Characteristic Name Sets of Spanish Populations

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ABSTRACT

IN AN EARLIER PAPER[1] I outlined a statistical method for developing lists of surnames characteristic of specific populations. The present paper applies this method to the Spanish-named populations of a number of cities, using readily available information. Several Spanish name sets, distinguished by their locality-specificity, are delineated. I then consider some applications, and give two examples of analyses done with this technique. These examples show that Spanish-surnamed persons are members of California labor unions at about 50 per cent of their population proportions and are members of the medical profession at less than 10 per cent of their population proportions. New Mexico-specific names are somewhat higher in labor union members, Central American names in physicians, than the rest of the Spanish names.

I. Background

The U. S. Census has, since 1930, enumerated those populations in the American Southwest, known as "Mexicans" to their neighbors, and as "*la raza*" among themselves. As these populations are often many generations away from Mexico and range in racial composition from Indian to Iberian, nationality and race are faulty criteria. Use of the Spanish language is an excellent criterion but is difficult to obtain from routine administrative documents. The U. S. Census Bureau, in 1950 and 1960, enumerated "persons of Spanish Surname" instructing clerks in recognizing such surnames, preparing reference lists, etc. While this method has drawbacks, the writer agrees with the Census Bureau that "... its use may lead to

[1] Robert W. Buechley, "A Reproducible Method of Counting Persons of Spanish Surname," *Journal of the American Statistical Association*, 55: 88–97, 1961.

a genuine improvement in the quality of the statistics".[2] Problems encountered during attempts to use the 1950 Census Instructions led to the earlier paper. In some respects the 1960 instructions are an improvement over the 1950 Census method, but this, or any method that depends on the skill of clerks and the completeness of lists, is only as good as the clerks and the lists.[3] To the extent that a short, clear and simple rule can be given, clerical skill can be minimal. This was approached in the earlier paper by developing a list of 306 names which, in California, covered 70 per cent of the Spanish-named mothers of Spanish-named children. Since the Spanish-named group was found to be 86 per cent endogamous, this 306 name list, so-constructed, was claimed to have reasonable coverage for almost any Spanish population.

II. The Problem

Differentiation of subpopulations within the Mexican-American group is often needed. We[4] studied lung cancer among women of Spanish surname in California, following a lead given by Steiner.[5] Those born in the United States had lung cancer rates no different from those of other U. S.-born women. Mexican-born women of Spanish surname, on the other hand, had lung cancer rates three times as high as U. S.-born women, either of Spanish surname or of Anglo surname. This finding has been repeated but remains unexplained. Further studies of this, and other health problems in Spanish populations, require name differentiation as well as differentiation on place-of-birth.

There are further elements of internal diversity among those categorized as "white with Spanish surname." The common cultural tradition, based on the Spanish language and culture, has been

[2] U. S. Department of Commerce, Bureau of the Census, *Persons of Spanish Surname, U. S. Census of Population: 1950*, Vol. IV, Special Report P-E, No. 3C. Washington, D. C.: U. S. Government Printing Office, 1953.

[3] A computerized method is now under development. If such a program is developed and used, every user will get the same list of names – reproducibility. This program does not depend on name lists but on rules. Hence, it is not pressed by storage limits in the computer.

[4] Robert W. Buechley; John E. Dunn, Jr.; George Linden; and Lester Breslow, "Excess Lung-Cancer-Mortality Rates Among Mexican Women in California," *Cancer*, 10: 63–66, 1957.

[5] P. E. Steiner, *Cancer, Race and Geography* (Baltimore, 1954).

modified by residence in various areas. Some have been in California since the later 1700's; for instance, the *Alvarez* family, almost completely Anglicized and contributing a noted physician and a noted physicist. During this time others have preserved their Spanish culture in the highlands of northern New Mexico and Colorado, in the lowlands of South Texas, or in varied parts of Mexico. Still others have stayed in Spain or have gone to Central and South American countries. If these subpopulations by area have different characteristics, as seems indicated by the lung cancer study, then we need simple, first-look, techniques for differentiating between them. These differentiating techniques may be based on differences in names, occupations, income, mobility, intermarriage, or whatever, thus specifying those subpopulations having the least, or the most, problems.

