

# LIVING TEN-SQUARES

A. ROSS ECKLER

Morristown, New Jersey

"A New Approach to the Ten Square" in the February 2002 Word Ways unsuccessfully sought to construct a ten-square out of names such as Elmer Davis or James Smith, all belonging to living United States residents or deceased Social Security beneficiaries. Steve Root suggested that present-day computer power permits a more ambitious program: instead of processing independent 5x5 chunks of first and last names, why not construct full ten-squares consisting of names of all lengths?

The website <http://www.census.gov/genealogy/names> yields 7 male and female two-letter first names having probabilities of at least 0.004. Similarly, there are 112, 348, 644, 726, 534 and 251 such first names of 3 through 8 letters. Each of the two-letter first names can be matched with 390 eight-letter last names, again with probabilities exceeding 0.004, for a total of 2730 hypothetical ten-letter names. Similarly, the 731, 907, 700, 410, 61 and 14 last names of 7 through 2 letters can be combined with first names to yield a total of 1,184,786 hypothetical people. Steve then reduced this to 500,347 names having the largest combined probability of occurrence, and started the computer looking, a job of several days duration.

The computer came up with 84 squares of candidates. Those listed below contain people found in telephone white pages, the number given by the integer at the foot of each column (+ indicates ten or more). A \* identifies one or more people listed in the Social Security death records, and a blank identifies someone listed in other Internet files (see below).

A I D A . R A N G E L	S A R A . R A N G E L	L E O . W A D D E L L
I R E N E . L O W R Y	A D E L E . L O W R Y	E M M A . N E E L E Y
D E A N N A . N E I L	R E G I N A . N E I L	O M A R . G A L V A N
A N N I E . N A N C E	A L I C E . N A N C E	W A R R E N . L I N D
R E N E . P A R H A M	R E N E . P A R H A M	A N G E L . H A N N A
A L A N A . M O O R E	A L A N A . M O O R E	D E A N . H O P P E R
N O N A . R O B L E S	N O N A . R O B L E S	D E L L A . P O O L E
G W E N . H O L M E S	G W E N . H O L M E S	E L V I N . P O O L E
E R I C A . R E E S E	E R I C A . R E E S E	L E A N N E . L L I S
L Y L E . M E S S E R	L Y L E . M E S S E R	L Y N D A . R E E S E
2 7 2 9 5 4 8 8 1	+ * 1 7 5 4 8 8 1	1 1 5 9 2 + 3 3 3 5

E V E . R A N D A L L	E V E . R A N D A L L	E V E . R A N D A L L
V E R A . N E E L E Y	V E R A . N E E L E Y	V E R A . N E E L E Y
E R I C . G A L V A N	E R I C . G A L V A N	E R I C . G A L V A N
R A C H E L . L I N D	R A C H E L . L I N D	R A C H E L . L I N D
A N G E L . H A N N A	A N G E L . H A N N A	A N G E L . H A N N A
N E A L . H O P P E R	N E A L . H E R M A N	N E A L . H A R M A N
D E L L A . P O O L E	D E L L A . R O C H E	D E L L A . R O C H E
A L V I N . P O O L E	A L V I N . M C R A E	A L V I N . M C R A E
L E A N N E . L L I S	L E A N N A . H A L L	L E A N N A . H A L L
L Y N D A . R E E S E	L Y N D A . N E E L Y	L Y N D A . N E E L Y
1 1 9 4 2 2 3 + 3 5	1 1 9 4 2 3 * 4 6 2	1 1 9 4 2 3 * 4 6 2

EVERANDALL  
 VERANELEY  
 ERIC.GALVAN  
 RACHEL.LIND  
 ANGEL.HANNA  
 NEAL.HILTON  
 DELLA.LAYNE  
 ALVIN.TYREE  
 LEANN.ONEAL  
 LYNDA.NEELY  
 11942\*2112

EVERANDALL  
 VERANELEY  
 ERIC.GALVAN  
 RACHEL.LIND  
 ANGEL.HANNA  
 NEAL.HOLDER  
 DELLA.LEARY  
 ALVIN.DAVID  
 LEANN.ERICE  
 LYNDA.RYDER  
 1194231+4

LEOLA.ODELL  
 ESTELLA.LEE  
 OTTO.LARSON  
 LEONA.BRINK  
 ALLAN.REECE  
 OLA.BRANDON  
 DARREN.DUNN  
 ELSIE.DUPRE  
 LEON.CONRAD  
 LEN.KENNEDY  
 \*9+\*31+162

LEOLA.ODELL  
 ESTELLA.LEE  
 OTTO.LARSON  
 LEONA.BRINK  
 ALLAN.REECE  
 OLA.BRANDON  
 DARREN.GUNN  
 ELSIE.DUPRE  
 LEON.CONRAD  
 LEN.KENNEDY  
 \*9+\*312162

LEOLA.ODELL  
 ESTELLA.LEE  
 OTTO.LARSON  
 LEONA.BRINK  
 ALLAN.REECE  
 OLA.BRANDON  
 DARREN.NUNN  
 ELSIE.DUPRE  
 LEON.CONRAD  
 LEN.KENNEDY  
 \*9+\*311162

