NUMERICALLY EQUIVALENT LETTER REPLACEMENTS

SUSAN THORPE
Great Missenden, Buckinghamshire, England
(dathorpe@waitrose.com)

Readers will be familiar with assigning A=1, B=2 through Z=26 to find the letter total of a word. Most of the words in this article can be found in the OED Second Edition. dfpf = A Dictionary of the Flowering Plants & Ferns, CUP 1966. Clafouti (cherry flan) can be found in recipe books.

WHOLE WORD TOTALS

Words with numerically-identical totals sometimes have other affinities. They may be synonyms: SAME = ALIKE = 38. In *Mathematical Equivalence* (Feb. 1986), Dmitri Borgmann provided examples of numerically-identical antonyms: DUCK = DRAKE = 49, HEAT = COLD = 34, BUY = SELL = 48, and THIN = THICK = 51. In *Century Words* (Feb. 1993), I searched for words with the special total of 100. All these examples of numerical equivalence are concerned exclusively with the numerical total of the whole word. By way of contrast, it is possible to split a word into two or more groups of letters and consider the numerical total of each group.

GROUP TOTALS 1. PATTERNS

TAUTONYMS

In *Numerical Tautonyms* (Feb. 1970), Darryl Francis listed words which split into two groups of *n* letters each to make numerical tautonyms. In these examples, *n* = 2, 3, 4, 5, 6, 7, and 9 respectively: PI.NK (25,25), SER.MON (44,44), BARO.NIAL (36,36), MEDIT.ATING (51,51), ABSTRU.SENESS (81,81), AMMONIF.ICATION (71,71), and BIOBIBLIO.GRAPHICAL (75,75). In Nov. 1970 and Aug. 1971, Leslie Card followed this up with lists of *Six-Letter Numerical Tautonyms* and *Eight-Letter Numerical Tautonyms*, respectively.

PALINDROMES

In *Numerical Palindromes Part 1* (Nov. 1996), I listed words of varying length having palindromic first and second half letter group totals. These include HEA.VEN (14.41), RADI.ANCE (32.23), ANTIDEP.RESSANT (69.96) and PREPOS.TEROUS (89.98)

BOTH TAUTONYMS AND PALINDROMES

The same article also includes words which are both numerical tautonyms and numerical palindromes: CH.EF (11.11), RAC.IAL (22.22), SAM.PLE (33.33), CUT.EST (44.44), SOU.RLY (55.55), INTER.LOPER (66.66), GYNOP.LASTY (77.77) STEPMO.THERLY (88.88) and TRANSVE.RSARIUM (99.99). UNINTER.MITTENT (101.101) also has dual status. In *Numerical Palindromes Part 2* (Feb. 1997), Rex Gooch adds further dual status examples by way of words in which the two halves each total 111, 121, 141 and 151.

All the above words are split into two *n*-letter groups. Darryl Francis also split words into three, four and five *n*-letter tautonymic groups: VA.IN.ER (23.23.23), OVE.RSE.CUR.ELY (42.42.42.42) and GL.EN.DO.RA.DO (19.19.19.19.19); and Rex Gooch also split words into more than two *n*-letter palindromic groups: MEN.TIO.NED (32.44.23), REV.IVA.BIL.ITY (45.32.23.54) and, with $n = 1$, L.A.U.L.A.U. (12.1.21.12.1.21.). A very few, such as MI.MI.CS (22.22.22), have dual status.

GROUP TOTALS 2. NON PATTERN

REPLACING THE LETTERS OF A WORD

Numerically Equivalent Letter Replacements also divides the letters of a word into groups but there the similarity to our previous exploits ends. The current exercise makes new words by replacing one or more of the letters/groups of letters with a different group of letters/a letter or group of letters, respectively, having the same letter total but not necessarily the same number of letters. Any word with more than two letters can be split into letters/letter groups in more than one way. Let us consider the 3-letter word ROT. Exchanging the first letter, R (18), for the numerically equivalent CO (18) makes COOT. The various ways of replacing the letters of the word ROT are shown below. The numbers 1, 2 and 3 indicate which of the letters R, O and T, respectively, is being replaced.