The quest for such a simple technique turned, because of previous use (Buechley, 1961), to the name-list method. This method has the nontrivial advantage that it can be based on the California set of 306 Spanish surnames previously published. By its origin (all California births for a year), this list must include names from all those populations that have contributed appreciably to the California population of white persons of Spanish surname. If some population, say that of Barcelona or the Canary Islands, has made no such contribution, then its distinctive names will not appear. If such a population has contributed to California, then its very distinctive names will be on the 306 name list. *A priori* assumptions about the sources of the California Spanish population can thus be checked against statistically valid numbers. Both the original name-list and the present effort are statistical approaches to the problem and have both the virtues and the defects of statistical approaches. Numbers and counts – not meanings, self-identifications, or community consensuses – are used to develop classes.

This statistical approach leads to the firm question, "Are there subsets of these 306 Spanish names that are specific to Spanish-named populations from a particular locality?" Some experience with San Antonio birth material, in which the name *Garza* is 6th rather than 126th as in California, led to the formulation of the question. Unbiased lists of names, such as that furnished by the register of births for San Antonio, are not easy to come by.

This dearth of name lists led to the use of telephone books. Telephone books are not an unbiased source of names, especially in predominantly Anglo areas where Spanish-named persons are substantially under-represented. However, if there is no selection for inclusion in these books of *particular* Spanish names within the Spanish-named population, the sampling of names from telephone books will give a general result. The economics of using telephone books are such that even quite large biases can be tolerated for a first-look analysis. No claim can be made that the cities chosen are relevant to any studies now under way. This is a scientific fishing expedition, attempting to develop a technique. If the technique is useful and workable, then directed studies can be made, attempting to answer specific questions. Two such studies, given as examples below, ask two specific, though fairly trivial, questions, and get non-trivial answers.

The following technique was used:

1. Cities for which telephone books were easily available were selected. The number of listings for each name were counted for each of the 306 names and variants on the previously published list.[6] Table I presents the proportions that each of these names would bear to a hypothetical 10,000 Spanish names in that city.

Table I shows that some names are very limited in their locality distribution. *Abeyta*, the first on the alphabetic list, does not appear outside the United States; and, on the same page, *Archuleta* has the same pattern. *Benavides*, although appearing everywhere, is far more common in San Antonio. *Alvarez*, twenty fifth in California, is rare in New Mexico. *Baca* is among the first 10 in Albuquerque and Santa Fe, eighty-fifth in California, rare elsewhere. A brief glance at only the first page of Table I serves to demonstrate the inadequacy of the unaided eye to extract information from a 306 by 14 table of counts.

This table is the most generally informative of the set, giving as it does the proportion that each name bears to the total in the city.

[6] The tabulations of actual numbers counted and of numbers estimated for the city are in Appendix Tables A and B. Due to limitations of space, only pages 1 of Tables I and II are published. The complete tables are available at cost from the author at Health Research Associates, 3029 Benvenue Avenue, Berkeley, California 94705.

This does not quite bear on the stated question, however. The fact that *Bacas*, for instance, comprise 2.19 per cent of the telephone holders of (Spanish) Santa Fe, New Mexico, does not indicate that this represents a relative *excess* of the name *Baca*. Across the row comparisons show this. Madrid, Barcelona, and Havana, cities that are not known to have contributed heavily to the Spanish population of the Southwest, have almost no names in *Baca*.

Table II is an attempt to reduce the complexities just one more step. It presents the abundance of names, relative to the mean proportion for all 14 cities. The "relative abundances" sum to zero over all 14 cities. Take *Abeyta*, which is easy:

Excesses in		Deficits in	
Santa Fe	482	Tucson	−53
Albuquerque	466	El Paso	−37
Phoenix	42	9 cities @−100	−900
Excess	990	Deficit	−990 sum zero

Thus, a complete concentration could possibly yield a single city with a value of "+1300" and 13 cities with "−100."[7] Since the 306 names list was based on California counts, this seems an unlikely outcome. *Garza*, with 820 in San Antonio, has very high concentration. *Montanes* is 858 in San Juan, P. R. *Archuleta* is 1040, *Montoya* 995, in Santa Fe and Albuquerque. *Armendariz* is 1111 in El Paso.

Even the relative abundances given in Table II cannot be compared with any degree of satisfaction. There are 306 names and 14 cities, allowing about a million comparisons. A computer program, developed to merge geographic areas, was applied to the task of comparing names for similar abundances over cities. Entering names alphabetically, the program merges "most similar" names into clusters. Fortunately for good explaining, the two very most similar are on the first page of Table II. One of them is even *Abeyta*. It took

[7] The computing algorithm was (where R. A. is "Relative Abundance").