EDDIE.PONCE  
 DEAN.SEWELL  
 DANETTE.LEE  
 INEZ.HENSON  
 ESTHER.ROSA  
 PETER.GANTT  
 OWEN.RAINEY  
 NELSON.NOEL  
 CLEO.STEELE  
 ELENA.TYLER  
 2+221232+\*

PEARL.ISAAC  
 EDNA.ARANDA  
 ANNE.RENNER  
 RAER.RANDALL  
 LARA.BERGER  
 IRENE.LARGE  
 SANDRA.HORN  
 ANNA.GROGAN  
 ADELE.GRACE  
 CARL.RENNER  
 427111+6\*+

PEARL.ISAAC  
 EDNA.ARANDA  
 ANDY.RENNER  
 RAY.RANDALL  
 LARA.BERGER  
 IRENE.LARGE  
 SANDRA.HORN  
 ANNA.GROGAN  
 ADELE.GRACE  
 CARL.RENNER  
 423+11+6\*+

PEARL.ISAAC  
 EDNA.ARANDA  
 ANNE.RENNER  
 RAER.RANDALL  
 LARA.BERGER  
 IRENE.LARGE  
 SANDRA.DORN  
 ANNA.GROGAN  
 ADELE.GRACE  
 CARL.RENNER  
 42711156\*+

PEARL.ISAAC  
 EDNA.ARANDA  
 ANDY.RENNER  
 RAY.RANDALL  
 LARA.BERGER  
 IRENE.LARGE  
 SANDRA.DORN  
 ANNA.GROGAN  
 ADELE.GRACE  
 CARL.RENNER  
 423+1156\*+

OLGA.NEWELL  
 LEONA.DALEY  
 GORDON.LINN  
 ANDY.MATSON  
 NAOMI.BEARD  
 EDNA.BARBEE  
 WALTER.HAHN  
 ELISA.BACON  
 LENORE.HOWE  
 LYNN.DENNEY  
 11+131+18

OLGA.NEWELL  
 LEONA.DALEY  
 GORDON.LINN  
 ANDY.MATSON  
 NAOMI.BEERS  
 EDNA.BORDEN  
 WALTER.GARY  
 ELISE.DAVID  
 LENORE.RICE  
 LYNN.SNYDER  
 11+1\*2+36+

O L G A . N E W E L L	O L G A . N E W E L L	O L G A . N E W E L L
L E O N A . D A L E Y	L E O N A . D A L E Y	L E O N A . D A L E Y
G O R D O N . L I N N	G O R D O N . L I N N	G O R D O N . L I N N
A N D Y . M A T S O N	A N D Y . M A T S O N	A N D Y . M A T S O N
N A O M I . B E E R S	N A O M I . B E E R S	N A O M I . B E E R S
E D N A . B U R D E N	E D N A . B O R D E N	E D N A . B U R D E N
W A L T E R . G A R Y	W A L T E R . C A R Y	W A L T E R . C A R Y
E L I S E . D A V I D	E L I S E . D A V I D	E L I S E . D A V I D
L E N O R E . R I C E	L E N O R E . R I C E	L E N O R E . R I C E
L Y N N . S N Y D E R	L Y N N . S N Y D E R	L Y N N . S N Y D E R
1 1 + 1 * 3 + 3 6 +	1 1 + 1 * 2 + 3 6 +	1 1 + 1 * 3 + 3 6 *

C H A D . A T W E L L	E V E . R A N D A L L
H E L E N . R A M E Y	V E R A . N E E L E Y
A L A N . G I L M A N	E R I C . G A L V A N
D E N N I S . L A N D	R A C H E L . L I N N
A N G I E . H A N N A	A N G E L . H A N N A
T R I S H A . C O B B	N E A L . H O L M A N
W A L L A C E . R E A	D E L L A . L A I R D
E M M A . N O R M A N	A L V I N . M I N O R
L E A N N . B E A R D	L E A N N A . R O S E
L Y N D A . B A N D Y	L Y N N . A N D R E W
7 + + + 5 2 * + 2	1 1 9 3 2 3 * 5 4 9

Nona Robles came in fourth among 178 women in the Schofield Hawaii 25k race on October 1 2000. John and Elisa Bacon are missionaries to Indian Land, USA. Lynda Ryder gave a conference paper at the 1995 meeting of the Aboriginal Studies Association, and is a member of the Etobicoke Rotary Club. Lynda Bandy received her BA in Spanish from the University of South Carolina, and is a teacher in the Dade County (Florida) public schools.

The paragraph below can be skipped by the non-mathematically-inclined reader.

If 500,326 names can generate 84 ten-squares, a simple scaling argument predicts that approximately 320,000 names should generate, on the average, one square. (In actuality, it took some 400,000 names to yield one square.) In the February 1993 Word Ways, Chris Long, forming "words" by drawing ten letters independently and at random according to their relative occurrences in English text, predicted that a set of 247,718 such "words" would, on the average, be needed to produce a single ten-square. As can be seen from Steve Root's experience, this estimate is optimistic—in reality, well over three hundred thousand words are needed.