMY 70 1 Des Arc AR. [no gloss]

folklore study. Lists of variants and their incidence provide one kind of information for linguistic geography, and dialect maps, another. The legendry offers a third resource that aims particularly at the requirements of interdisciplinary study. As American folklorists routinely remark that historical dictionaries of English are more immediately useful in their work than are the archives of linguistic geography, LAGS descriptive materials seek to put the information directly into the hands of the student who may have little interest or experience in linguistic geography. The legendry means to accomplish this in the form of a lexical guide to the entire collection, giving the reader direction as the available information in the data base.

Editors of reference works cannot predict in advance the needs of investigations undertaken after its completion, but, in aiming at total accountability, the compilers of the legendry offer a research key to all the material recorded in the collection. The text outlines the flora, fauna, artifacts, beliefs, and relationships that distinguish Southern language and culture. That outline extends only as far as the systematically contrastive data of the survey functions as comparable evidence. If a form appears in a LAGS map, it also appears as a legendry entry. This editorial accountability forces the composition to deal with each recorded item as a distinct unit and to indicate the full range of information available in the collection that deals with the form. This approach will not automatically resolve all problems, but it will give a student a straightforward statement on the form and substance of the data at hand. And that should be the first question raised by any investigator who brings down a reference book from the shelf.

NOTES

1. LAGS evidence is organized in two sets. The Basic Materials include the tape/text and the microfiche publications of University Microfilms International--the protocol collection and the concordance; the Descriptive Materials include the volumes forthcoming from the University of Georgia Press--the handbook, the index, the legendry, and the maps atlas.

2. See L. Pederson, "The Linguistic Atlas of the Gulf States: Interim Report Four," *American Speech* 56 (1981), 243-59.

3. The requisites follow the empirical principle of L. Hjelmslev, *A Prolegomena to a Theory of Language* (Madison: University of Wisconsin Press, 1961), 18.

4. L. Pederson, C. Billiard, G. Bailey, M. Bassett, and S. Leas, eds. *The Linguistic Atlas of the Gulf States: The Basic Materials* (Ann Arbor: University Microfilms International, 1981).

5. L. Pederson, "An Electronic Atlas in Microform," *LAGS Working Papers, Third Series*, #4, in *The Linguistic Atlas of the Gulf States: A Concordance of Basic Materials* (Ann Arbor: University Microfilms International, forthcoming).

6. L. Pederson, "A Graphic Plotter Grid," *Journal of English Linguistics*, forthcoming.

7. The descriptive framework of LAGS material reflects a word-level analysis of phonological, grammatical, and lexical forms. This perspective is consistent with all traditional work in American linguistic geography. LAGS description differs from its predecessors only in that it makes this context explicit.

8. L. Pederson, "An English Technical Alphabet," *LAGS Working Papers, Third Series*, #1, forthcoming.

9. The form of EAM will be determined by the files developed for the legendry. Preserved on diskettes, these sets of information will be stored in a single packet of ten units with programs for projecting findings on the frame established by the graphic plotter grid. Each item mapped in the atlas and described in the legendry will be recorded on the diskette, and these phonological or grammatical variants and lexical synonyms should provide users with all systematically contrastive data in the atlas. The programs will make possible the creation of any combination of linguistic features and socio-regional factors that the programs can accommodate.

summarizes the features identified in vowel notation; 3) those features illustrate a set of phonetic forms in the LAGS inventory; 4) a subset of those forms is mapped across the territory (Figure 1) from microcomputer files.

1. THE LAGS DATA BASE

Recording the usage of 1,121 natives of Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and East Texas, the LAGS data base preserves its primary information in 5,200 hours of conversational speech. The initial phonetic notations of this collection form the core of the *Basic Materials* (1981), described in the *Handbook* (1986) and indexed in the *Concordance* (1986).[2]

Each LAGS protocol includes 108 pages of phonetic notation with an additional 27 pages added in 164 urban interviews. Figure 2, protocol page 71, shows responses to questions that aim primarily to illustrate pronunciation features. As the marginal code indicates, the sheet records the usage of a male (M), lower class (L), Caucasian (Y), age 85, with an elementary-school education (1), and an insular perspective (A). This retired farmer, logger, and sawmill worker from Needham, Alabama, is a native of Choctaw County (289) of grid unit CI (Figure 1). The suffixed numeral (.01) indicates this was the earliest LAGS record made in Choctaw County, Alabama.

In addition to the 1,121 protocols of the *Basic Materials*, that collection also includes a set of idiolect synopses, abstracts of the phonological, morphological, and lexical characteristics of each informant. Figure 3 illustrates the contents of the Needham synopsis, identifying the record as Book 451, the field worker as Marvin Bassett (MB), and the scribe as Lee Pederson (LP), with the years (19)78/79, indicating the dates the respective tasks were completed.