$$\text{R. A.} = 100\left[\frac{[\text{Obs. proportion} - \text{mean proportion}}{\text{mean proportion}]}\right]$$

so that a name which is exactly in proportion to the total has an R. A. of 0; Martinez in Phoenix, Ortega in Mexico, D. F., Bustamante in Havana. One that is twice as common has an R. A. of 100; Medrano in San Antonio. One that is two-thirds as common has an R. A. of −33 as does Varela in Mexico, D. F.

the 7094 computer 4 minutes to look at *all* the entries in Table II. It merged the "most similar" pairs 306 times and generated a "taxonomic tree" which will now be described.[8]

The first merge was *Barela* with *Abeyta*, at a distance of 48.8 per cent. *Abeyta* differs from *Barela* by, on the average, only 3½ per cent per city, 48.8 per cent divided by 14. Since both are completely absent outside of West Texas, New Mexico, and Arizona, this is not surprising. Next merged was *Baca*, 148.32 per cent distant (10 per cent per city), with *Abeyta* (which now is a label meaning the average of *Abeyta* and *Barela*). Then, *Archuleta* joined *Abeyta* to give a solidly New Mexican nucleus of four names. Similar processes went on with other centers to form clusters of names with similar distributions over the 14 cities. These clusters, to the extent that they form within defined geographic areas rather than being random blobs, are an argument from self-consistency for the validity of the technique.

A first result is a major set of generally present names. By the time the original 306 names had been reduced to 50 sets, one of these sets, headed by *Acosta*, contained 145 names. Since the horizontal sum, by name, must *equal* zero and the vertical sum by city must *average* zero, one can infer that distinctive name sets will be found for those cities which are *most* in deficit in this nondistinctive set. This large general set does have a slightly Mexican aspect, being in mild excess in Tucson, El Paso, Guadalajara and Mexico, D. F. By the 25th cycle, this general set has been increased from 145 to 153 names with, naturally, only minor changes in profile.[9] These names are listed in Table III as "Non-Specific."

A second result is a set of distinctively *New Mexican* names. This 38-member New Mexico name set is also shown in Table III. The set is distinctive for low abundance outside New Mexico, West Texas, or Arizona. The major finding of this study may well be the finding of this same set with its specific locality base and its "Spanish-American" rather than "Mexican" heritage. It even contributes a U. S. Senator named *Montoya* (abundance 574 in Santa Fe, 421 in Albuquerque).

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[8] Robert R. Sokal and P. H. A. Sneath, *Principles of Numerical Taxonomy* (San Francisco, 1963).

[9] The small set of names somewhat characteristic of *Havana* are included in this general set. These Havana names are

Very similar patterns of development occur with the other distinctive name sets that appear in Table III. Name sets, differing from each other and from the general name set, are derivable for each of the areas (except for Havana, as noted above, and for Madrid).

One may well say, "So what?", and that was the first discouraging reaction of several who read the manuscript to this point. There are excellent uses to which these lists of locality-specific names may be put. If the reader who "so whats" will pursue the examples below he may, possibly, see some reason for the development. Substantive content is there, but exposition, not content, is the reason for the examples.

The technique for use is simple. Names are counted from an alphabetical list to the 306 name list (counting both variants as a single name, Gonzales = Gonzalez). An estimated total is then computed, assuming 306 names to comprise 69.67 per cent of the total. The percentages, given in an appendix table are applied to the estimated total to yield estimates for each name. These estimates are collected, summed, and compared with the observed sum for each locality-specific name set, to detect *over* or *under*-representations.

III. Examples

Example 1 – Union Members

The list of union members, questioned in 1954–56 by the California Department of Public Health, was examined.[10] The Spanish

Set C	Relative Abundance in Havana
Alvarez	207
Blanco	197
Diaz	184
Fernandez	258
Perez	135
Prado	180
Prieto	211
Suarez	380
8	1747
Mean	218.4

This set of 8 somewhat *Cuban* names falls into the Acosta set on the 88th cycle at a distance of 300.64, most of which would have been contributed by the 218.4 from Havana.

[10] J. E. Dunn, Jr., and P. Buell, unpublished data, 1965.

names were counted to the 306 name list. Counted names numbered 2,293, estimating 3,300 total names. This is about 5 per cent of the total of 66,000 union members, somewhat below the Spanish surname proportion in the total population of California either in 1950 or in 1960.

The problem is posed: are names, identified in the main discussion above as characteristic of specific subpopulations, differentially represented on this list of union members?

Considerations of language and culture lead to the following projected expectations, made *before* the analysis.

