familiarity, vocabulary size, and recognition ability in four semantic domains

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Languages differ in the size of their lexicons for different domains. Eskimo distinguish unusually many varieties of snow and ice (Boas 1938), Nuer name many varieties of cattle by their markings (Evans-Pritchard 1940), and Americans have elaborate nomenclatures for referring to automobiles. In explaining this sort of variability, most scholars see size of lexicon as a reflection of cultural emphasis (e.g., Hickerson 1980:111–114). Recently, Hunn (1982) has proposed that cultural emphasis be interpreted as practical importance, at least when dealing with ethnobiological matters, but his thesis refines rather than contradicts the cultural emphasis explanation. These conclusions based on cross-cultural comparisons seem straightforward.

There are, however, some points to note concerning the cross-cultural line of argumentation. First, in most studies of folk classification systems language is envisioned apart from any given speaker(s) of that language. The classification system is pieced together, a compilation of the vocabularies and ways of speaking drawn from many individual informants. This is congruent with the union set conception of culture (Werner 1969), with the consequence that the language described is not really spoken by anyone. Second, cultural emphasis or importance is usually determined intuitively using commonsensical appeals rather than independent and explicit measures. For example, given the environment of the Eskimo, the pastoralist basis of Nuer livelihood, and the American way of life, it is no wonder that snow, cattle, and automobiles are highly differentiated domains in the three cultures, respectively. Yet, there is a circular element in this reasoning because part of the evidence for there being a cultural emphasis is the very thing it is held to explain—enlarged lexicon. Berlin, Breedlove, and Raven (1974) and Berlin (1976) attempt to break this circle by comparing lexical differentiation against a fourfold categorization of plants according to their human use—cultivated, protected, wild but useful, and culturally insignificant.

Fifty-four American college students were asked to rank four domains (musical instruments, fabrics, trees, and hand tools) with respect to their familiarity with each and to rate their knowledge about the domains on a seven-point scale. Then they were asked to list all varieties of each domain they could think of in a free-recall task. Subsequently, they indicated which of the segregates appearing in their lists they could recognize if encountered in a natural setting. Analyses show that the four domains differ significantly in familiarity to the sample, that vocabulary size and recognition ability vary significantly from one domain to another, and that familiarity is a strong predictor of salient vocabulary size, though less so of recognition ability. [language and culture, vocabulary size, recognition ability, interindividual differences]

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Generally, however, as Hunn (1982:840) remarks, there is a lack of methodological rigor in assessments of practical importance and, more generally, cultural emphasis.

If the relation between culture and lexicon is to be studied further, it would seem we need to rethink what we mean by each expression and devise new ways of studying them. Presumably, if cultural emphasis prompts enlarged lexicon, this process takes place in and through individuals as they attend to their worlds and attempt to communicate with their fellows. Cultural emphasis is a very abstract and reified phrasing of the notion that people pay more attention to some aspects of their lives and environments than to others and, consequently, become more familiar with those aspects. If these experientially familiar domains are also frequent topics of conversation, then we should expect salient distinctions to become lexically encoded as a means of facilitating interpersonal communication. In this way, those people most familiar with a domain develop vocabularies for talking about the domain. Once distinctions are encoded in collective speech forms, then other people may acquire these verbal categories and use them when speaking without knowing how to recognize their referents (Gatewood 1983). Thus, while experiential familiarity may underlie the origin of lexical categories, subsequently people may "know" about the domain in a linguistic fashion only. Whether familiarity is experiential, linguistic, or both, we might expect that the more "familiar" a person is with a domain, the larger his or her vocabulary for that domain. Further, we might expect those persons who are more experientially familiar with a domain to evidence greater recognition abilities as well as larger vocabularies. Through this translation, then, we may investigate the relation between cultural emphasis and lexicon by studying the interrelations among familiarity, personal vocabulary size, and recognition ability at the level of interindividual differences.

This paper reports the findings of a study designed around these issues. The results show that, indeed, familiarity is highly correlated with measures of vocabulary size, though less so with measures of recognition ability. The experiment generally corroborates the higher-level thesis proposed by others on the basis of cross-cultural comparisons. At the same time, the findings are new to the extent that they show interindividual differences are understandable with the same logic as cultural differences and that they follow from new methodological techniques. The final section of the paper suggests some refinements and directions for future research.

research design and procedures

The initial objectives of the research were to collect data bearing on three related ideas: (1) that domains differ in their degree of familiarity to individuals within the same culture; (2) that recognition abilities of people, compared with their linguistic knowledge, vary across domains; and (3) that familiarity is a determinant of cognitive salience,[1] including especially lexical salience, and hence of personal vocabulary size.

Given the exploratory nature of the project, methods and measures entailing minimal costs were used. Thus, we asked the same sample of informants questions about different domains rather than the more time-consuming tactic of asking different samples (i.e., people from different occupations, ages, regions, and cultures) questions about the same domain. Familiarity was measured in two ways: directly, via self-evaluations in response to questions; and indirectly, using sex of informant as an attribute variable. The number of segregates (labeled categories) a person could generate in a free-recall task[2] was used as a means of sampling the informant's personal vocabulary within domains. Informants' recognition abilities within domains were estimated by asking them to indicate which of their freely recalled segregates they could recognize if encountered in a natural situation. These

last two are clearly less than perfect measures of the conceptual variables in question. People know and use larger vocabularies than they are able to recall in a task situation. Whether they could actually recognize all the segregates they claim to be recognizable is also problematic. In defense of the measures, the tasks were comparable across informants, and using free-recall tasks is a fairly widespread means of assessing salient distinctions and categories (e.g., Romney and D'Andrade 1964; Sanday 1968; Rosch 1978).

In choosing the domains for the study, the author and nine research assistants[3] discussed alternatives for about an hour. During this brainstorming session, we developed three guidelines for domain selection. First, the domain had to have a fairly standardized nomenclature based on relations of class inclusion. This excluded domains such as "musical styles," for example, which encourage people to invent perhaps novel categories as the occasion arises (Cameron 1983) and domains such as "body parts," which are based on part-whole relations. Second, given our measures of recognition ability, we could use only domains for which the question, How many of these could you recognize? seemed reasonable and unambiguous. This criterion excluded domains such as "kinds of matter" (e.g., sulfur, zinc, uranium, sodium), for which most people cannot recognize any exemplars. The third criterion concerned the ensemble of domains rather than each one separately. We wanted some domains which we thought would be more familiar to men than to women, some more familiar to women than to men, and some with no expected sex biases. Further, we wanted domains which varied among themselves in terms of expected vocabulary sizes and recognition rates.

