

INSTRUMENTATION & TECHNIQUES

Positional frequency and versatility of bigrams for two- through nine-letter English words

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A comprehensive count of bigram frequencies and versatilities by position was tabulated for two- through nine-letter words recorded by Kučera and Francis (1967). A total of 577 bigrams were found variously distributed throughout words. Such counts should prove useful to workers who wish to determine the orthographic regularity of specific words.

With the development of high-capacity computers, it is now possible to analyze characteristics of the language that were previously inaccessible. A valuable corpus of words and their frequencies was collected by Kučera and Francis (1967). This sample of over one million words drawn from American literature has served as the basis for further analysis of English orthography. The first of these analyses was done by Solso and King (1976). In their analysis, single-letter frequencies (how many times a letter appeared per one million words) and versatilities (how many different words a letter appeared in per one million words) were counted. In addition, a count of positional frequencies and versatilities (the number of times a letter appeared in a specific position per one million words and the number of different words a letter appeared in per one million words) for four- and five-letter words was reported. These counts were followed by single-letter frequency and versatility counts for six-, seven-, and eight-letter words (Solso, 1979). Recently, Solso, Barbuto, and Juel (1979) reported total bigram and trigram frequencies in the English language. In the present paper, we extend our investigation of the orthographic characteristics of the English language by presenting bigram frequencies and versatilities by position for two- through nine-letter words.

Such counts have been useful to researchers interested in letter identification (e.g., Massaro, Venezky, & Taylor, 1979), reading skills (Mason, 1975, 1980;

Juel & Solso, Note 1), anagram solving (Solso, Topper, & Macey, 1973), game playing (Weissman, in press), and related areas (Estes, 1975).

One use of these data is in the assessment of the orthographic regularity of any word or nonword that may serve as an independent variable in perceptual reading tasks. Positional bigram counts provide a more accurate estimate of word orthography than do single-letter positional counts, as they reflect multiple letter-connecting regularities; single-letter counts are independent of such constraints. Thus, the true frequencies and versatilities of the following bigrams by position are preserved (e.g., QU, TH, ER, AJ, IC, RS, etc.). From these norms, a researcher may calculate the regularity of letter sequences by finding the sum of bigram frequencies or versatilities. We refer to the sum of bigram frequencies as SOBIF and to the sum of bigram versatilities as SOBIV. It is thereby possible to compose "good" (i.e., orthographically common) words by adding positional bigram frequencies. The following is an example of the SOBIF for the word "mother": MO = 1,721, OT = 895, TH = 1,797, HE = 1,811, ER = 7,527; SOBIF = 13,751. It is also possible to compose "good" nonwords, such as "beaple" (BE = 3,098, EA = 2,000, AP = 162, PL = 1,572, LE = 3,660; SOBIF = 10,492) and "thich" (TH = 9,691, HI = 6,252, IC = 4,268, CH = 4,563; SOBIF = 24,774), or "bad" (i.e., orthographically uncommon) words, such as "avoid" (AV = 65, VO = 81, OI = 81, ID = 345; SOBIF = 572) and "victim" (VI = 336, IC = 321, CT = 305, TI = 255, IM = 31; SOBIF = 1,248), or "bad" nonwords, such as "dutog" (DU = 84, UT = 71, TO = 138, OG = 1; SOBIF = 294).

The authors express their appreciation to Karen K. Falke for her assistance in writing the computer program.

METHOD

Bigram positional frequency and versatility counts for two-through nine-letter words were based on the Kučera and Francis (1967) frequency count of about one million English words. In the present analysis, all hyphenated words, words containing apostrophes, and numbers were excluded. Of the remaining words, approximately 94% of all words in common English usage are included in our sample of two- through nine-letter words. This percentage was determined by dividing the total number of two- through nine-letter words used in this count (897,435) by the total number of words (tokens) in the sample (953,443). Approximately 76% of all different words in common English usage are included in two- through nine-letter words. This percentage is determined by dividing the total number of different two- through nine-letter words (30,546) by the total number of different words (types) used in this sample (40,156).

Bigram frequency counts by position were based on the total times a two-letter combination appeared in each position; bigram versatility counts were based on the total number of times a bigram appeared in a different word in each position. For example, "scope" has a total word frequency of 21/million words. The frequency totals by position for the bigrams SC,

CO, OP, and PE were incremented by 21; for the versatility count by position, each bigram was incremented by 1. The word "educated" has a word frequency of 21/million: ED, which appears two times in the word, was incremented by 21 for the first position and 21 for the last position for eight-letter words. Likewise, the versatility by position of each bigram in the word was incremented by 1.

In addition to bigram positional counts for two- through nine-letter words, total bigram frequencies and versatilities for all bigram and larger words are reported.

RESULTS

Total bigram frequency and versatility counts by position for two- through nine-letter words are contained in Table 1. In the far left column, the bigram is identified. Next, the word length is designated, followed by the frequency and versatility counts by position.

Total bigram frequency and versatility counts for all words (larger than single-letter words) are reported in the box located in the upper right side of the positional counts.

