LETTER SUMS AND DIFFERENCES

ERIC IVERSON
Eagan, Minnesota

In the November 2004 Kickshaws, Dave Morice pointed out that the first two letters of HOW add to the third (8+15=23), and that the first two letters of WHO subtract to the third (23-15=8). This idea can be extended to longer words; any two consecutive letters in a word must add (or subtract) to the next letter, such as CADE, 3+1=4 followed by 1+4=5. To allow for sums greater than 26, use the circular alphabet: A=1, B=2, ... Z=26, A=27, etc. The same stratagem is used to create positive differences, such as SARI, 19-1=18 followed by 27-18=9.

I further generalize letter sums and differences by offsetting the letters against their numerical values; for example, with offset 1, A=26, B=1, C=2, ... Z=25, leading for example to HELP, 7+4=11 followed by 4+11=15.

**Letter Sums**

Offset 0: cade howl msno orgy otic poet waxy
Offset 1: anna faff help lall sass mammy
Offset 2: boob booboo
Offset 3: ford hint pert quia tarp fords
Offset 4: cede cony glow meno rest
Offset 5: blip djin ells skye skyey varna
Offset 6: army clio feed jimp loud move ouds peon warm
Offset 7: dolt ques unbid
Offset 8: idea limn ruer situ snye sale limns
Offset 9: bibb inns phon zizz
Offset 10: cuny fawn grow ions jeez kabs milk odic pion wane pions
Offset 11: macs mega abri holp
Offset 12: dash eyre foil heat mops roux yerk
Offset 13: fled port raft ywis padri
Offset 14: clay code lect mono styce
Offset 15: dodd fard gums hunt loll odds hunts totty
Offset 16: chum epee ilea leap maxi poon
Offset 17: reft gese
Offset 18: gapy jump laud wine dwine
Offset 19: benz fred gyms indy pron libra
Offset 20: dish piel piet rust worm rust peals rusts sonic
Offset 21: gams hant herb lull mummm ogam rift suss herby miaou ogams rifted
Offset 22: cuba eire leud york sole
Offset 23: dahl kiwi oldms told
Offset 24: eels fail genu maps meta pial soja
Offset 25: blob gems hent part
Letter Differences

Offset 0: ahow bomb chum jeez sari tsar utas wave whos yips
Offset 1: anna awes erre owse pelt phiz yeuk yoke pelts verne
Offset 2: anoa boob cady deaf lamp life mano ohia sati yves booboo
Offset 3: dull pent prat
Offset 4: culm feed show
Offset 5: cagy halt koas lapp quay scum
Offset 6: ansa cham erse hush paul roil wong Paulo
Offset 7: anta bunn ciao hant idly meow mike pert trip aecia
Offset 8: apse atom awls mile pawl pest sloe wade yore pawls
Offset 9: caky mime quey roll smog syce nerve petti
Offset 10: ache awns coax chem etui mine tach whys khmer mines tache
Offset 11: burn elds hart ritz scam wage
Offset 12: hast king sadi kings
Offset 13: delf emeu fend mayo trop yowe delfs
Offset 14: auto feed mire poon rear slue yids autos slued
Offset 15: acme coca fill herb mise smug wake
Offset 16: acne crag coda gink inks mite pent shaw sicy wale codas ginks
Offset 17: fred jolt porn prot rotl syke wame
Offset 18: dual elks vein wane yelk yelks
Offset 19: ells epha inns odds saki
Offset 20: acne anga cavy elms feud hugh kops numb odes pail syne shew
Offset 21: eyas
Offset 22: duel erie irma kors ware aerie
Offset 23: beth koss lund pall soak
Offset 24: cola enow haet lour spam temp yerk yins clour tempus yerked
Offset 25: coma eyes haft mako mice sock trap jotty

And what about the question Dave raised in Kickshaws concerning HOW-WHO? This pair is matched by ENS-SEN, TAU-UTA and ODS-SOD, plus ABC-CAB if the former is admitted as a word (usually all caps, and spelled out by pronouncing the letters). If the circular alphabet is used, EVA-AVE, IRA-AIR, POA-OAP and OWL-LOW also qualify.