1. *Non-Specific* group. Will be somewhat under-represented, since the Spanish populations of English-speaking areas in the U. S. are specified below.
2. *New Mexico* group. Will be over-represented in a union-member list. Facility with English allows entry into trades as against labor.
3. *Puerto Rico* group. No guess.
4. *San Antonio* group. Up, same as New Mexico.
5. *El Paso* group. Up, same as New Mexico.
6. *Arizona* group. Up, same as New Mexico.
7. *Old Mexico* group. Down, due to recent immigration and lack of fluency in English.
8. *Costa Rica* and *Nicaragua* groups. Up, since imigrants from these areas are concentrated in San Francisco, a highly unionized city.

The results of an analysis showed:

Total counted = 2,293. Sum of Total E, name by name = 2,311.65

1. Non-Specific group. 159 reference names
   names counted 1,544
   names computed 1,638.4
   Chi Square of sum $\frac{(1544 - 1638.4)^2}{1638.4}$
   Significant deficit at one degree of freedom.
2. New Mexico Group. 39 reference names
   names counted 350
   names computed 269.94
   Chi Square of sums 18.3 @ 1 df
   Very significant *excess*
3. Puerto Rico group. 14 reference names
   names counted 72
   names computed 59.07
   Chi Square of sums 2.86 @ 1 df
   Not significant

4. San Antonio group. 24 reference names
   names counted 72
   names computed 85.5
   Chi Square of sums 2.4 @ 1 df
   Not significant

Contrary to stated hypothesis, this group shows no excess.

5. El Paso group. 12 reference names) considered
6. Arizona group. 7 reference names) together
   names counted 46
   names computed 51.5
   Chi Square of sums 0.5
   Not significant

Contrary to stated hypothesis, these groups show no excess.

7. Old Mexico group. 13 reference names
   names counted 24
   names computed 36.63
   Chi Square of sums 4.2
   Significance level between .01 and .05.

The direction and magnitude of the deficit are as expected but the numbers are small.

8. Costa Rica and Nicaragua groups. 38 reference names
   names counted 185
   names computed 170.61
   Chi Square of sums 1.3
   Not significant

The direction of the excess is as expected but the magnitude is quite small.

General Discussion of Example 1.

There are several striking excesses and deficits, which may be due either to defects in the instrument, or to the peculiar composition of the union member list.

General excesses for New Mexico are clearly demonstrated. Similar excesses, expected for Arizona and West and South Texas names, did not appear. The Central American names are only mildly in excess. Old Mexico names are in deficit as expected, but the list is short, so the finding is uncertain.

Example 2 – Physicians and Surgeons

The list of all physicians and surgeons in California, the 1964–1965 Directory[11] was examined. Spanish names were counted to the 306

[11] Board of Medical Examiners of the State of California, *1964–1965 Directory*, Sacramento, 1964.

name list. Counted names numbered 212, estimating 303 total names. This is about 0.67 per cent of the total of 45,168 physicians and surgeons' names listed, far below the Spanish surname proportion in the total population or in the union member list.

Considerations of language and culture lead to the expectation that, contrary to the union members, two classes will be *over*-represented among physicians.

1. Foreign trained physicians, mainly from countries other than Mexico.
2. Completely Anglicized persons, such as Walter Alvarez, M. D. Of the groups specified, only the Costa Rica and Nicaragua group should show less than the general deficit.

Results:

Total counted = 212. Sum to Total E, name by name = 209.3

1. Non-Specific group. 159 reference names
   names counted 165
   names computed 147.6
   Chi Square significant
2. New Mexico group. 39 reference names
   names counted 11
   names computed 25.3
   50 per cent deficit
3. Puerto Rico group. 14 reference names
   names counted 6
   names computed 5.4
4. San Antonio group. 24 reference names
   names counted 4
   names computed 7.7
5. and 6. El Paso group plus Arizona group. 19 reference names
   names counted 1
   names computed 4.6
7. Old Mexico group. 13 reference names
   names counted 0
   names computed 3.3
8. Costa Rica Nicaragua groups. 38 reference names
   names counted 25
   names computed 15.4
   65 per cent excess
   Chi Square significant

General Discussion of Example 2.

Of the 25 physicians in the Costa Rica-Nicaragua group, 11 graduated from foreign medical schools. But, then, so did 7 of the 11 in the New Mexico group. Of the 36 in these two groups, only 4 graduated from California medical schools. However, 13 of the 36 were practicing outside California, a proportion comparable to the 15,834 of the 45,168 total California licensed physicians so practicing.

It should be noted that distinctively Spanish *given* names appear to be very much more common among physicians than among union members. Without further inquiry and analysis, this is simply an observational note.

General Conclusions from Examples.

The technique is workable. It gives distinctly different but reasonable results for union members and for physicians and surgeons. A similar example, run on a migrant labor group, might be interesting.