Table 1
Positional Frequencies (F) and Versatilities (V) for Two- Through Nine-Letter Words and Total Bigram Frequencies and Versatility Counts

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Table 1 Continued

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	4	0	16	16	6	25	5	14	1	0	0	2	1	15 5 7 2
	5	0	19	9	5	3	2	1	1	0	0	1	1	TOTAL F AND V (ALL WORDS) AI 12887 840
AI	2	42	3	31	4	110	5	11	4	694	1	2	1	2 2 0 0
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	4	17	54	44	3	33	25	288	23	221	33	2	20	TOTAL F AND V (ALL WORDS) AJ 353 23
	5	4	17	19	4	26	20	480	24	402	27	121	19	0 0 0 0
AJ	2	1	0	1	1	1	1	0	0	0	0	0	0	0 0 0 0
	3	0	25	4	4	3	4	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) AK 4208 341
	4	0	3	3	3	1	1	0	0	0	0	0	0	0 0 0 0
	5	0	7	1	1	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) AL 36452 2994
AK	2	2	0	20	5	60	7	236	14	16	5	2	2	4 3 3 2
	3	10	2	1582	15	125	23	58	13	43	5	11	7	TOTAL F AND V (ALL WORDS) AM 18303 928
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	5	0	26	13	9	48	6	118	13	40	13	11	8	TOTAL F AND V (ALL WORDS) AN 71297 3522
AL	2	24	39	39	6	606	18	1647	44	1614	80	3087	93	2332 124
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	4	92	42	1556	110	676	40	689	44	437	51	551	51	TOTAL F AND V (ALL WORDS) AO 187 31
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	3	16	1975	24	31	376	29	330	20	73	11	214	16	TOTAL F AND V (ALL WORDS) AP 6610 790
	4	42	433	31	48	123	26	111	23	82	15	11	8	9 2 0 0
	5	415	779	48	45	491	34	82	27	64	12	11	8	TOTAL F AND V (ALL WORDS) AQ 59 23
AN	2	37	333	78	64	272	40	62	23	46	15	214	16	0 0 0 0
	3	74	1100	82	124	1386	57	557	64	510	81	528	117	1 0 0 0
	4	235	1524	95	77	965	63	656	66	1209	98	868	76	1 0 0 0
	5	289	1524	137	105	1053	77	646	82	593	72	490	76	1109 105 490 71
AO	2	4	28	3	2	2	2	3	3	0	0	0	0	0 0 0 0
	3	0	68	4	17	1	1	0	0	0	0	1	1	1 0 0 0
	4	0	4	2	5	1	1	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) AR 38547 2942
	5	0	7	6	1	1	1	1	1	0	0	0	0	0 0 0 0
AP	2	20	103	10	103	12	12	35	4	326	4	6	3	9 2 0 0
	3	205	148	17	103	12	12	73	4	4	1	6	3	TOTAL F AND V (ALL WORDS) AS 34428 1419
	4	203	417	23	139	17	17	72	8	326	6	95	7	60 8 0 0
	5	207	211	33	162	16	16	55	14	49	9	95	7	TOTAL F AND V (ALL WORDS) AT 52140 3633
AQ	2	51	517	41	258	31	28	41	15	14	9	95	7	98 19 65 19
	3	249	517	31	85	28	20	55	14	14	9	95	7	139 12 65 19
	4	16	366	16	44	44	20	41	15	14	9	95	7	TOTAL F AND V (ALL WORDS) AT 52140 3633
	5	0	0	0	0	3	1	0	0	0	0	0	0	0 0 0 0
AR	2	474	1325	10	1448	25	25	427	31	326	33	565	30	209 21 64 11
	3	681	2287	70	2699	61	61	993	63	326	33	874	70	TOTAL F AND V (ALL WORDS) AS 34428 1419
	4	459	2119	101	2699	75	75	426	52	1048	81	224	36	98 19 65 19
	5	962	2050	181	989	99	99	426	52	697	51	224	36	TOTAL F AND V (ALL WORDS) AT 52140 3633
AS	2	322	1061	187	433	66	49	360	43	295	45	224	36	139 12 65 19
	3	165	712	135	392	49	28	255	44	295	45	224	36	98 19 65 19
	4	7250	12369	9	57	7	7	505	29	255	32	132	27	139 12 65 19
	5	145	2369	37	1063	37	37	176	21	255	32	132	27	TOTAL F AND V (ALL WORDS) AT 52140 3633
AT	2	505	939	49	472	31	31	149	29	151	18	401	21	98 19 65 19
	3	354	801	85	595	53	53	325	35	162	20	401	21	139 12 65 19
	4	257	582	83	264	36	28	99	23	85	26	319	19	TOTAL F AND V (ALL WORDS) AT 52140 3633
	5	217	294	55	154	28	28	751	15	198	12	868	135	168 15 20 10
	6	229	106	40	416	11	11	456	44	1220	101	665	81	611 95 20 10
	7	5378	416	11	13015	17	17	751	15	198	12	868	135	TOTAL F AND V (ALL WORDS) AT 52140 3633
	8	19	1018	32	1308	37	37	423	47	436	46	47	11	168 15 20 10
	9	50	1510	61	1004	41	41	922	73	529	77	665	81	611 95 20 10
	10	73	2047	71	544	65	65	832	74	1220	101	868	135	TOTAL F AND V (ALL WORDS) AT 52140 3633
	11	260	1114	94	517	59	59	456	44	1220	101	868	135	
	12	202	1228	82	317	40	40	456	44	1220	101	868	135	
	13	397	505	73	317	40	40	456	44	1220	101	868	135	
	14	389	505	73	317	40	40	456	44	1220	101	868	135	