Using these rough guidelines, we considered the following possibilities: musical instruments, dog breeds, cheeses, flying things, gemstones, sports, kitchen utensils, flowers, furniture, cars, pieces of clothing, trees, fabrics, and hand tools. The final selection, including our a priori predictions, were as follows:

1. *Musical instruments.* We predicted long lists with high recognition rates and no sex-related differences.
2. *Fabrics.* We predicted women would list more varieties than men and that recognition rates would be variable.
3. *Trees.*[4] We predicted considerable variability both with respect to the number of segregates listed and recognition rates, with no sex-related differences.
4. *Hand tools.* We predicted men would list more varieties than women and that recognition rates would be variable.

Each research assistant contacted and interviewed six informants, three men and three women. The resulting sample of 54 were all college students from a wide range of major fields. Although the sample tends to come from higher-income family backgrounds than perhaps the average student, and predominantly from mid-Atlantic states, the sample is not atypical of American college students.

Prior to the free-recall and subsequent recognition tasks, each informant was asked general questions about his or her background. These questions, as well as the sorts of notes taken during the interview situation itself, are reproduced in Appendix I. Following the demographic questions, each informant was asked to complete a page of questions (see Appendix I). These were our direct measures of familiarity. Informants were asked to rank the four domains according to their familiarity with them, where 1 signified the most familiar domain and 4 the least familiar. Then, informants were asked to rate how much they knew about seven domains on a seven-point scale, where 1 signified "practically nothing" and 7 signified "a great deal." In doing this self-evaluation, informants were to compare their own knowledge with what they thought other people knew. None of the informants evidenced hesitation when confronted with these ranking and rating tasks, reflecting, we suppose, previous experience with questions of this format.

Upon completing the self-assessments, informants were asked to list all the varieties (kinds) of musical instruments, fabrics, trees, and hand tools they could think of. To counterbalance the confounding effects of boredom or fatigue, five researchers gave their informants the free-recall tasks in a most- to least-familiar order (total of 30 informants), and four in a least- to most-familiar order (total of 24 informants). Thus, the exact order of the domains depended upon both the informant's own familiarity rankings and the researcher's instructions. After generating four lists, each informant was asked to go through them and indicate with a check mark all those varieties which he or she could recognize if encountered in a natural setting. In the case of musical instruments, informants were to indicate "recognizable" if they could identify a variety using either visual or auditory information. In the case of trees, informants were to indicate "recognizable" only if the variety could be identified without using a fruit, nut, or flower as a clue.[5]

Interviews lasted an average of about one hour, plus or minus 15 minutes. Informants were appraised of this in advance. The final sample of 54 represents those informants who completed the whole session with reasonable grace. A few persons who began interviews lost interest to such an extent when they realized what was required that either they did not finish or were eliminated by the researcher and other informants were interviewed in their places.

results

The data can be analyzed in several ways, each relating to different sorts of questions. The bulk of this paper is concerned with interindividual differences—analyses in which the individual and his or her responses are the basic units. However, before presenting those results, let us first look at the data in a more linguistic fashion, using the segregates as basic units.

Collectively, the sample of 54 college students generated 196 different kinds of musical instruments, 100 kinds of fabrics, 206 kinds of trees, and 270 kinds of hand tools in their free-recall tasks. These segregates are presented in alphabetical order in the tables in Appendix II; both the number of lists each segregate appeared in and the number of times it was claimed as recognizable appear alongside the segregate label. Table 1 summarizes differences among the four domains with simple descriptive statistics. On the average, infor-

Table 1. Descriptive statistics comparing the four domains using segregates as the basic units.

	Musical instruments	Fabrics	Trees	Hand tools
Number of different segregates	196	100	206	270
Total number listed by sample	1537	644	993	945
Total number recognizable by sample	1444	506	590	932
Average times listed per segregate	7.84	6.44	4.82	3.50
Average times recognizable per segregate	7.37	5.06	2.86	3.45
Total percentage recognizable	93.9%	78.6%	59.4%	98.6%

mants evidenced more vocabulary overlap for the domain of musical instruments (7.84 listings/segregate) than for the other domains. Musical instruments was also highest with respect to average segregate recognizability, with an average of 7.37 claims per segregate. However, informants were more likely to recognize a variety of hand tool they had listed than varieties of any other domain (98.6 percent recognition rate for hand tools).

When we turn to the data from the viewpoint of informant differences, there are two sorts of questions to ask, each requiring separate analyses. First, do informants differ with respect to their familiarity, the size of their salient vocabulary, and their recognition ability as the domain varies? Second, does familiarity explain (correlate with) salient vocabulary size and/or recognition ability? We take these questions in order, beginning with the indirect measures of overall familiarity (i.e., sex-related differences across the four domains).

Table 2 presents descriptive statistics regarding informants' familiarity rankings of the domains, and Table 3 shows their ratings of knowledge about the domains. From these tables, it would appear that our original predictions concerning sex-biases for fabrics and hand tools, but not for musical instruments and trees, were corroborated by the direct measures of familiarity. Examining this matter further, Student's *t*-tests[6] were performed comparing men and women for each domain on five measures: familiarity ranking, knowledge rating, length of list, number of segregates claimed recognizable, and percentage of segregates in one's list claimed recognizable. Results of these tests show that the differences between men and women were significant in the predicted direction for fabrics and hand tools ($t = \pm 3.98$ to ± 7.17, df = 31.61 to 52, $p = .000$) but were statistically insignificant for musical instruments and trees. One of the five measures—percentage of listed segregates claimed recognizable—failed to show significant differences, even for fabrics and hand tools, whereas the other four did. A fuller discussion of this is appropriate before proceeding to additional analyses using all five measures.

There is a fundamental mathematical problem in the measures of recognition ability used here. Because the number of segregates an informant claims as recognizable cannot

Table 2. Descriptive statistics comparing the four domains in terms of the informants' familiarity rankings.

	Familiarity rankings					
	most			least		
Domain	1	2	3	4	Mean	Median
Musical instruments						
♂	17	5	4	1	1.59	1.29
♀	12	8	6	1	1.85	1.69
Both	29	13	10	2	1.72	1.43
Fabrics						
♂	0	0	4	23	3.85	3.91
♀	8	9	5	5	2.26	2.11
Both	8	9	9	28	3.06	3.54
Trees						
♂	2	4	18	3	2.82	2.92
♀	4	2	12	9	2.96	3.13
Both	6	6	30	12	2.89	3.00
Hand tools						
♂	9	17	1	0	1.70	1.77
♀	1	7	5	14	3.19	3.54
Both	10	24	6	14	2.44	2.21

Note: Column totals do not equal 54 because a couple of informants indicated "ties" in their rank orderings of the domains.