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TABLE I.

Table of Proportions per 10,000 Telephone Book Names

	San Antonio	Santa Fe	Albu-querque	Tucson	El Paso	Barcelona	Guada-lajara	Havana	Mexico DF	Madrid	Managua	San Jose CR	San Juan PR	Phoenix
Abeyta	0.	37.	36.	3.	4.	0.	0.	0.	0.	0.	0.	0.	0.	9.
Acevedo	5.	0.	0.	17.	8.	1.	4.	5.	8.	3.	40.	12.	46.	11.
Acosta	20.	0.	2.	33.	58.	4.	19.	36.	19.	3.	12.	49.	32.	31.
Acuna	7.	71.	0.	15.	9.	0.	0.	1.	6.	0.	0.	62.	1.	20.
Adame	7.	0.	0.	0.	4.	0.	1.	0.	2.	0.	0.	0.	0.	9.
Aguilar	39.	9.	17.	29.	72.	50.	59.	7.	64.	16.	69.	107.	4.	41.
Aguilera	1.	0.	0.	1.	8.	11.	11.	8.	9.	8.	0.	0.	1.	3.
Aguirre	20.	2.	1.	37.	39.	7.	23.	9.	33.	13.	20.	6.	2.	15.
Alanis	10.	0.	0.	0.	2.	0.	0.	0.	5.	0.	16.	0.	0.	1.
Alarcon	3.	0.	1.	0.	16.	12.	11.	0.	12.	8.	0.	0.	0.	1.
Almanza	3.	0.	2.	0.	3.	0.	0.	0.	1.	0.	0.	0.	0.	0.
Alonzo	11.	0.	1.	1.	3.	0.	0.	0.	0.	0.	0.	12.	0.	4.
Alvarado	43.	0.	5.	5.	42.	1.	8.	2.	14.	1.	61.	109.	19.	17.
Alvarez	33.	2.	5.	61.	50.	80.	115.	229.	97.	139.	65.	57.	88.	25.
Amador	2.	0.	3.	5.	7.	2.	4.	9.	4.	2.	28.	21.	9.	7.
Amaya	6.	0.	0.	3.	5.	0.	2.	0.	3.	0.	8.	2.	0.	3.
Anaya	2.	57.	35.	15.	9.	0.	15.	1.	11.	1.	0.	0.	0.	7.
Apodaca	0.	60.	76.	9.	37.	0.	1.	0.	0.	0.	0.	0.	0.	12.
Aragon	1.	18.	91.	11.	11.	4.	0.	4.	4.	6.	8.	21.	0.	15.
Aranda	5.	11.	4.	5.	16.	13.	8.	0.	10.	8.	12.	2.	0.	3.
Arce	2.	0.	0.	5.	2.	3.	15.	5.	8.	5.	8.	47.	8.	7.
Archuleta	0.	55.	38.	1.	4.	0.	0.	0.	0.	0.	0.	0.	0.	7.
Arellanes	5.	4.	6.	13.	21.	0.	9.	3.	18.	4.	24.	2.	0.	4.
Arias	4.	0.	6.	3.	5.	19.	23.	27.	0.	27.	8.	87.	9.	6.

TABLE I. (Cont.)