Table 1 Continued

FR	FS	FT	FU	FW	FY	GA	GB	GD	GE	GF	GG	GH																																																																																																																																																																																																																																																																																																																																					
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<table border="1"> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FR</td> <td>7750</td> <td>350</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FS</td> <td>121</td> <td>39</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FT</td> <td>3046</td> <td>141</td> <td>6</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FU</td> <td>3559</td> <td>398</td> <td>78</td> <td>4</td> <td>6</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FW</td> <td>19</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>FY</td> <td>286</td> <td>82</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GA</td> <td>5590</td> <td>655</td> <td>44</td> <td>6</td> <td>7</td> <td>3</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GB</td> <td>29</td> <td>13</td> <td>16</td> <td>4</td> <td>2</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GD</td> <td>38</td> <td>8</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GE</td> <td>13355</td> <td>1174</td> <td>495</td> <td>42</td> <td>408</td> <td>32</td> <td>207</td> <td>44</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GF</td> <td>56</td> <td>12</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GG</td> <td>1104</td> <td>225</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td colspan="12">TOTAL F AND V (ALL WORDS)</td> </tr> <tr> <td>GH</td> <td>9780</td> <td>437</td> <td>351</td> <td>8</td> <td>2</td> <td>1</td> <td>74</td> <td>18</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>													TOTAL F AND V (ALL WORDS)												FR	7750	350	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												FS	121	39	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												FT	3046	141	6	3	2	1	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												FU	3559	398	78	4	6	1	1	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												FW	19	2	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												FY	286	82	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GA	5590	655	44	6	7	3	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GB	29	13	16	4	2	1	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GD	38	8	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GE	13355	1174	495	42	408	32	207	44	0	0	0	0	TOTAL F AND V (ALL WORDS)												GF	56	12	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GG	1104	225	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS)												GH	9780	437	351	8	2	1	74	18	0	0	0	0
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GE	13355	1174	495	42	408	32	207	44	0	0	0	0																																																																																																																																																																																																																																																																																																																																					
TOTAL F AND V (ALL WORDS)																																																																																																																																																																																																																																																																																																																																																	
GF	56	12	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																					
TOTAL F AND V (ALL WORDS)																																																																																																																																																																																																																																																																																																																																																	
GG	1104	225	0	0	0	0	0	0	0	0	0	0																																																																																																																																																																																																																																																																																																																																					
TOTAL F AND V (ALL WORDS)																																																																																																																																																																																																																																																																																																																																																	
GH	9780	437	351	8	2	1	74	18	0	0	0	0																																																																																																																																																																																																																																																																																																																																					

Table 1 Continued

	[Grid of 0s and 1s]																									TOTAL F AND V (ALL WORDS)
GI	[Grid of 0s and 1s]																									5358 597
GK	[Grid of 0s and 1s]																									4 2
GL	[Grid of 0s and 1s]																									2199 413
GM	[Grid of 0s and 1s]																									252 50
GN	[Grid of 0s and 1s]																									2178 231
GO	[Grid of 0s and 1s]																									547 353
GP	[Grid of 0s and 1s]																									9 8
GR	[Grid of 0s and 1s]																									7307 712
GS	[Grid of 0s and 1s]																									1937 304
GT	[Grid of 0s and 1s]																									653 46
GU	[Grid of 0s and 1s]																									2756 350
GV	[Grid of 0s and 1s]																									1 1
GW	[Grid of 0s and 1s]																									16 11
	[Grid of 0s and 1s]																									0 0 0 0
	[Grid of 0s and 1s]																									0 0 0 0

Table 1 Continued

Pair	Frequency Matrix (26 columns)																										TOTAL F AND V (ALL WORDS)					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26						
GY	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) GY 559 99				
GZ	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) GZ 4 1		
HA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HA 36624 1244		
HB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HB 200 33	
HC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HC 90 9	
HD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HD 63 12	
HE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HE 121957 1720	
HF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HF 79 25	
HG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HG 11 7	
HH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HH 39 12	
HI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HI 31931 1084	
HJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HJ 1 1	
HK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) HK 9 8	