The first fifteen lines of the synopsis record stressed vowels in five phonological environments: A) before a voiceless stop or fricative, B) before a voiced stop or open (+) juncture, C) before a nasal consonant, D) before a lateral consonant, and E) before a retroflex vocalic unit. Figure 3 includes these texts:

	A	B	C	D	E
/ɪ/	whip	cribs	tin	hill	ears
/ɛ/	neck	leg	ten	Nelly	Merry Christmas
/æ/	grasshoppers	bag	hammer	valley	---
/ʊ/	pushed	wood	woman	pull	sure
/ʌ/	shut	husband	sunup	bulb	---
/ɑ/	crop	father	John	college	car
/i/	yeast	three	beans	wheelbarrow	beard
/e/	eight	May	reins	rail	Mary
/u/	tooth	Baton Rouge	wound	mule	poor
/o/	coat	ago	home	cold	hoarse
/ɔ/	daughters	dogs	strong	salt	horses
/ɜ/	church	third	worms	girl	worry
/aɪ/	right	ride	nine	mile	wire
/aʊ/	house	cows	down	owl	flowers
/ɔɪ/	oysters	poison	joints	oil	---

Whereas the synopsis identifies a small set of data in narrow phonetic notation, the *Concordance* offers an exhaustive listing in conventional orthography. Explicit conversion rules and the spelling authority of *Webster's Third New International Dictionary* yielded writing systems for both concordance entries and the pronunciation glosses of the descriptive texts that follow them.

As an index, the concordance reports every phonetic string transcribed in the protocols with all its permutations, as, for example:

> with all its permutations
> all its permutations, with
> its permutations, with all
> permutations, with all its.

This format recovers phrasal contexts for pronunciation, morphological, and grammatical study. It also gives immediate access to the members of

account for more than half the sample in the eight remaining forms (606 of 1121 instances). That distribution recommends attention to the recessive forms, the monophthongs and the short glides, as potential regional and social markers. Mapping these features also helps to calibrate scribal differences in the registration of forms.

Figure 4 lists 86 informants who use eight different monophthongs in the pronunciation of the diphthong /ai/ before a voiceless obstruent, as in *right*. The patterns show geographical coherence with two thirds of the instances recorded in the South Midland territory of Tennessee (24), Arkansas (5), Upper Georgia (9), Upper Alabama (11), and Texas (7), with substantial additions from the Wire Grass of Lower Georgia (8), as well as the Sand Hills of Lower Alabama and the Pine Woods of Lower Mississippi and East Louisiana.

The members of the eight sets also show a social pattern, including 38 informants ranked in the lower classes (I, indigent, and L, lower or lower-middle), 43 in the middle class, and only four in the upper-middle class, with no aristocratic representatives. And all four of those upper-middle class instances are recorded in the South Midland territories of East Tennessee, Upper Alabama, Arkansas, and Texas, suggesting a useful regional marker exclusive of aristocratic speech.

Figure 5 lists characteristics of 120 informants who share the short glides [a^{ε} ~ $a.^{\varepsilon}$] in this environment. These responses cover the same geographical and social territory as did the monophthongs, although here two elderly aristocrats are included at Natchez, MS, and Grand Cane, LA. Combined with the incidence of the monophthongs, these short diphthongs outline the South Midland territory in the north and the Wire Grass/Sand Hill/Pine Woods territory to the south, immediately beyond the Coastal Strip.

Figure 6 maps the the responses of primary informants on a graphic

plotter grid. That form assigns a constant position for each LAGS primary informant, providing an economical reference for computational mapping. The grid complements the list with a graphic representation of distribution, the primary resource of linguistic geography. With the absence of those four forms in the Piedmont and plains of Georgia and Alabama, the deltas of Mississippi, Louisiana, Tennessee, and Arkansas, and the Coastal Plain of Upper Texas, the incidence of these monophthongs and short glides conforms with earlier assumptions about the pronunciation of this vowel in the South. In a voiceless environment the mapped forms recur most frequently outside the plantation divisions of the South, the hill country to the north and the pine barrens to the south.

These charts, however, also show the occurrence of the forms declining in the speech of the upper social classes and the better educated. Even in the hill country strongholds of South Midland speech, as, for example, Knoxville, Chattanooga, Nashville, and Little Rock, the incidence of these monophthongs and short glides is rare and suggestive of a possible rural marker throughout the territory. Evidence of this kind can only be realized through several kinds of interpretation, including indexes, tables, and charts.