Table 3. Descriptive statistics comparing the four domains in terms of informants' knowledge ratings.

	Knowledge compared to other people								
	practically nothing						a great deal		
Domain	1	2	3	4	5	6	7	Mean	Median
Musical instruments									
♂	1	1	4	1	5	9	6	5.19	5.67
♀	0	0	3	7	8	7	2	4.93	4.94
Both	1	1	7	8	13	16	8	5.06	5.27
Fabrics									
♂	7	14	4	1	1	0	0	2.07	1.96
♀	1	2	2	9	8	3	2	4.41	4.44
Both	8	16	6	10	9	3	2	3.24	3.00
Trees									
♂	1	3	11	4	4	4	0	3.70	3.36
♀	2	5	6	9	4	1	0	3.41	3.56
Both	3	8	17	13	8	5	0	3.56	3.44
Hand tools									
♂	0	1	3	3	14	2	4	4.93	4.96
♀	3	9	4	5	5	1	0	3.11	2.88
Both	3	10	7	8	19	3	4	4.02	4.38

be greater than the total he or she lists, these two variables are not orthogonal. Thus, a person who lists only five segregates, for example, cannot in principle claim to recognize more than five. Another person might list 30 segregates and claim to recognize 15 of these. Which informant should be regarded as having the greater recognition ability? Using the percentage of recognizable segregates rather than the simple number solves this problem, but it creates another in that the distribution of percentage values is quite discontinuous when the total number of segregates listed is small. For example, if a person listed three segregates, then percentage recognizable could take only the following values: 100, 67, 33, or 0 percent. This distribution inflates the variance and thereby reduces differences between groups of informants. It seems counterintuitive that an informant who lists 49 segregates and claims 47 as recognizable (95.9 percent recognition rate) has less "recognition ability" for the domain than an informant who lists only 13 segregates and claims all 13 as recognizable. For these reasons, we report both measures—number and percentage recognizable—and draw the reader's attention to the problems with each.

Another way to study the effect of semantic domain on informant variability is to compare the responses of each informant across the four domains. Do informants, on the average, tend to rank one domain as more familiar than the others, produce longer lists for it, and so on? To determine this, we performed Student's paired *t*-tests contrasting the four domains on all five measures, where the sample consisted of both men and women. Results showed that musical instruments was the most familiar domain on both direct measures. It was also the domain for which informants had the largest average salient vocabulary. *Varieties of musical instruments were more recognizable than varieties of other domains in* terms of the number of segregates claimed recognizable per informant, but it was second to hand tools in terms of the percentage of segregates informants could recognize in their lists. Hand tools was second to musical instruments on most measures, followed by trees and fabrics. Fabrics was the least familiar domain, though not statistically less so than trees, and it was the domain with the smallest average vocabulary. Trees emerged as the least recognizable domain in terms of the percentage measure, but fabrics was the least recognizable domain in terms of simple number of segregates claimed recognizable per informant.

Thus, two analyses support the conclusion that domains do differ significantly in terms of their familiarity to informants, their salient vocabulary size, and their recognizability. What remains to be shown is that differences in familiarity are statistically significant predictors of differences in salient vocabulary size and/or recognition ability.

With length of list as the dependent variable and sex of informant, familiarity ranking, and knowledge rating as factors (main effects), we performed analyses of variance[7] for each domain. The results appear in Table 4 (higher-order interaction effects are not presented because they were found to be statistically insignificant). The main effects were significant at $p < .01$ in all four domains, indicating that irrespective of the domain, familiarity was strongly related to informants' salient vocabulary size. Together, the three measures of familiarity accounted for 45.8 percent of the variance in size of vocabulary for musical instruments, 47.6 percent for fabrics, 40.8 percent for trees, and 50.2 percent for hand tools.

Table 4. Analyses of variance for four domains with length of list (salient vocabulary size) as the dependent variable.

Source of variation	Sum of squares	df	Mean square	F	p
A. Musical instruments					
Main effects	2497.538	10	249.754	3.631	.001
Sex of informant	102.726	1	102.726	1.493	.228
Familiarity ranking	857.661	3	285.887	4.156	.011
Knowledge rating	1369.726	6	228.288	3.319	.009
Explained	2497.538	10	249.754	3.631	.001
Residual	2957.888	43	68.788		
Total	5455.426	53	102.933		
B. Fabrics					
Main effects	706.690	10	70.669	3.901	.001
Sex of informant	38.638	1	38.638	2.133	.151
Familiarity ranking	114.562	3	38.187	2.108	.113
Knowledge rating	82.524	6	13.754	.759	.606
Explained	706.690	10	70.669	3.901	.001
Residual	779.014	43	18.117		
Total	1485.704	53	28.032		
C. Trees					
Main effects	1922.423	9[a]	213.603	3.375	.003
Sex of informant	.366	1	.366	.006	.940
Familiarity ranking	131.795	3	43.932	.694	.561
Knowledge rating	1194.668	5[a]	238.934	3.776	.006
Explained	1922.423	9[a]	213.603	3.375	.003
Residual	2784.410	44	63.282		
Total	4706.833	53	88.808		
D. Hand tools					
Main effects	3188.729	10	318.873	4.327	.001
Sex of informant	46.965	1	46.965	.637	.429
Familiarity ranking	139.653	3	46.551	.632	.599
Knowledge rating	925.504	6	154.251	2.093	.074
Explained	3188.729	10	318.873	4.327	.001
Residual	3168.771	43	73.692		
Total	6357.500	53	119.953		

[a] The degrees of freedom here were affected by the fact that no informant rated his or her knowledge of trees as 7 ("a great deal").

Similar analyses of variance were performed with number of recognizable segregates and percentage as dependent variables. The number of recognizable segregates per informant was highly predicted by the familiarity measures for all four domains ($p \leq .001$). Familiarity accounted for 54.0 percent of the variance for musical instruments, 48.2 percent for fabrics, 46.0 percent for trees, and 50.8 percent for hand tools. However, these same measures were not so predictive of the percentage of recognizable segregates in informants' lists. For musical instruments, familiarity measures were significant predictors ($p = .003$), and they approached statistical significance for the domain of trees ($p = .053$). But they were of little consequence in accounting for the variance in percentage of recognizable fabrics and hand tools. In the case of hand tools, there was very little variation in the percentage of segregates claimed recognizable. Thus, the relation between measures of familiarity and this dependent variable would have to be very strong to emerge as statistically significant. For fabrics the problem may lie in the previously mentioned arithmetic peculiarity of percentage measures—that is, as the total number of segregates in a list becomes small, the percentage measure of recognition ability becomes less meaningful—and fabrics was the domain with the smallest average vocabulary.