Table 1 Continued

HZ	Count Data										TOTAL F AND V (ALL WORDS)	
	0	1	2	3	4	5	6	7	8	9	F	V
0	0	0	0	0	0	0	0	0	0	0	12	2
0	0	0	0	0	0	0	0	0	0	0	0	0
1	52	2	45	2	140	19	142	23	139	37	8463	1161
2	115	12	173	127	624	40	758	43	644	65	178	38
3	67	15	49	10	87	16	242	23	488	46	668	64
4	65	15	16	10	159	33	123	19	488	46	72	21
5	56	17	2	2	239	23	123	19	488	46	72	21
0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	2	6	2	7	1	0	0	1	1	3117	394
2	13	14	18	6	7	1	0	0	1	1	0	0
3	11	14	18	2	7	1	0	0	1	1	0	0
4	3	14	46	8	7	4	626	24	176	11	0	0
5	20	15	8	8	36	6	13	6	176	11	0	0
6	68	12	8	4	38	6	13	6	176	11	0	0
7	69	12	8	4	38	6	13	6	176	11	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	8	21	29	4	595	28	784	46	436	62	23524	2193
2	45	21	42	29	1106	47	899	55	436	62	1227	95
3	41	19	190	4	922	46	1219	50	496	46	247	40
4	321	39	190	4	648	51	548	42	737	41	432	78
5	596	52	308	28	514	53	548	42	737	41	432	78
6	242	40	84	28	514	53	548	42	737	41	432	78
7	42	36	88	20	514	53	548	42	737	41	432	78
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1304	19	2293	13	345	21	187	25	64	16	11884	808
2	676	25	240	16	345	21	187	25	64	16	11884	808
3	222	25	240	16	345	21	187	25	64	16	11884	808
4	222	30	225	24	384	22	539	31	74	27	33	10
5	18	30	152	22	446	25	581	26	52	16	58	15
6	107	22	260	6	208	31	425	26	74	27	10	7
7	36	16	74	10	104	15	581	26	52	16	10	7
0	0	0	0	0	0	0	0	0	0	0	0	0
1	170	5	609	3	185	32	240	61	174	26	12936	1443
2	445	21	609	3	185	32	240	61	174	26	12936	1443
3	555	27	223	18	1222	72	876	30	1469	142	38	10
4	278	27	455	17	876	30	1469	142	174	26	942	118
5	96	31	152	17	462	21	194	44	741	109	10	7
6	45	20	152	17	462	21	194	44	741	109	10	7
7	52	12	51	14	136	20	102	21	149	42	10	7
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1002	7	213	10	28	3	0	0	0	0	7083	463
2	185	10	48	10	50	15	0	0	0	0	7083	463
3	122	11	141	18	41	4	125	24	0	0	0	0
4	99	10	141	18	41	4	125	24	0	0	0	0
5	50	13	78	16	86	22	141	12	66	8	0	0
6	517	13	25	7	17	11	215	35	137	5	6	1
0	0	0	0	0	0	0	0	0	0	0	0	0
1	466	9	20	4	142	8	10	4	3	2	9729	749
2	635	10	36	4	215	16	169	8	3	2	9729	749
3	248	25	479	26	360	26	220	15	124	7	0	0
4	919	43	131	26	360	26	220	15	124	7	0	0
5	533	55	287	27	321	30	46	22	90	20	0	0
6	254	41	100	17	321	30	46	22	90	20	0	0
7	143	34	100	17	321	30	46	22	90	20	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0	0	33	14
2	0	0	0	0	0	0	0	0	0	0	33	14
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	6	3	0	0	1	1	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	1	0	0	0	0	0	0	0	0	1	1
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	14	0	2	2	4	1	5	4	13	6	2137	130
2	8	0	2	2	9	1	5	4	13	6	2137	130
3	1	0	2	2	4	1	5	4	13	6	2137	130
4	1	0	2	2	4	1	5	4	13	6	2137	130
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	101	7	434	24	738	22	162	14	150	19	16708	1488
2	312	20	401	24	600	22	162	14	150	19	16708	1488
3	170	23	480	26	237	29	436	52	150	19	16708	1488
4	65	14	480	26	315	42	183	33	130	35	29	4
5	52	11	716	37	315	42	183	33	130	35	29	4