Armendariz	1.	0.	0.	1.	32.	0.	0.	0.	2.	0.	0.	0.	0.	1.
Armenta	0.	4.	10.	29.	3.	0.	4.	0.	2.	0.	0.	0.	0.	27.
Armijo	0.	80.	114.	11.	8.	0.	0.	0.	0.	0.	12.	17.	0.	9.
Arredondo	21.	0.	0.	0.	4.	0.	3.	3.	9.	1.	0.	0.	0.	6.
Arriola	3.	0.	0.	5.	14.	0.	12.	0.	3.	1.	4.	0.	0.	4.
Arroyo	0.	4.	0.	3.	5.	7.	8.	6.	17.	27.	0.	17.	46.	15.
Arvizu	1.	0.	0.	11.	3.	0.	0.	0.	2.	0.	4.	0.	0.	30.
Avalos	1.	0.	0.	3.	8.	0.	6.	1.	4.	0.	12.	0.	0.	1.
Ayala	16.	0.	6.	13.	9.	5.	16.	7.	15.	5.	0.	2.	32.	27.
Baca	2.	219.	259.	11.	22.	1.	0.	0.	3.	0.	44.	0.	0.	44.
Banuelos	0.	0.	1.	0.	4.	0.	6.	0.	2.	0.	0.	0.	0.	0.
Barajas	2.	0.	2.	1.	6.	0.	23.	0.	5.	2.	0.	0.	0.	3.
Barbosa	3.	0.	0.	0.	2.	1.	10.	0.	1.	0.	16.	0.	7.	0.
Barela	0.	53.	49.	1.	5.	0.	0.	0.	0.	0.	0.	0.	0.	14.
Barragan	3.	0.	0.	0.	10.	2.	18.	0.	11.	3.	0.	0.	0.	9.
Barrera	30.	4.	22.	1.	10.	12.	11.	11.	19.	5.	0.	0.	7.	4.
Barrios	3.	0.	0.	19.	5.	3.	0.	7.	7.	7.	44.	2.	3.	0.
Bautista	2.	0.	0.	5.	9.	3.	2.	0.	9.	6.	0.	0.	0.	3.
Becerra	2.	0.	2.	0.	3.	1.	32.	3.	8.	2.	0.	0.	3.	1.
Beltran	4.	0.	0.	1.	18.	0.	9.	7.	18.	6.	0.	0.	7.	9.
Benavides	35.	30.	26.	5.	8.	3.	0.	2.	5.	2.	0.	17.	0.	11.
Bernal	17.	0.	6.	25.	6.	13.	9.	7.	14.	9.	0.	0.	2.	25.
Blanco	7.	0.	0.	1.	13.	34.	17.	74.	11.	63.	16.	75.	18.	20.
Bonilla	2.	0.	0.	0.	6.	3.	3.	1.	10.	5.	32.	79.	19.	4.
Bravo	4.	0.	1.	25.	1.	12.	11.	7.	20.	22.	8.	19.	9.	4.
Bustamante	4.	0.	4.	29.	26.	2.	1.	8.	14.	4.	0.	4.	1.	15.
Bustos	9.	11.	6.	0.	0.	2.	3.	0.	2.	4.	0.	0.	0.	4.

(pp. 2–6 of Table I are omitted to save space.)

TABLE II.

Table of Relative Abundances of Telephone Book Names

	San Antonio	Santa Fe	Albu-querque	Tucson	El Paso	Barcelona	Guada-lajara	Havana	Mexico DF	Madrid	Managua	San Jose CR	San Juan PR	Phoenix
Abeyta	−100.	482.	466.	−53.	−37.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	42.
Acevedo	−56.	−100.	−100.	49.	−30.	−91.	−65.	−56.	−30.	−74.	250.	5.	302.	−4.
Acosta	−12.	−100.	−91.	45.	155.	−82.	−16.	58.	−16.	−87.	−47.	116.	41.	36.
Acuna	−49.	418.	−100.	9.	−34.	−100.	−100.	−93.	−56.	−100.	−100.	352.	−93.	46.
Adame	326.	−100.	−100.	−100.	143.	−100.	−39.	−100.	22.	−100.	−100.	−100.	−100.	448.
Aguilar	−6.	−78.	−59.	−30.	73.	20.	42.	−83.	54.	−62.	66.	157.	−90.	−2.
Aguilera	−77.	−100.	−100.	−77.	84.	152.	152.	84.	107.	84.	−100.	−100.	−77.	−31.
Aguirre	23.	−88.	−94.	128.	141.	−57.	42.	−44.	104.	−20.	23.	−63.	−88.	−7.
Alanis	312.	−100.	−100.	−100.	−18.	−100.	−100.	−100.	106.	−100.	559.	−100.	−100.	−59.
Alarcon	−34.	−100.	−78.	−100.	250.	163.	141.	−100.	163.	75.	−100.	−100.	−100.	−78.
Almanza	367.	−100.	211.	−100.	367.	−100.	−100.	−100.	56.	−100.	−100.	−100.	−100.	−100.
Alonzo	381.	−100.	−56.	−56.	31.	−100.	−100.	−100.	−100.	−100.	−100.	425.	−100.	75.
Alvarado	84.	−100.	−79.	−79.	80.	−96.	−66.	−91.	−40.	−96.	161.	367.	−19.	−27.
Alvarez	−56.	−97.	−93.	−18.	−33.	7.	54.	207.	30.	86.	−13.	−24.	18.	−67.
Amador	−73.	−100.	−59.	−32.	−5.	−73.	−46.	22.	−46.	−73.	281.	185.	22.	−5.
Amaya	163.	−100.	−100.	31.	119.	−100.	−12.	−100.	31.	−100.	250.	−12.	−100.	31.
Anaya	−82.	422.	220.	37.	−18.	−100.	37.	−91.	1.	−91.	−100.	−100.	−100.	−36.
Apodaca	−100.	331.	446.	−35.	166.	−100.	−93.	−100.	−100.	−100.	−100.	−100.	−100.	−14.
Aragon	−93.	30.	557.	−21.	−21.	−71.	−100.	−71.	−71.	−57.	−42.	52.	−100.	8.
Aranda	−28.	59.	−42.	−28.	131.	88.	15.	−100.	44.	15.	73.	−71.	−100.	−57.
Arce	−76.	−100.	−100.	−39.	−76.	−63.	83.	−39.	−3.	−39.	−3.	472.	−3.	−15.
Archuleta	−100.	633.	407.	−87.	−47.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	−7.
Arellanes	−38.	−50.	−26.	61.	160.	−100.	12.	−63.	123.	−50.	197.	−75.	−100.	−50.
Arias	−75.	−100.	−63.	−81.	−69.	19.	44.	69.	−100.	69.	−50.	444.	−44.	−63.