A. REPLACING INDIVIDUAL LETTERS

(a) one letter				(b) two letters				(c) all three letters			
1	-	-	CO.OT	1	2	-	ME.AN.T	1	2	3	FL.AN.KED
-	2	-	R.IF.T	1	-	3	CO.O.KED				
-	-	3	RO.SA	-	2	3	R.AN.CHED				

B. REPLACING GROUPS OF LETTERS

1+2	-	COBAL.T
-	2+3	R.EGALIA

C. REPLACING BOTH INDIVIDUAL, AND GROUPS OF, LETTERS

1+2	3	FRI.ABLE
1	2+3	ME.DICS

The letters of the word ROT and, theoretically, all 3-letter words can thus be replaced fragmentally in 11 different ways. Similarly, there are 30 ways of replacing the letters of 4-letter words. For the enterprising reader who might relish the challenge of this exercise, here are the 30 letter/letter group combinations:

A. REPLACING INDIVIDUAL LETTERS:

(a) one letter				(b) two letters				(c) three letters				(d) all four letters			
1	-	-	-	1	2	-	-	1	2	3	-	1	2	3	4
-	2	-	-	1	-	3		1	2	-	4				
-	-	3	-	1	-	-	4	1	-	3	4				
-	-	-	4	-	2	3	-	-	2	3	4				
				-	2	-	4								
				-	-	3	4								

B. REPLACING GROUPS OF LETTERS

(a) one group			(b) two groups		
1+2	-	-	1+2	3+4	
-	2+3	-			
-	-	3+4			

C. REPLACING BOTH INDIVIDUAL, AND GROUPS OF, LETTERS

(a) one of each

1 2+3 -
1 - 3+4
- 2 3+4
1+2 3 -

1+2 - 4
- 2+3 4
1 2+3+4
1+2+3 4

(b) two Individual/one Group

1 2 3+4
1 2+3 4
1+2 3 4

REPLACING A SINGLE LETTER/ LETTER GROUP IN A WORD TO MAKE A LADDER

Here is a new type of word ladder made by replacing a single letter or a single group of letters at each step. The following two ladders are not the longest possible, rather I adhere, where possible, to well-known words. The letter(s) to be replaced at each step are underlined.

STAB - SUB - SICK - SIN - RAIN - RARE - FLARE - FLAIN - ODIN - ODDS - ODER BEAKER - BALDER - DAGGER - DOER - DOW - RAW - RADS - NEDS - NEW - BLEW - BLENDE

Whereas the above ladder replaces letters and letter groups willy-nilly, this next ladder is constructed under a constraint. I start with the word LADDER itself, splitting it into two parts thus: LADD ER. The same split point is maintained throughout the entire ladder which is thus made by replacing, one at a time, letters or letter groups which total 21 (LADD) and 23 (ER), respectively. Here is my LADDER ladder:

LADDER - GAMER - GAMBLED - BARBLED - RABBLED - TABLED - TAW - TAGGED - FOGGED - PEGGED - PEW - PEER - JIBER - HALER - HALDEN - HIDDEN - BRADEN - BRAVA - BRADS - TADS - BARDS - BARER - LIER - LIEBIG - LINED - DEAFENED - CHAINED - KEENED - FANNED - CLEANED - CLEADS - LIDS - LICKED - LIRE - LIMACEA - TAMACEA - TARE - TACT - BRACT - BRAIN - GAMIN - CRIN - CRICK - CREME

REPLACING ALL THE LETTERS/LETTER GROUPS IN A WORD(S)

A.. MAKING PHRASES AND SENTENCES

1. The original word and the new word make a phrase:

V.ILE - GAN.GS RE.TA.IN - W.AT.ER GIG.I - W.ED M.Y - DI.ET
W.EB - BU.G S.AL.'S - RA.M.BLE WA.LK - CU.RE LA.TE - M.AY
GO.OD - DR.EAM SA.ND.Y - T.R.IP R.AN.CH - CO.O.K U.SA - PE.T

2. A single word makes two/three words:

HO.RR.ID - IN.COME. AL? M.IAM.I - HE.ED N.ED BR.OW.N - T.AN NI.CK
W.H.Y - IN.GA. JO? Y.O.U. - PI.CK A. BRA I.T'S - A H.OE. ALF

3. Two words are reduced to a single word:

M.P. SA.ID - "DI.GI.T.AL" GANG. NEAR. - HU.RT

4. Sentences:

AL., JO. W.R.O.TE - 'M.Y HO.ME. AN.D PAD'
I.S. FA.Y GLAD. ED. M.Y - DE.AR., BE.CAU.SE I. LA.DLED?