6	109	33	260	26	366	28	160	40	68	27	5	3

Table 1 Continued

IM	2 3 4 5 6 7 8 9	6 0 0 13 14 270 234 634	1 0 0 3 3 3 4	2741 1659 445 445 962 59 82	6 12 24 26 30 18 16	96 101 132 304 133 163	11 12 21 31 26 17	101 111 264 217 137	4 11 15 19 16	31 65 34 157	3 13 7 23	26 54 245	6 13 6	TOTAL F AND V (ALL WORDS) IM 12261 865
IN	2 3 4 5 6 7 8 9	21341 39 18338 24 915 883 2124 1890	1 1 5 7 8 0 1	188 2268 1531 925 1177 448 264	12 56 67 91 100 91 45	712 3402 992 605 667 66 366	28 76 60 73 66 4 45	1174 4371 61 1012 1144 77 418	61 203 63 63 1474 147 68	1089 8332 1387 615 194	112 659 112 618	808 5648 618	93 679 80	TOTAL F AND V (ALL WORDS) IN 87713 6604
IO	2 3 4 5 6 7 8 9	1890 18 2 2 3 3 3	5 32 46 26 88 13 59	2 5 8 9 8 14 10	47 270 49 24 21 4	2 14 9 3 4 2	170 1134 957 469 266	11 23 32 13 19	53 9 46 39 11	27 11 1057	11 82 81	15 9 8	TOTAL F AND V (ALL WORDS) IO 25140 2270	
IP	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	92 137 31 57 38 26 27	10 9 5 3 8 5	257 103 17 120 103 42	11 14 10 9 26 12	35 45 46 67 205	3 8 12 19 16	35 6 66 9	3 9 4	42 15 232	4 4 6	TOTAL F AND V (ALL WORDS) IP 3196 475	
IQ	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	0 0 91 9 0 1	0 1 2 3 0 1	0 60 1 3	0 2 2 1 1	0 18 14 4	0 6 2	0 10 4	0 4 3	0 0 61	0 0 2	TOTAL F AND V (ALL WORDS) IQ 434 56	
IR	2 3 4 5 6 7 8 9	50 56 19 19 19 22 22	356 697 1944 444 192 596 277	5 19 30 29 35 44 26	297 349 344 118 96 77	10 28 20 31 25 11	2761 419 186 246 100	9 22 25 24 16	78 288 373 81	8 19 27 8	24 58 16	3 16 7	TOTAL F AND V (ALL WORDS) IR 11564 768	
IS	2 3 4 5 6 7 8 9	1009 17 30 56 66 33 87 18	7003 866 246 853 978 907 659	4 28 25 55 66 91 90	5216 328 425 221 198 225	17 32 35 39 33 24	529 546 266 785 525	29 60 45 74 59	231 805 214 499	34 99 32 50	90 244	24 41	TOTAL F AND V (ALL WORDS) IS 40825 2548	
IT	2 3 4 5 6 7 8 9	10 30 56 66 33 87 18	415 7869 320 1800 1013 307 308	9 26 34 38 47 41 28	322 1268 921 1026 594 233	19 35 30 53 43 45	350 291 442 1299 553	17 46 36 67 52	476 718 165 1036	29 62 23 59	255 1186 137	28 113 37	TOTAL F AND V (ALL WORDS) IT 40740 2066	
IU	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	0 0 4 5 3 1 1	0 1 0 2 1 1 1	0 17 22 4 0	0 2 1 2 0	0 119 5 2 0	0 15 2 2 0	0 74 2 0	0 17 1 0	0 0 18 1	0 0 9 1	TOTAL F AND V (ALL WORDS) IU 400 111	
IV	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	0 0 11 1067 420 132 189 119	0 11 22 22 14 21 23	0 181 130 298 97 104	1 8 14 7 9	0 219 233 201 76	0 13 23 18 12	0 203 326 90	0 19 20 17	0 321 79	0 23 12	TOTAL F AND V (ALL WORDS) IV 9159 782	
IW	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	0 0 1 0 0 0 0	0 1 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) IW 23 8	
IX	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	248 20 24 7 5 16	4 0 4 4 3 3	5 0 4 4 0 0	3 0 0 0 0 0	32 17 0 0	3 4 0 0	7 2 2	4 1 1	9 0 0	1 0 0	TOTAL F AND V (ALL WORDS) IX 668 51	
IY	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) IY 7 5	