TABLE II. (Cont.)

Armendariz	−62.	−100.	−100.	−62.	1111.	−100.	−100.	−100.	−24.	−100.	−100.	−100.	−100.	−62.
Armenta	−100.	−29.	77.	414.	−47.	−100.	−29.	−100.	−65.	−100.	−100.	−100.	−100.	378.
Armijo	−100.	264.	591.	−33.	−52.	−100.	−100.	−100.	−100.	−100.	−27.	3.	−100.	−45.
Arredondo	526.	−100.	−100.	−100.	19.	−100.	−11.	−11.	168.	−70.	−100.	−100.	−100.	79.
Arriola	−9.	−100.	−100.	52.	326.	−100.	265.	−100.	−9.	−70.	22.	−100.	−100.	22.
Arroyo	−100.	−64.	−100.	−73.	−55.	−37.	−28.	−46.	54.	144.	−100.	54.	315.	35.
Arvizu	−73.	−100.	−100.	202.	−18.	−100.	−100.	−100.	−45.	−100.	10.	−100.	−100.	724.
Avalos	−61.	−100.	−100.	17.	211.	−100.	133.	−61.	56.	−100.	367.	−100.	−100.	−61.
Ayala	46.	−100.	−45.	19.	−18.	−54.	46.	−36.	37.	−54.	−100.	−82.	193.	147.
Baca	−95.	407.	499.	−75.	−49.	−98.	−100.	−100.	−93.	−100.	2.	−100.	−100.	2.
Banuelos	−100.	−100.	8.	−100.	331.	−100.	546.	−100.	115.	−100.	−100.	−100.	−100.	−100.
Barajas	−36.	−100.	−36.	−68.	91.	−100.	632.	−100.	59.	−36.	−100.	−100.	−100.	−5.
Barbosa	5.	−100.	−100.	−100.	−30.	−65.	250.	−100.	−65.	−100.	460.	−100.	145.	−100.
Barela	−100.	508.	462.	−89.	−43.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	−100.	61.
Barragan	−25.	−100.	−100.	−100.	150.	−50.	350.	−100.	175.	−25.	−100.	−100.	−100.	125.
Barrera	209.	−59.	126.	−90.	3.	24.	13.	13.	96.	−49.	−100.	−100.	−28.	−59.
Barrios	−58.	−100.	−100.	166.	−30.	−58.	−100.	−2.	−2.	−2.	516.	−72.	−58.	−100.
Bautista	−28.	−100.	−100.	79.	223.	8.	−28.	−100.	223.	115.	−100.	−100.	−100.	8.
Becerra	−51.	−100.	−51.	−100.	−26.	−75.	686.	−26.	96.	−51.	−100.	−100.	−26.	−75.
Beltran	−29.	−100.	−100.	−82.	219.	−100.	59.	24.	219.	6.	−100.	−100.	24.	59.
Benavides	240.	192.	153.	−51.	−22.	−71.	−100.	−81.	−51.	−81.	−100.	65.	−100.	7.
Bernal	79.	−100.	−37.	163.	−37.	37.	−5.	−26.	47.	−5.	−100.	−100.	−79.	163.
Blanco	−72.	−100.	−100.	−96.	−48.	36.	−32.	197.	−56.	153.	−36.	201.	−28.	−20.
Bonilla	−83.	−100.	−100.	−100.	−49.	−74.	−74.	−91.	−15.	−57.	173.	574.	62.	−66.
Bravo	−61.	−100.	−90.	145.	−90.	17.	8.	−31.	96.	115.	−22.	86.	−12.	−61.
Bustamante	−50.	−100.	−50.	263.	225.	−75.	−88.	0.	75.	−50.	−100.	−50.	−88.	88.
Bustos	207.	276.	105.	−100.	−100.	−32.	2.	−100.	−32.	37.	−100.	−100.	−100.	37.