5. 3-word phrases can be made by replacing the same letter group in two different ways:

HA.CK - I.N - ED.AM LA.KE - HE.LD - M.P

B. REPLACING THE WORDS OF A SERIES

1. The numbers ONE to TEN

O.NE - BID.S TW.O - RY.AN TH.REE - SHA.DES FO.UR - PE.TS
FI.VE- AN.NAL S.IX - PIC.ES S.EV.EN - DAN.DER.S EIG.HT - CR.AVE
NI.NE - RE.DO T.EN - BR.AND

2. Greek Alphabet

AL.PHA - M.ET	BE.TA - FA.NG	GAM.MA - TA.CK
DEL.TA - TA.IL	EP.SI.LON - CR.US.TED	Z.ETA - CRE.ELED
E.TA - DA.BS	THE.TA - REI.GN	IO.TA - BANG.LED
KAP.PA - MO.DAL	LA.MB.DA - M.AN.E	M.U - HE.AT
N.U - MA.LI	X.I - SE.ED	O.MI.CR.ON - CL.AFO.U.TI
P.I - DIC.ED	R.HO - CO.RE	S.IG.MA-NE.JADA.CEAE(dfpf)
T.AU - BR.IM	U.PSI.LON - BAR.BITAL.ISM	PH.I - WA.DE
C.HI (KH.I)-BA.LE (CO.DE)	PS.I - BOND.ED	O.MEGA - NA.GS

3. Homophonic Alphabet (for U, the Granta is an arm of the River Cam in Cambridge, UK)

A = E.H - DA.CE	B = BE.E - G.AD	C = S.EE - RA.J	D = DE.E - I.DA
E = E.E - DA.DA	F = E.FF - DA.CHA	G = GE.E - DEC.AD	H = AI.TCH - J.OKE
I = EY.E - KNE.AD	J = JA.Y - BI.TE	K = KA.Y - CI.TE	L = E.L - DA.CHA
M = E.M - AD.DED	N = E.N - AD.AM	O = O.H - CL.AG	P = P.EA - OA.F
Q =Q.UE.UE -PA.CIN.GS	R = AH - I(whole word)	S = ESS - CLI.NE	T = T.EA - BR.AE
U = Y.O.U - GR.ANT.A	V= V.EE - MED.IA	W = DO.U.BL.E U - S.LI.N.GS	
X = EX - BAB.ES	Y = W.HY - BU.NS	Z = Z.ED (Z.EE) - AUD.I (CARD.IA)	

C. CHANGING NAMES

M.O - AL.AN	EN.ID - S.AL	DO.RA - GL.EN	S.AM - AND.IE
DE.E - I.DA	MI.CK - ANG.IE	HE.LEN - M.IMI	I.RA - DE.S

and, replacing two letter groups in three different ways: NE.AL - JI.M - S.ID - DO.DI

D. TRANSPOSALS

Y.ET - TE.Y (a reversal)	N.AME - AM.EN	RA.SE - S.EAR	KI.TE - T.IKE
LA.ME - M.ALE	T.EAS - SA.TE	BL.AME - MA.BEL - AM.BLE	

E. MAKING PALINDROMES

BI.LL - K.AKAK	IN.AN.ER - W.O.W	KI.NKY - T.OOT	NI.NE - RAD.AR*
GL.ADD.EN - S.I.S	DIDD.LED - PE.EP	DI.NE - M.ADAM	CA.N - D.EED
MA.NTA - N.UN	BEE.HIVE - L.EVEL	DEB.ITED - K.AYAK	CA.BER - D.UD

FLA.X.EN - GL.ENE.LG (in Scotland)

and, converting one palindrome into another palindrome:

BO.OB - EL.LE R.ADA.R* (split differently) - DEI.F.IED

F. MAKING TAUTONYMS

TE.ASE - BER.BER	AL.LEN - M.IMI	SPEA.RER - TU.TU
TE.LARI.AN - Y.OY.O	WA.V.ABLY - CU.SC.US	WAG.ON.EER - PO.MP.OM
PAR.ADI.NG - MAU.MA.U	MIS.YO.KING - TU.TT.UT	NE.AR - DO.DO

G. REPLACING VOWELS WITH CONONANTS AND CONSONANTS WITH VOWELS

EO.N - BR.IE	EO.N - T.IE	IO.N - FR.IE	EA.T - F.OE
OA.T - P.OE	OA.F - P.EA	CL.EO - O.RB	V.IAE - AU.GH

APPOSITE REPLACEMENTS

It is an arduous task trying to find apposite replacements:

TU.MMY - AILS. ZIP	LU.V - SN.OG	O.LD - NA.P
BE.ER - G.IN	DI.P - LA.KE	W.ET - IN SEA
CAN.AL - DO.GE	AN.AG.R.AM - O.H. CO.N!	

I discovered that R.OSS was an EDI.TOR, but then I had a surreptitious peep into the private diary of ex-President CLI.NTO.N. The same entry appeared repeatedly... SE.X ML. AM