A final and somewhat tangential result of the research concerns the relation between size of salient vocabulary (length of list) and measures of recognition ability. Do people with relatively large salient vocabularies also recognize their listed segregates more often than would be expected by chance? In other words, are personal vocabulary size and recognition ability related? This is a simple correlational matter, yet in attempting to determine the answer we encounter most directly the previously mentioned problems with both recognition measures. The Pearson correlation coefficient for "length" times "number recognizable" is inflated owing to the nonindependence of these measures. There may be a way to correct for this artificially high correlation. If one plots all possible values of "number recognizable" for given values of "length" and computes the Pearson r for this distribution, the result is an r of .500. Observed correlation coefficients can then be compared against this expected value of .500, rather than against the usual expected value of .000. To see if the observed "length" times "number recognizable" coefficients were significantly different from the expected value of $r = .500$, we used Fisher's r to z transformation (see W. Hays 1963:527–533) and subsequent z-tests on these transformed values. Table 5 presents the results of these tests, including the unadjusted correlation coefficients between length of list and both measures of recognition ability. From the table, it is clear

Table 5. Correlations between salient vocabulary size and measures of recognition ability.

Domain	Length of list x	Percentage recognizable (r)	Number recognizable (r)	z value	$z_o - z_e$ test
Musical instruments		.0536 ($p = .700$)[a]	.9698	2.0889	7.7746 ($p = .000$)[b]
Fabrics		.0976 ($p = .483$)[a]	.9137	1.5495	5.0508 ($p = .000$)[b]
Trees		.2429 ($p = .077$)[a]	.8210	1.1599	3.0834 ($p = .001$)[b]
Hand tools		.0834 ($p = .549$)[a]	.9980	3.4534	14.6650 ($p = .000$)[b]

[a] These significance levels are for two-tailed tests.
[b] These significance levels are for two-tailed tests, and they are based on comparisons of the observed Pearson r's (transformed to z's) with expected r of .500 rather than r of .000.

that the size of one's salient vocabulary does not correlate with the percentage of recognizable segregates in any of the four domains. However, length of list is strongly correlated, even adjusting for the artificially inflated *r*, with the number of recognizable segregates in all four domains.

These findings yield themselves to contradictory interpretations. If percentage of recognizable segregates in one's list is taken as the better indication of genuine recognition ability, then we must conclude that people with larger vocabularies do not necessarily have superior recognition abilities for those same domains. If, however, we concentrate on the simple number of recognizable segregates in each informant's list, then we must conclude that recognition ability is in direct proportion with salient vocabulary size. There is an alternative interpretation of this last relation which may resolve the contradiction: perhaps the more recognizable segregates are more easily recalled in the task situation, at least initially. This would mean that informants with shorter lists would tend to have high recognition rates but few recognizable segregates. At the other extreme, people with longer lists would have variable recognition rates but many recognizable segregates. In this way the same phenomenon would underlie both the low correlation between "length" and "percentage" and the high correlation between "length" and "number recognizable." For the present, we can only draw attention to this question and leave its determination to future research.

discussion of results

Despite some arithmetic problems with measures of recognition ability, the results clearly confirm the initial hypotheses. Domains differ in their degree of familiarity to individuals within the same cultural tradition. The recognition ability of people compared with their linguistic knowledge does indeed vary across domains. And, measures of familiarity are strongly predictive of salient vocabulary size, though less so of recognition ability. None of these findings is especially startling because the ideas are almost taken for granted, part of the commonsense underpinnings of social science. For this reason, the results are perhaps more comforting in their corroboration of what we already suppose to be true than they are shocking. Nonetheless, they are valuable as empirical confirmations of commonsensical notions.

To improve the method, we suggest the following alterations. (1) In assessing informants' familiarity with domains, more indirect measures should be used. The sample should include people from different occupations and avocations so that comparisons could be made on this basis. For example, lumberjacks, furniture makers, and park rangers could be compared with office workers, college students, and dentists, as regards their vocabularies and recognition abilities for kinds of trees. Increasing the number of indirect measures of familiarity would be additional to the self-assessments and is a matter of sampling. (2) Estimates of personal vocabulary size could be improved by asking informants to check off familiar words from an extensive list, in addition to the free-recall task. This second measure would eliminate possible variation in recall abilities among informants as a source of error and thus complement the free-recall list, which samples only the more memorable segregate labels. (3) Informant motivation for the research could be improved by paying them. This is especially important when the data are generated in memory tasks. (4) The measures of recognition ability should be logically independent of the vocabulary measures. The most common solution to this problem is to present informants with physical objects and to ask them to name these (i.e., an identification task). However, this procedure almost guarantees that informants will generate some name for an object whether they commonly use that name or not.[8] Perhaps another procedure, more in line with the overall nature of

the research objectives, would be to use self-assessments of recognition ability as before, but to ask informants to indicate which segregates they can recognize from an extensive list of segregate labels. In this way the number of recognizable segregates and the percentage become more comparable across informants, and the arithmetic quirks of each would be resolved.

Future research along these lines should expand in three directions. First, factors additional to familiarity may be contributing to the variability in recognition rate across different domains. For example, when trying to recall varieties of trees, an informant may activate primarily verbal memory and recall mostly names for trees without experiencing visual imagery as accompaniment. The same informant may recall varieties of musical instruments in a very different manner, using a visual-spatial mnemonic—by conjuring an image of a band or orchestra in his or her mind and then naming the various instruments as these are "seen" in their seating positions. Based on introspection and a few casual conversations, the author suspects this sort of difference in recall processes may be partially responsible for the very high recognition rates for musical instruments (93.9 percent) and hand tools (98.6 percent) compared to fabrics (78.6 percent) and trees (59.4 percent). If this were true for many informants, then at least some of the variance in recognition rate among domains is an artifact of the research method (i.e., different recall processes produce different recognition rates). These matters should be investigated further.

Second, full taxonomies should be elicited from each informant. This would not only reveal more of the informant's knowledge but would allow researchers to examine the effects of familiarity on hierarchical depth and other relational aspects of vocabulary sets.[9] Further, we might discern patterns of recognition ability—with respect to particular regions of the domain or related to taxonomic levels—which the current, much simplified method obscures. Third, informants should be asked by what diagnostic criteria they can identify examples of their "recognizable" segregates. These data could then be analyzed to see if informants who are more familiar with a domain use different kinds of recognition criteria than informants who are less familiar.