(pp. 2–6 of Table II are omitted to save space.)

TABLE III.

Locality specific Name-Sets

Specific Locality							
Non-Specific							
Acosta	Aguilar	Aguilera	Aguirre	Alarcon	Alvarez	Amaya	Aranda
Arellano	Arriola	Ayala	Barragan	Barrera	Bautista	Beltran	Bernal
Blanco	Bravo	Bustamante	Caballero	Camacho	Campos	Cano	Cardenas
Carmona	Carranza	Carrasco	Carrillo	Casas	Castaneda	Castillo	Cervantes
Cisneros	Contreras	Corona	Coronado	Corral	Cruz	Cuellar	Cuevas
De La Rosa	Delagado	Diaz	Dominguez	Enriquez	Escobar	Espinoza	Estrada
Fernandez	Flores	Franco	Fuentes	Galindo	Gallardo	Gamboa	Garcia
Gaxiola	Gomez	Gonzales	Guerra	Guerrero	Gutierrez	Guzman	Heredia
Hernandez	Hidalgo	Huerta	Hurtado	Ibarra	Lara	Leal	Ledesma
Leon	Leyvas	Limon	Lopez	Lozano	Luna	Macias	Marin
Marquez	Martinez	Medina	Medrano	Mendez	Mendoza	Meza	Molina
Montez	Morales	Moreno	Muniz	Munoz	Nava	Navarro	Nieto
Noriega	Nunez	Ochoa	Ojeda	Olivas	Olvera	Ornelas	Ortega
Palacios	Parra	Pena	Peralta	Perea	Perez	Pineda	Ponce
Portillo	Prado	Prieto	Pulido	Quintero	Ramirez	Reyes	Rico
Rincon	Rios	Robles	Rodriguez	Romo	Rosales	Rosas	Rubio
Ruiz	Salas	Salcido	Saldana	Sanchez	Sepulveda	Serrano	Sierra
Sosa	Soto	Suarez	Telles	Torres	Tovar	Trejo	Trevino
Valencia	Vallejo	Valles	Varela	Vasquez	Vega	Velasco	Velasquez
Ventura	Villa	Villanueva	Villegas	Yanez	Zaragoza	Zavala	

TABLE III. (Cont.)

New Mexico							
Abeyta	Acuna	Anaya	Apodaca	Aragon	Archuleta	Armijo	Baca
Barela	Benavides	Bustos	Chavez	Cordova	Duran	Gallego	Griego
Herrera	Jaramillo	Lucero	Lujan	Madrid	Maestas	Mares	Montano
Montoya	Ortiz	Pacheco	Padilla	Quintana	Romero	Saavedra	Salazar
Sandoval	Serna	Tafoya	Tapia	Trujillo	Valdez	Vigil	
Puerto Rico							
Acevedo	Arroyo	Correa	Davila	Figueroa	Lugo	Maldonado	Melendez
Mercado	Miranda	Montanes	Rivera	Santana	Santiago		
San Antonio South Texas							
Adame	Almanza	Alonzo	Arredondo	Camarillo	Cantu	Casares	Cortez
De La Cruz	De La Torre	Deleon	Escobedo	Esparza	Galvan	Garza	Hinojosa
Juarez	Olivarez	Rangel	Salinas	Sauceda	Solis	Valadez	Villarreal
El Paso West Texas							
Armendariz	Fierro	Grijalva	Holguin	Lira	Loya	Najera	Ontiveros
Porras	Quiroz	Renteria	Rubalcava				
Arizona							
Armenta	Arvizo	Celaya	Encinas	Estrella	Valenzuela	Verdugo	
Old Mexico							
Banuelos	Barajas	Becerra	Casillas	Castellanos	Delgadillo	Magana	Negrete
Orozco	Preciado	Reynosa	Uribe	Venegas			
Costa Rica Nicaragua							
Alanis	Alvarado	Amador	Arce	Arias	Avalos	Barbosa	Barrios
Bonilla	Cabrera	Calderon	Canales	Castro	Chacon	Cordero	Duarte
Esquibel	Fonseca	Guevara	Guillen	Jimenez	Madrigal	Mata	Mejia
Mora	Murillo	Quesada	Quinones	Rivas	Rocha	Rojas	Saenz
Sotelo	Vargas	Villalobos	Zamora	Zepeda	Zuniga		