Taken together, these registers also call attention to scribal differences and the problems they bring to analysis. As McIntosh pointed out, variation occurs when the work of any scribe is set beside that of another. The LAGS approach aims to focus on the differences and in the process, perhaps, learn more about perceptual differences in the interpretation of speech sounds. For example, scribes SL (Susan Leas McDaniel) and LP (Lee Pederson) show habitual use of two different notations in this context: the raised and centered monophthong (RAG) in SL's records and the short upgliding diphthongs (RAA-kaj, RAE-kaj, etc.) in LP's. Noting the positional

NOTES

1. This interpretation differs from other American work only in its explicit references to the targets and tasks of phonetic mapping. In *The Pronunciation of English in the Atlantic States* (Ann Arbor, 1962), H. Kurath and R. I. McDavid, Jr., describe stressed vowels in the context of a word-level phonology and consistently report conclusions easily transliterated into the vocabulary of phonetic features.

At the same time, this interpretation departs radically from the approach outlined by A. McIntosh in his *Introduction to a Survey of Scottish Dialects* (Edinburgh, 1961). The chapter "The Phonetic Approach" (68-9) concludes with this paragraph:

> Here we must call attention to the fact that the material which a phonetician notes down from an informant is often and quite wrongly described as "raw material," as if he in some way captured the actual in their entirety. In fact what he returns with in his notebooks has, by the very act of being written down, gone through a stage of processing and is no longer "raw" at all. Just what the nature of that process is will depend partly on the problems inherent in any attempt to express sounds by written symbols and partly on the competence and preoccupations of the phonetician himself. But in any case, if he has had any experience, he will be well aware of all this, and both he and anybody else who is working on the material at a later stage will have to decide what implications it has when any question of analysing the material arises. An impressionistic transcription is essentially an individual and private matter; it is not for the public eye. Some form of synthesis of the material is therefore necessary, and invariably to print the material exactly as it was first written down by the

> fieldworker would almost certainly be misleading. In the world of scholarship error can appear in a variety of forms, but one of the most dangerous is that which has a specious appearance of precision.

The LAGS approach recognizes the interpretive framework suggested by McIntosh, but it carries the implications forward to this conclusion: because notations reflect subjective factors, these transcriptions must be plotted closely from their initial forms so a reader can understand their significance and adjust his interpretations accordingly. For that reason, LAGS phonetics aims to make all materials open to public inspection, from the tape/text through each step of the phonological analysis.

Finally, this approach rejects the assumption of some that "impressionistic phonetics" lacks descriptive authority. From the outset of civilization, humans have advanced understanding with the resources of impressionistic phonetics, the resources of understanding that make language possible. To disregard the findings of direct observation is a mistake today, at a time when mechanical devices cannot yet offer the tools needed in linguistic geography. As B. Malmberg concluded in *Phonetics* (New York, 1963), 89, "The phonetician uses several different methods in his work to examine the sounds of language and their combinations. His most important apparatus is his ear, which will remain his most precious instrument in spite of all the technical inventions of our age." LAGS phonetics advances on that assumption with an appreciation of the imperfections shared by linguistic geographers, engineers and philologists.

2. For a description of this reference, its history and format, see L. Pederson, S. L. McDaniel, and M. W. Bassett, "The LAGS Concordance," *American Speech*.

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designed.[3]

This report explains resources of the LAGS legendry through the format of its entries. Here, these illustrate information about Southern language and culture recorded under 32 synonyms for "shelf over a fireplace." They include four types of legendry entries: the primary entry, *mantel*; five secondary entries, *mantelpiece, fireboard, shelf, mantel board, mantelshelf*; seven tertiary entries, *board, fireplace shelf, chimney shelf, fire mantel, fire shelf, shelf mantel*, and *whatnot shelf*; and of 19 line entries, *arch, arch rock, chimenea, chimney, chimney breast, chimneypiece, clock shelf, corniche, fireplace mantel, ledge, mantel log, mantel place, manteling, manteltree, medicine shelf, oak, shelf over the fireplace, stone mantel*, and *wooden mantel*. All of these, singularly or in combination, were abstracted from the LAGS field record, 5,200 hours of tape-recorded conversational interviews conducted in Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and East Texas during the years 1968-1980. See Figure 1.

Based on a questionnaire (work sheets) of more than one thousand items, the field record was transcribed as a set of phonetic texts, called *protocols*, by eight scribes during those same years. That collection of 129,000 pages was published in microform in 1981.[4] During the years 1981-1984, three editors converted the phonetic text to conventional orthographic writing and, with the help of several assistants, entered the entire corpus on the Emory mainframe to compose the LAGS concordance. The legendry derives its text indirectly from the concordance, the principal reference tool of the Basic Materials.

As described elsewhere, microcomputer programs help to reorganize concordance data in linguistic files for the composition of an electronic atlas in microform (EAM) that serves as research instrument in the preparation

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