These methodological refinements would not alter the most noteworthy aspect of the research, however, which is its individual rather than cultural level of analysis. Others (e.g., Tway 1975; Gardner 1976; Kempton 1978; Ellen 1979; Berlin, Boster, and O'Neill 1981; T. Hays 1983; Lehrer 1983) have studied folk classification systems from the viewpoint of informant differences. Most of these previous studies are based on data gathered, explicitly or implicitly, from identification tasks (i.e., the data consist in names generated by informants for standardized stimuli). This method is an excellent way to study cognitive-linguistic sharing, but it is problematic as a means of determining recognition abilities of informants. How does one decide which of the several names proffered for a stimulus is the "correct" one? Are informants who offer more specific names (identifications using taxa from lower ethnobiological ranks) more "accurate" than informants who offer more general names? More importantly, the task does not really bear upon the question of whether informants can recognize examples of the words they use; rather, it focuses on whether informants can produce names for things. Thus, the kind of research reported in this paper complements such identification studies and provides an independent check on their findings.

The results from both methods, however, point to the same more general conclusion: interindividual differences may be understood with the same reasoning as cultural differences. Whether speaking of cultural emphasis or personal familiarity, these appear to underlie size of lexicon or size of vocabulary, respectively. This conclusion is congruent with the idea that the individual is the only nonarbitrary distributional locus of culture and language (Barnes 1971; Crissman 1975; Schwartz 1978; Gatewood in press). This view of

culture and language is, in turn, grounded upon the recognition that individuals per se learn how to behave, to speak, to think. Further, learning is not passive absorption but an active and constructive process in each individual (Piaget 1970). While it remains true that individuals come to resemble some people more than others, this does not imply that cultural knowledge is automatically transplanted from the group into the individual; though you may help others learn, you cannot learn for them. Cultures and languages are abstractions referring to interindividual resemblances and gradations thereof. As Wallace (1961) succinctly phrased the matter, cultures are organizations of diversity, not replicated uniformities. Thus, cross-cultural variability in lexicon and cultural emphasis is reducible to interindividual differences in vocabulary and familiarity.

notes

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[1] "Salience" is one of the often-used and seldom-defined words in cognitive anthropology and psychology. Dictionaries note that it originally referred to leaping or jumping while dancing, then was extended to mean anything that projects from its surroundings (e.g., a turret in a system of fortifications or a promontory in a coastline). Thus, cognitive salience, like cognitive map, is a spatial metaphor. Researchers have operationalized salience through various measures. Dougherty (1978) mentions some of these—for example, speed of recall, gestalt rather than piecemeal recognition, frequency of use. Rather than selecting one or another of its various measures as a definition, I use salience throughout this paper in its metaphoric sense to refer to the most notable or striking categories in a person's thinking or vocabulary.

[2] The free-recall task as used by psychologists developed from the older method of retained members as a way of investigating memory and learning processes (Tulving 1968). In the usual situation, the experimenter controls the input, and the subject is asked to recall freely as much of the input as he or she can. With the rise of the cognitive paradigm in psychology, the focus of researchers using the method shifted from the simple number of input items subjects could recall to the effects of clustering among input items on subjects' outputs. Currently, the free-recall task is used as one means of assessing alternative models of knowledge representation (Glass, Holyoak, and Santa 1979; Kieras 1981). The free-recall task employed in the research reported in this paper differs from the psychological tradition principally in that the "input" stimuli are not controlled by the experimenter, but consist of the entire life experience of the informant prior to the time of data collection.

[3] Research assistants for this project were Karen Frary, Joseph Juraniec, Keith Lust, Michael Macaluso, Kathleen Moore, Valerie Russo, Julia Samuelson, Jacqueline Smith, and Karen Stein, all students at Lehigh University.

[4] Trees was selected as one of the domains in order to make our findings comparable with those of Gatewood (1983). Also, given the amount of previous literature on ethnobiological classification systems, we wanted at least one such domain in our study.

[5] These special instructions regarding trees were intended to rule out "grocery store" identifications. Judging from the number of rather exotic trees informants claimed recognizable, however, I suspect that not all informants understood this portion of their instructions.

[6] These and all other statistical calculations were done using SPSS software (SPSS, Version 8.3 (NOS/BE), 1982) on a CYBER 720 computer. Full statistical tables for those analyses referred to in the text but not presented (due to space considerations) are available on request from the author (Department of Social Relations, Lehigh University, Bethlehem, PA 18015).

[7] The analyses of variance done here assumed a fixed-effect model and used the "classical experimental" manner of computing effects.

[8] The willingness of informants to hazard guesses for unfamiliar objects is variable both across informants and cultures. Further, the name generated in such situations of uncertainty may take different forms, in one case being analogical (e.g., "like a _____ but not quite") and in another the name produced by going up in a taxonomy (e.g., object = an oak tree; informant response = tree). I thank Dell Hymes for drawing my attention to this kind of variability in naming behavior.

[9] Although using a sorting task rather than taxonomic elicitations, Okonji (1971) found in a cross-cultural study that children who were familiar with objects were slightly more able to talk about higher-level groupings than were children who were unfamiliar with the objects. This kind of finding could be investigated further through the methodological expansion proposed here.

appendix I

A.

CHARACTERISTICS OF THE INFORMANT

Sex: M F
Age:
College:
Major(s):
Precollege residence(s):
Geograpical location(s):
Characteristics of the neighborhood(s):
Socioeconomic background:

CIRCUMSTANCES OF THE INTERVIEW

Date: Day of week: Time: AM/PM
(month/day/year)
How was this informant selected by the researcher?
Where did the interview take place and why?
Briefly describe the informant's attitude during the interview and toward it (e.g., bored, eager to please, distracted, etc.). Did this change as the interview progressed?

B.

I. Which of the topics listed below are you most familiar with and which the least?

musical instruments trees
fabrics hand tools (nonpower)

1. (most familiar with)
2. (next most familiar with)
3. (third most familiar with)
4. (least familiar with)

II. Please take a moment to explain your rankings above. Are there special reasons why you are more familiar with some topics than you are with others?

III. Comparing yourself with other people, how much do you know about the following topics?

	practically nothing						a great deal
dog breeds	1	2	3	4	5	6	7
hand tools	1	2	3	4	5	6	7
trees	1	2	3	4	5	6	7
sports	1	2	3	4	5	6	7
fabrics	1	2	3	4	5	6	7
musical instruments	1	2	3	4	5	6	7
gemstones	1	2	3	4	5	6	7

appendix II

Table A. The 196 kinds of musical instruments listed by 54 persons in a free-recall task.