Table 1 Continued

KS	2	0	0	1	1	22	5	872	68	409	57	85	5	TOTAL F AND V (ALL WORDS) KS 1709 247
KT	4	0	0	0	0	0	0	3	1	0	0	0	0	TOTAL F AND V (ALL WORDS) KT 52 15
KU	3	0	0	0	0	0	0	50	6	0	0	0	0	TOTAL F AND V (ALL WORDS) KU 80 35
KV	4	0	0	0	0	0	0	61	12	0	0	0	0	TOTAL F AND V (ALL WORDS) KV 1 1
KW	4	0	0	0	0	0	0	22	10	4	2	0	0	TOTAL F AND V (ALL WORDS) KW 94 33
KY	4	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) KY 379 96
LA	6	6	1	1	1	1	1	1	1	1	1	1	1	TOTAL F AND V (ALL WORDS) LA 17871 1977
LB	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LB 227 71
LC	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LC 308 83
LD	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LD 10931 362
LE	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LE 30807 3246
LF	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LF 1991 97
LG	3	3	3	3	3	3	3	3	3	3	3	3	3	TOTAL F AND V (ALL WORDS) LG 205 55

Table 1 Continued

NA	2 3 4 5 6 7 8 9	0 25 365 300 556 379 438 135	0 8 227 24 21 16	1 17 67 123 137 246 86	1 4 10 15 19 26 23	30 205 219 515 136 170	13 18 24 39 30 24	127 93 139 74 41	15 14 33 29 15	101 133 248 133	26 22 34 37	77 993 235	23 36 47	TOTAL F AND V (ALL WORDS) NA 10892 1423	62 13 107 15 87 11
NB	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 6 4 4 10 4	0 0 3 2 4 3	0 0 5 2 2 10 2 2	0 0 2 2 2	0 0 13 6 5	0 0 2 2 4	0 0 5 0 35	0 0 1 7	0 0 0 0	0 0 0 0	TOTAL F AND V (ALL WORDS) NB 160 72	0 0 0 0 0 0
NC	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	20 54 22 65 23 21 49 64	1 4 5 5 12 18 30 53	10 98 185 488 407 333	1 23 21 46 38 32	5 580 270 203 348	3 33 21 29 30	0 0 522 179 146	0 0 26 20 16	0 0 1146 55	0 28	TOTAL F AND V (ALL WORDS) NC 13807 1209	0 0 818 71 0 0
ND	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	29268 10225 9255 3399 158 374 319	5 3 8 19 22 33 53	2148 835 768 690 645 435	25 40 60 84 70 53	1335 297 288 419 182	21 23 46 42 28	2279 480 472 311	41 32 39 39	581 95 263	38 24 39	TOTAL F AND V (ALL WORDS) ND 48318 1558	316 43 94 17 88 30	
NE	2 3 4 5 6 7 8 9	1671 1213 1035 550 437 163 436	1 4 4 4 4 2 2	3294 552 154 144 56 58 29	2 4 12 13 15 16 11	1715 953 276 742 185 262	35 56 34 27 32 30	703 1516 532 116 228	57 124 64 26 38	587 733 839 78	54 88 84 17	588 64 1396 128	64 102	TOTAL F AND V (ALL WORDS) NE 26650 2259	447 67 735 79 407 65
NF	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 3 45 53 184 198	0 3 7 15 24 26	0 0 7 80 150 133	0 0 3 16 15 22	0 0 26 9 26	0 0 2 3 4	0 0 0 8 2	0 0 0 4 2	0 0 0 0 0	0 0	TOTAL F AND V (ALL WORDS) NF 1932 301	1 1 0 0 0 0
NG	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	181 114 507 89 64	2 2 6 10 16 16 12	1285 392 816 405 409 174	31 28 47 56 50 27	3378 787 325 152 30	40 28 21 19 6	3874 258 331 133	163 32 19 31	7660 503 87 33	593 87	TOTAL F AND V (ALL WORDS) NG 37217 3877	5224 647 242 47 4017 540
NH	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	5 45 50	3 3 8 10 11	3 1 11 4 21	3 1 4 2	0 1 16 4	0 1 1 6 2	0 0 0 3	0 0 0 3	0 0 0 2 2	0 0	TOTAL F AND V (ALL WORDS) NH 366 106	0 0 0 0 0 0
NI	2 3 4 5 6 7 8 9	18 4 4 4 4 4 4 4	1 1 1 1 1 1 1 1	11 45 33 23 13 116	2 2 2 2 2 2 2	6 52 21 31 22 109	6 2 2 2 2 2	1 103 235 159	1 27 89 34 32	13 154 812 327	4 30 97 32	38 137 1276 115	13 27	TOTAL F AND V (ALL WORDS) NI 12305 1493	8 4 46 16 11 8
NJ	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	47 48 77 36 54	0 2 6 5 7	0 0 20 13	0 0 2 2	0 0 0 2	0 0 0 1	0 0 0 1	0 0 0 1	0 0 0 0	0 0	TOTAL F AND V (ALL WORDS) NJ 374 57	0 0 0 0 0 0
NK	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	7 11 49 1 1	1 1 3 3 1 1	325 128 98 137 16 10	23 15 22 23 10 6	726 120 111 297 24	21 17 20 24 9	8 3 14 12	3 1 6 4	7 3 1 1	4 3	TOTAL F AND V (ALL WORDS) NK 2223 263	1 1 1 1 7 3
NL	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	1747 166 19 63 32	0 2 8 9 10	3 10 7 17 1	0 2 4 3 1	0 77 38 23 13	0 6 3 7 1	0 0 26 2 9	0 0 6 1 5	0 0 210 0	0 0	TOTAL F AND V (ALL WORDS) NL 2675 124	0 0 148 3 0 0
NM	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 2 2 4 5 4	0 10 8 3 1 0	0 5 3 1 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0	0 0	TOTAL F AND V (ALL WORDS) NM 815 77	0 0 0 0 0 0