	Times listed	Times recognizable		Times listed	Times recognizable
accordion	11	11	concert baritone	1	1
Alpine horn	1	1	marching baritone	1	1
autoharp	2	1	bass	21	21
ay oshimi (?)	1	1	contrabass	2	2
bagpipe(s)	9	9	double bass	2	2
balalaika	1	1	electric bass	1	1
banjo	22	22	stand-up bass	1	1
baritone horn	4	4	string bass	2	2
[baritone]	3	3	bass fiddle	3	3
bass baritone	1	1	bass violin	2	2

Table A. Continued.

	Times listed	Times recognizable
bassoon	15	11
contrabassoon	2	2
bell(s)	17	17
hand bells	1	1
tubular bells	1	1
biwa (?)	1	1
blocks	2	2
temple block	2	2
wood block	5	5
bongo(s)	14	12
[bongo(s) drums]	4	4
bugle	11	11
calliope	1	1
cannons	1	1
castanet(s)	15	15
celesta	1	1
cello	38	34
bass cello	1	1
violoncello	1	1
chimes	10	10
clarinet	48	46
B-flat clarinet	1	1
E-flat clarinet	1	1
alto clarinet	2	2
bass clarinet	4	4
contrabass clarinet	1	1
claves	1	1
clavichord	1	1
clavinet	3	3
concerta (?)	1	1
conga(s)	2	1
cornet	17	16
cowbell(s)	8	8
cymbal(s)	35	35
crash cymbal	3	3
finger cymbal	2	2
ride cymbal	2	2
sizzle cymbal	1	1
splash cymbal	2	2
drum(s)	28	28
bass drum(s)	27	27
electric drums	1	1
snare drum(s)	23	22
[snare]	1	1
steel drum(s)	6	6
timboli drums (?)	1	1
triple drums	1	1
syndrum	1	1
dulcimer	1	1
empty jug of wine	1	1
English horn	4	3
fiddle	6	5
fife	5	2
fingers	1	1
flügelhorn	10	8
flute(s)	52	51
A flute	1	1
C-flat flute	1	1
flutophone	1	1
French horn	32	28
glasses	1	1
glockenspiel	6	4
gong	8	8
bong gong	1	0
guitar	38	38
acoustic guitar	9	9
acoustic 12-string guitar	1	1
bass guitar	20	18
classical guitar	1	1
electric guitar	15	15
electric 12-string guitar	1	1
folk guitar	1	1
hollow electric guitar	1	1
lead guitar	1	1
rhythm guitar	1	1
6-string guitar	1	1
12-string guitar	2	2
steel guitar	3	1
pedal steel guitar	1	0
[pedal steel]	1	1
slide steel guitar	1	1
harmonica	26	26
harp	34	34
harpsichord	23	20
herdy gerdy (?)	1	1
hi hat	3	3
hobo (?)	1	0
horn	4	3
bass horn	1	0
soprano horn	1	1
Jew's harp	4	4
[mouth harp]	1	1
kazoo	12	12
keyboard	2	2
koto	1	1
lap harp	1	0
lute	4	1
lyre	5	2
mandolin	14	13
maracas	15	14
marimba	3	3
mellophone	3	3
oboe	40	33
organ	38	38
oscar (?)	1	1
percussion	1	1
piano	49	49
electric piano	3	3
honkytonk piano	1	1
grand piano	5	5
baby grand piano	3	3
player piano	2	2
spinet piano	3	3
upright piano	2	2
piccolo	39	35
pitchpipe	1	1
ram's horn	1	1
recorder	14	14
reeds	1	1
samisen	1	0

Table A. Continued.

	Times listed	Times recognizable		Times listed	Times recognizable
saxophone	35	35	[kettledrum(s)]	9	9
[sax]	3	3	tom tom(s)	8	8
alto saxophone	5	5	[tom tom drums]	1	1
[alto sax]	3	3	floor tom tom	1	1
baritone saxophone	1	1	roto tom(s)	2	2
[baritone sax]	2	2	triangle	22	22
bass sax	3	2	trombone	46	45
soprano saxophone	1	1	bass trombone	2	1
[soprano sax]	2	2	slide trombone	1	1
tenor saxophone	6	6	trumpet	52	50
[tenor sax]	5	4	E-flat trumpet	1	1
saw	1	1	tuba	42	42
sitar	3	2	ukelele	12	10
sousaphone	8	8	vibraphone	3	2
spoons	4	4	[vibes]	3	3
steer horn	1	1	viola	35	24
string (piece of)	1	1	violin	48	46
synthesizer	23	22	voice	4	4
ARP 2600	1	0	[vocal chords]	1	1
lyricon	1	1	washboard	4	4
mellotron	1	0	waxpaper over comb	1	1
micromoog	1	0	whiskey bottle	1	1
moog synthesizer	2	2	whistle	3	3
[moog]	1	0	xylophone	33	32
symphonet	1	1	metal xylophone	1	1
synisphor	1	1	wooden xylophone	1	1
tabla	1	1	zither	5	5
tambourine	13	13			
timpani	14	13	Totals	1537	1444

Note: Segregates with a (?) beside them are spelled as the informant spelled them. Obvious synonyms are listed in brackets underneath the most conventional name.

Table B. The 100 kinds of fabrics listed by 54 persons in a free-recall task.

	Times listed	Times recognizable		Times listed	Times recognizable
acetate	2	0	cowhide	1	1
acron	1	0	crinoline	1	1
acrylic	8	3	crepe	6	6
angora	7	7	crylon	1	0
antron	2	0	dacron	19	1
argyle	1	0	denim	28	28
burlap	5	5	down	1	1
camel's hair	3	2	eyelit	1	1
canvas	4	4	felt	4	4
cashmere	6	5	fiberglass	1	1
challis	1	0	fishnet	2	2
chambray	1	1	flannel	9	9
chamois	3	3	flax	1	0
cheesecloth	2	2	fur(s)	3	3
chenille	1	0	[animal skins]	1	1
chiffon	5	3	ermine	1	0
chino	2	2	leopard	1	0
chintz	2	0	mink	2	2
corduroy	20	20	sable	1	0
cotton(s)	53	49	sealskin	1	1
brushed cotton	1	1	sheepskin	1	1

Table B. Continued.