Table 1 Continued

OA	2	11	0	8	2	1	1	3	2	0	0	TOTAL F AND V (ALL WORDS) OA 2748 343					
	3	11	0	64	28	11	10	119	6	165	13	0	0	0	0	0	
	4	11	0	62	25	11	10	16	3	6	16	12	4	0	0	0	
	5	11	0	26	23	11	10	16	3	6	13	6	3	94	22	13	3
	6	11	0	15	23	10	10	8	2	6	3	6	3	54	22	16	10
	7	11	0	15	20	10	10	8	2	6	3	6	3	54	22	0	0
	8	11	0	15	14	10	10	8	2	6	3	6	3	54	22	0	0
OB	2	11	0	31	9	3	3	3	3	1	1	TOTAL F AND V (ALL WORDS) OB 3471 335					
	3	11	0	103	18	7	7	8	3	2	2	0	0	0	0	3	1
	4	11	0	119	18	7	7	8	3	2	2	1	1	0	0	0	0
	5	11	0	263	23	7	7	8	3	2	2	2	2	0	0	3	1
	6	11	0	138	33	7	7	8	3	2	2	2	2	0	0	0	0
	7	11	0	65	14	7	7	8	3	2	2	2	2	12	3	3	0
	8	11	0	14	7	4	4	10	4	10	4	2	2	1	1	0	0
OC	2	11	0	23	2	2	2	6	3	0	0	TOTAL F AND V (ALL WORDS) OC 5381 634					
	3	11	0	131	14	2	2	6	3	0	0	0	0	0	0	0	0
	4	11	0	412	17	2	2	13	3	0	0	0	0	0	0	0	0
	5	11	0	652	28	2	2	13	3	0	0	0	0	0	0	0	0
	6	11	0	491	35	2	2	8	3	40	17	0	0	0	0	0	0
	7	11	0	251	41	2	2	15	2	16	6	29	10	2	2	0	0
	8	11	0	174	30	2	2	176	24	14	8	2	2	2	2	25	4
OD	2	11	0	361	7	11	11	362	5	412	5	TOTAL F AND V (ALL WORDS) OD 6670 540					
	3	11	0	407	15	11	11	131	8	268	13	47	17	0	0	20	16
	4	11	0	433	15	11	11	131	8	268	13	47	17	0	0	86	5
	5	11	0	541	38	16	16	21	11	60	10	74	4	0	0	5	97
	6	11	0	81	30	14	14	56	11	69	21	11	2	0	0	11	15
	7	11	0	62	18	12	12	26	13	69	21	11	2	0	0	0	0
	8	11	0	40	16	12	12	26	13	69	21	11	2	0	0	0	0
OE	2	11	0	90	10	5	5	14	3	15	4	TOTAL F AND V (ALL WORDS) OE 1551 163					
	3	11	0	771	14	9	9	39	8	60	2	4	2	1	1	1	1
	4	11	0	121	7	1	1	0	0	1	1	2	2	2	2	1	1
	5	11	0	132	10	2	2	0	0	5	2	2	2	2	2	1	1
	6	11	0	28	9	3	3	0	0	5	2	2	2	2	2	1	1
	7	11	0	11	5	2	2	0	0	5	2	2	2	2	2	1	1
	8	11	0	1	3	2	2	0	0	5	2	2	2	2	2	1	1
OF	2	11	0	0	0	3	3	46	3	0	0	TOTAL F AND V (ALL WORDS) OF 39344 206					
	3	11	0	70	4	3	3	7	6	17	8	25	3	0	0	0	0
	4	11	0	11	4	3	3	8	2	5	2	2	2	2	2	0	0
	5	11	0	127	7	3	3	8	2	5	2	2	2	2	2	0	0
	6	11	0	8	7	3	3	8	2	5	2	2	2	2	2	0	0
	7	11	0	15	4	8	8	1	1	5	2	2	2	2	2	0	0
	8	11	0	10	4	8	8	1	1	5	2	2	2	2	2	0	0
OG	2	11	0	116	6	4	4	1	1	3	2	TOTAL F AND V (ALL WORDS) OG 2943 453					
	3	11	0	115	13	1	1	1	1	3	2	8	2	0	0	0	0
	4	11	0	85	16	1	1	1	1	3	2	8	2	0	0	0	0
	5	11	0	29	13	1	1	1	1	3	2	8	2	0	0	0	0
	6	11	0	60	12	4	4	12	3	34	7	8	2	0	0	0	0
	7	11	0	280	9	4	4	74	12	31	12	17	5	40	6	8	4
	8	11	0	27	8	6	6	74	9	31	12	17	5	40	6	69	10
OH	2	11	0	2	2	0	0	1	1	2	1	TOTAL F AND V (ALL WORDS) OH 843 74					
	3	11	0	381	4	2	2	1	0	2	1	0	0	0	0	0	0
	4	11	0	13	4	1	1	1	0	2	1	0	0	0	0	0	0
	5	11	0	36	7	1	1	13	1	4	1	0	0	0	0	0	0
	6	11	0	62	4	1	1	2	1	0	0	32	3	0	0	5	2
	7	11	0	57	10	1	1	3	1	0	0	3	1	0	0	0	0
	8	11	0	14	2	1	1	3	1	0	0	3	1	0	0	0	0
OI	2	11	0	2	2	1	1	0	0	0	0	TOTAL F AND V (ALL WORDS) OI 3202 345					
	3	11	0	200	15	9	9	46	12	0	0	1	1	0	0	0	0
	4	11	0	1325	23	1	1	0	0	0	0	1	1	0	0	0	0
	5	11	0	343	26	130	11	39	13	99	19	48	7	0	0	0	0
	6	11	0	137	21	43	6	17	8	27	9	48	7	0	0	0	0
	7	11	0	68	11	27	5	66	9	25	13	42	12	18	7	1	1
	8	11	0	34	13	10	3	66	9	25	13	42	12	18	7	1	1
OJ	2	11	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) OJ 222 19					
	3	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	11	0	0	0	93	1	0	0	0	0	0	0	0	0	0	0
	7	11	0	0	0	68	1	0	0	3	1	0	0	0	0	0	0
	8	11	0	0	1	15	2	0	0	3	1	0	0	0	0	0	0
OK	2	11	0	2	2	9	9	68	5	4	4	TOTAL F AND V (ALL WORDS) OK 2937 220					
	3	11	0	44	11	18	18	45	6	6	6	41	6	0	0	0	0
	4	11	0	59	6	23	23	27	7	6	6	8	3	0	0	0	0
	5	11	0	21	4	21	8	36	4	25	3	41	6	0	0	0	0
	6	11	0	6	3	21	7	36	4	25	3	41	6	0	0	0	0
	7	11	0	4	3	21	8	36	4	25	3	41	6	0	0	0	0
	8	11	0	1	1	33	7	36	4	25	3	41	6	0	0	0	0
OL	2	11	0	12	3	6	6	33	11	606	8	TOTAL F AND V (ALL WORDS) OL 12768 1381					
	3	11	0	1386	40	15	15	127	26	606	8	276	11	8	5	6	5
	4	11	0	546	55	22	22	109	20	354	29	90	22	62	9	6	5
	5	11	0	1293	79	33	33	437	39	178	34	36	14	0	0	0	0
	6	11	0	1028	93	200	200	437	39	178	34	36	14	0	0	0	0
	7	11	0	831	100	135	19	106	25	201	34	36	14	0	0	0	0
	8	11	0	844	77	171	31	106	25	201	34	36	14	0	0	0	0
OM	2	11	0	68	4	9	9	54	10	247	15	TOTAL F AND V (ALL WORDS) OM 20158 1159					
	3	11	0	2940	30	12	12	500	16	207	18	254	13	36	11	63	16
	4	11	0	802	42	17	17	146	19	207	18	254	13	36	11	63	16
	5	11	0	826	22	20	20	138	18	160	16	30	8	0	0	0	0
	6	11	0	1037	56	21	21	123	21	160	16	30	8	0	0	0	0
	7	11	0	1167	76	21	21	123	21	160	16	30	8	0	0	0	0