	Times listed	Times recognizable		Times listed	Times recognizable
gabardine	6	2	polyester	49	35
gauze	5	5	poplin	4	1
gingham	1	0	qiana	3	3
gortex	2	2	ramie	1	0
hessian	1	1	rayon	26	3
jean	1	1	satin	23	19
jersey	1	1	seersucker	9	7
knit	4	3	silk	42	38
cheap knits	1	1	spandex	2	2
lace	9	9	suede	11	11
lame	2	2	super suede	1	1
leather	20	20	synthetic	1	0
leaves	1	1	taffeta	13	12
linen	12	12	terry cloth	7	7
lycra	3	2	tricot	3	2
madras	3	3	tulle	1	1
mesh	1	1	tweed	10	10
metallic	1	1	twill	1	1
mohair	1	1	wool twill	1	1
muslin	4	2	vinyl	1	1
naugahyde	1	1	velour	11	10
nylon	36	24	velvet	12	11
oilcloth	1	1	velveteen	1	0
organza	2	1	wool	49	48
orlon	8	1	lamb's wool	3	1
paper	1	1	Icelandic wool	1	1
percale	2	1	wool blend	2	2
plaid	2	2	wool man-made fiber blend	1	1
plastic	4	4			
poly-cotton blend(s)	3	1	Totals	644	506

Note: Obvious synonyms are listed in brackets underneath the most conventional name.

Table C. The 206 kinds of trees listed by 54 persons in a free-recall task.

	Times listed	Times recognizable		Times listed	Times recognizable
acacia	1	1	beech	7	3
alder	1	0	American beech	1	1
almond	2	1	beechnut	2	1
apple	40	26	birch	32	21
golden delicious	1	0	paper birch	1	1
McIntosh	1	0	silver birch	1	1
red delicious	1	0	white birch	2	2
apple blossom	2	1	yellow birch	1	0
apricot	3	1	bird of paradise	1	1
arborvitae	1	1	baobab	2	1
[arbor]	1	0	bonbigo (?)	1	0
ash	3	1	bonzai	2	2
black ash	1	1	boxwood	1	1
white ash	2	2	bottlebrush	1	1
aspen	5	1	cacao	2	0
avocado	1	0	cactus	1	1
balsa	3	0	cashew	1	0
bamboo	3	3	catalpa	1	1
banana	13	5	northern catalpa	1	1
banyan	1	1	cedar	14	4

Table C. Continued.

	Times listed	Times recognizable		Times listed	Times recognizable
red cedar	2	2	locust	5	3
white cedar	1	1	honey locust	1	1
cherry	38	20	sunburst locust	1	1
cherrywood	1	1	macadamia	2	1
Japanese cherry	4	1	magnolia	9	7
wild cherry	1	0	mahogany	8	1
cherry blossom	2	1	maple	45	29
chestnut	19	8	Canadian maple	1	0
horse chestnut	4	2	Japanese maple	4	3
water chestnut	1	0	Norway maple	1	1
Christmas	2	2	red maple	8	8
[Tannenbaum]	1	1	silver maple	3	3
cork	1	1	sugar maple	4	4
cottonwood	1	1	white maple	1	0
crab	1	0	marginata (?)	1	1
flowering crab	1	0	mimosa	6	6
crabapple	7	3	ming aralia	1	1
cypress	5	3	[Chinese pine]	1	0
date	2	1	money tree	1	1
dogwood	32	24	mulberry	1	1
pink dogwood	1	1	nectarine	1	0
white dogwood	1	1	oak	49	31
ebony	3	0	[acorn]	2	1
elm	23	5	black oak	1	1
Dutch elm	2	1	live oak	1	0
eucalyptus	5	2	pin oak	5	5
evergreen	8	8	red oak	2	1
fern	2	2	scarlet oak	1	1
Australian fern	1	1	white oak	4	2
fig	5	2	olive	5	2
fiddleleaf fig	1	1	black olive	1	0
Filus Benjamice (?)	1	1	green olive	1	0
fir	8	6	orange	33	16
Douglas fir	9	3	Caldoria orange (?)	1	1
fruit trees	2	1	naval orange	1	0
ginkgo	7	6	orange blossom	1	0
ginkgo, female	1	1	osage (?)	1	1
ginkgo, male	1	1	palm	29	28
golden chain	1	1	areca palm	1	1
grapefruit	16	5	coconut palm	1	0
gum	1	0	[coconut]	7	4
fruitgum	1	1	date palm	1	0
sweetgum	1	1	Kentia palm (?)	1	1
hawthorn	2	2	screw palm	1	1
Washington hawthorn	1	1	paper dollar tree	1	1
hazelnut	2	0	paw paw	1	0
hickory	4	2	peach	24	7
holly	4	4	pear	28	14
huckleberry	1	0	pecan	2	0
japonica	1	1	persimmon	1	1
Judas tree	1	0	pine	41	37
juniper	1	0	black pine	1	1
Kentucky coffee bean tree	1	1	jack pine	1	0
kumquat	2	0	gnarled pine	1	0
larch	1	0	lodgepole pine	1	1
golden larch	1	0	long-needle pine	1	0
lemon	11	3	short-needle pine	1	0
lepidodendron	1	1	Norfolk pine	1	1
lilac	1	0	Norfolk Island pine	1	1
lime	7	2	pitch pine	1	1

Table C. Continued.

	Times listed	Times recognizable		Times listed	Times recognizable
red pine	1	1	sequoia	8	5
Scotch pine	2	1	Serengeti upside-down tree	1	1
southern pine	1	1	spice	1	1
Virginia pine	1	1	spruce	17	6
white pine	6	4	blue spruce	11	10
eastern white pine	1	1	Carolina blue spruce	1	1
pineapple	1	0	sumac	1	1
plum	7	5	mountain sumac	1	1
purple plum	1	1	staghorn sumac	1	1
poison oak	1	1	sycamore	9	4
poison sumac	1	1	tangerine	4	1
poplar	12	4	teak	5	2
Lombardy poplar	1	1	vine	2	1
tulip poplar	1	1	walnut	21	5
[tulip tree]	3	3	black walnut	1	1
flowering tulip	1	0	Japanese walnut	1	1
prune	1	0	willow	9	8
quince	2	0	black willow	1	1
redwood	28	21	pussy willow	1	1
California redwood	1	1	weeping willow	18	17
rosewood	2	0	wintergreen	1	1
rubber	5	3	yew	1	1
sassafras	5	5			
sellom (?)	1	1	Totals	993	590

Note: Segregates with a (?) beside them are spelled as the informant spelled them. Obvious synonyms are listed in brackets underneath the most conventional name.

Table D. The 270 kinds of hand tools listed by 54 persons in a free-recall task.

	Times listed	Times recognizable		Times listed	Times recognizable
adze	2	1	meat cleaver	1	1
auger	1	1	clippers	5	5
awl	10	10	grass clippers	1	1
scratch awl	1	1	hedge clippers	5	5
ax	18	18	nail clippers	1	1
back scratcher	1	1	comb	1	1
blades for saws	1	1	compass	1	1
blow torch	1	1	cookie cutter	1	1
bottle opener	1	1	cork screw	2	2
brace and bit	1	1	crimper(s)	2	2
broom	4	4	crochet needle	1	1
bucket	1	1	crowbar	8	8
can opener	2	2	cutting blade	1	1
caulker	1	1	diagonals	1	1
chalk line	3	3	dike (?)	1	1
chisel	15	15	drill	8	8
coal chisel	2	2	drill press	1	1
wood chisel	1	1	hand drill	8	8
clamp(s)	2	2	power drill	2	2
bar clamp	1	1	push drill	1	1
C-clamp	2	2	standard drill	1	1
parallel jaw clamp	1	1	dust pan	2	2
snap clamp	1	1	eggbeater	1	1
claw (garden)	1	1	feeler gauges	1	1
cleaver	1	1	fertilizer spreader	1	1

Table D. Continued.

	Times listed	Times recognizable
file	9	9
circular file	1	1
half-circle file	1	1
flat file	1	1
nail file	1	1
fingernails	1	1
floats	1	1
fork (cutlery)	1	1
forms	1	1
gear pullers	1	1
gouge	4	4
wood gouge	1	1
grader	1	1
hair brush	1	1
hammer	50	50
ballpeen hammer	5	5
claw hammer	3	3
meat tenderizer hammer	1	1
sheetmetal hammer	1	1
regular hammer	1	1
slate hammer	1	1
sledge hammer	8	8
hand	1	1
hatchet	4	4
hoe	13	13
hook	1	1
hose	1	1
ice pick	2	2
jack	2	2
floor jack	1	1
jack stands	1	1
knife	9	9
carving knife	1	1
draw knife	1	1
exacto knife	1	1
[exacto]	1	1
joint knife	1	1
putty knife	3	3
knitting needle	1	1
ladder	3	3
step ladder	1	1
lawn mower	2	2
[hand mower]	1	1
leash	1	1
letter opener	1	1
level	15	15
loppers	1	1
machete	1	1
mallet	10	10
rubber mallet	4	4
wooden mallet	1	1
micrometer	2	2
miter	1	1
miter box	3	3
mop	2	2
nail puller	2	2
nails	1	1
nozzles	1	1
orange stick	1	1
paint brush	14	14
paint roller	1	1
[roller]	3	3
paint scraper(s)	2	2
[scraper]	5	4
pan	1	1
peeler	1	1
pen	3	3
pencil	4	4
pencil sharpener	1	1
pick	9	9
hay pick	1	1
manure pick	1	1
pick-ax	2	2
pipe cleaning tool	1	1
pipe cutter	3	3
pitchfork	2	2
plane	8	8
block plane	1	1
jack plane	2	1
rabbit plane	1	0
plastic string with motor	1	1
pliers	39	39
adjustable-jaw pliers	1	1
channel lock pliers	1	1
lineman's pliers	1	1
long-nosed pliers	1	1
needle-nosed pliers	8	8
regular pliers	2	2
plow	1	1
plumb bob	1	1
plunger	1	1
post digger	1	1
[fencepole hole digger]	1	1
[hole digger]	1	1
pots	1	1
protractor	1	1
pruners	2	2
punch	2	2
center punch	1	1
hand punch	1	1
nail punch	2	2
rake	10	10
garden rake	2	2
lawn rake	1	1
leaf rake	1	1
metal rake	1	1
three-prong rake	1	1
rasp	2	2
razor	3	3
razor blade	1	1
right angle	1	1
rivet gun	1	1
[riveter]	1	1
rolling pin	1	1
rope	1	1
rule(r)	8	8
sander	3	2
hand sander	1	1
sandpaper	5	5
saw	38	38
basic saw	1	1

Table D. Continued.

	Times listed	Times recognizable		Times listed	Times recognizable
circular saw	1	1	stool	1	1
coping saw	8	7	straight edge	2	2
crosscut saw	6	5	stud finder	1	1
hack saw	12	12	tap	1	1
hand saw	1	1	tap and die	1	1
jig saw	1	1	tape measure	6	6
keyhole saw	1	1	[measuring tape]	1	1
metal saw	1	1	tiller	1	1
miter saw	2	2	tin snips	1	1
motor saw	1	1	tire iron	1	1
pipe saw	1	1	tongs	2	2
rip saw	4	3	toothbrush	1	1
tree saw	1	1	trimmers	1	1
two-handed saw	1	1	hedge trimmers	2	2
two-man saw	3	3	trowel	7	7
wood saw	1	1	tweezers	2	2
scale	1	1	valve lifters	1	1
scalpel	1	1	vice	9	9
scissors	13	13	vice grip(s)	14	14
hand scissors	1	1	wedge	2	2
screwdriver	42	42	weeder	1	1
flathead screwdriver	2	2	wheel barrow	3	3
lock screwdriver	1	1	whet stone	1	1
Phillips(head) screwdriver	25	25	wire brush	2	2
regular screwdriver	4	4	wire cutter(s)	12	12
standard screwdriver	4	4	wire stripper(s)	2	2
scribe	1	1	wire whisk	1	1
scrub brush	1	1	wood screws	1	0
scythe	1	1	wrench	35	35
shears	1	1	adjustable wrench	10	9
hedge shears	1	1	Allen(head) wrench	11	10
metal shears	2	2	box-end wrench	1	1
shovel	15	15	[box wrench]	1	1
kitchen shovel	1	1	closed-end wrench	2	2
snow shovel	1	1	combination wrench	2	2
sickle	1	1	crescent wrench	1	1
socket(s)	5	5	in-line wrench	1	1
soldering iron	2	2	key wrench	1	1
spackler	1	1	lug wrench	1	1
spade	8	8	monkey wrench	10	10
spatula	3	3	oil filter wrench	3	3
sponge(s)	2	2	open-end wrench	6	6
splitter	1	1	pipe wrench	6	5
spoon (cutlery)	1	1	plumber's wrench	1	1
soup spoon	1	1	ratchet wrench	2	2
tea spoon	1	1	[ratchet]	12	12
wooden spoon	1	1	socket wrench	11	11
square	3	3	spin-tight wrench	1	1
[T-square]	3	3	torque wrench	3	3
staple gun	3	3	Totals	945	932

Note: Segregates with a (?) beside them are spelled as the informant spelled them. Obvious synonyms are listed in brackets underneath the most conventional name.

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