Table 1 Continued

PA	2 3 4 5 6 7 8 9	32 271 1661 925 933 1144 569 383	1 13 36 57 92 105 95 84	2 28 311 611 75 24 99	1 2 12 15 13 13 10	41 53 132 101 337 227	1 3 11 16 18 24	8 9 333 192	2 4 16 15 17	1 4 41 124	1 14 14 15	1 10 20	1 4 6	TOTAL F AND V (ALL WORDS) PA 10963 1034			
PB	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PB 17 10			
PC	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PC 9 7			
PD	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PD 8 6			
PE	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PE 16912 1509			
PF	2 3 4 5 6 7 8 9	404 124 364 1525 883 460 442	3 22 38 47 65 56 65	333 447 286 567 435 318	1 4 10 12 21 27 15	563 548 542 386 627 247	14 37 23 18 36 37	148 737 333 443 275	12 97 40 26 43	237 627 143 66	10 84 27 10	5 15	3 19 4	TOTAL F AND V (ALL WORDS) PF 261 7 29 5			
PG	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PG 16 8			
PH	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PH 2975 518			
PI	2 3 4 5 6 7 8 9	66 148 118 65 202 70	2 2 16 9 4 15	33 44 37 7 4 24	2 2 3 5 2 2	6 26 22 22 39	0 1 9 10 10	42 18 45 108 55	4 5 10 21 14	56 6 24 109	2 3 3 8	29 9 0	3 3	TOTAL F AND V (ALL WORDS) PI 11 2 38 5			
PJ	2 3 4 5 6 7 8 9	27 32 34 376 158 6	3 20 3 3 2	33 44 21 18 108 97	0 0 0 0 0 0	11 17 17 13	0 7 18 21 19	3 72 442 190 95	2 16 67 18 11	0 0 31 376 66	0 10 63 21	1 6 57	1 4 15	TOTAL F AND V (ALL WORDS) PJ 5 1 0 0			
PK	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PK 32 10			
PL	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PL 9374 692			
PM	2 3 4 5 6 7 8 9	56 113 71 51 44 10	3 22 3 3 2	30 12 7 37 14	0 1 7 5 9	14 33 380 309 327	0 7 28 28 33	0 1572 320 427 173	0 18 32 28 23	356 72 34	10 8 10	50 14	0 3 4	TOTAL F AND V (ALL WORDS) PM 120 4 0 0			
	2 3 4 5 6 7 8 9	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	TOTAL F AND V (ALL WORDS) PM 615 24			

Table 1 Continued

RY	2	1	1	272	7	1056	14	1299	47	582	46	1555	79	TOTAL F AND V (ALL WORDS) RY 8402 566
	3	5	2	3	28	3	2	2	1	4	1	0	0	
RZ	4	16	2	211	3	56	1	197	12	0	0	0	0	TOTAL F AND V (ALL WORDS) RZ 30 17
	5	2	0	34	5	28	3	102	5	5	4	0	0	
SA	6	2	0	0	0	2	1	0	0	0	0	1	1	TOTAL F AND V (ALL WORDS) SA 8635 766
	7	0	0	0	0	10	3	0	0	0	0	1	1	
SB	8	0	0	1	1	20	7	16	9	11	6	35	4	TOTAL F AND V (ALL WORDS) SB 310 66
	9	0	0	4	4	54	16	71	9	45	12	119	13	
SC	2	120	3	0	0	32	7	151	16	66	12	275	11	TOTAL F AND V (ALL WORDS) SC 5181 809
	3	323	4	0	0	135	10	20	7	5	0	0	0	
SD	4	44	2	0	0	44	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) SD 262 30
	5	17	0	0	0	6	1	0	0	0	0	0	0	
SE	6	382	3	0	1	16	7	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) SE 3168 1898
	7	792	4	0	5	229	10	1506	120	863	50	1865	52	
SF	8	498	7	0	2	136	29	1322	44	856	85	848	97	TOTAL F AND V (ALL WORDS) SF 521 53
	9	312	8	0	1	176	26	212	27	172	25	152	18	
SG	2	231	2	0	0	417	39	401	42	18	8	0	0	TOTAL F AND V (ALL WORDS) SG 60 22
	3	0	0	0	0	0	0	0	0	0	0	0	0	
SH	4	1424	10	589	1	1074	24	4759	60	863	50	1865	52	TOTAL F AND V (ALL WORDS) SH 13002 1189
	5	1172	23	676	4	562	50	1506	120	856	85	848	97	
SI	6	985	39	59	2	689	25	1322	44	172	25	152	18	TOTAL F AND V (ALL WORDS) SI 19341 1639
	7	1941	73	20	4	260	22	212	27	18	8	0	0	
SJ	8	1758	82	1	1	645	51	588	36	106	18	228	18	TOTAL F AND V (ALL WORDS) SJ 3 2
	9	837	67	5	3	316	39	401	42	264	38	995	117	
SK	2	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL F AND V (ALL WORDS) SK 1819 234
	3	63	6	128	1	241	12	14	4	0	0	6	1	
9	4	57	6	18	4	63	7	47	4	8	4	35	9	24 11 0 0
	5	103	13	401	4	38	7	28	6	11	5	5	2	
	6	110	16	70	2	19	14	10	4	4				
	7	107	18	3	2	2	2	2	4					
	8	81	18	0	1	6	4	7	4					
	9	21	8	5	1	6	4	7	4					

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