FOUR-LETTER SUPER CONNOISSEUR’S LADDERS

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Four-letter words are famously well connected to each other. Fewer than one per cent of words connect to no other, whereas over 70 per cent connect in each of the four possible positions—on average, there are 23 neighbours for each word. For our present purpose, note that more than three-quarters are heterograms. This means that Connoisseur’s Ladders (those with sequential replacement between heterograms, plus a relationship between the first and last words) become commonplace. On the other hand, the number of such ladders is restricted by the relatively small number (fewer than 20,000) of four-letter words available. As in the case with the previous article on five-letter ladders, the lists below offer just a selection of Connoisseur’s Ladders of the technical variety, i.e. those in which the first and last words are permutations of one another. However, we have seven times as many to choose from; indeed, there are more four-letter ladders between reversals than there are five-letter ladders between all types of permutation.

Some of these technically outstanding ladders also qualify as semantic Connoisseur’s Ladders (in which the terminal words bear an apt relationship in meaning to one another). As this is subjective, the selection of such ultimate Connoisseur’s Ladders (both technical and semantic, hence Super in the title) is left to the reader. Because of the strict conditions, it is uncommon to find recognizable words at both ends of the ladder, such as SHAT and TASH (=moustache). There is one outstanding technical and semantic ladder with forward replacement, consisting of a verb and object intimately related, but both words are obscene: the ladder is in the first list. Due to the fact that both terminal words in this ladder can be nouns or verbs, there is a much less cogent connection between the same two words: “slash a cormorant”.

Among ladders between permutations (but not reversals), forward replacement gives DARE-READ, and reverse replacement examples include the droll LOSE-breDES, the rather rude ERMA-MARE, the female commander AMIR IRMA, and, of interest to some, ALES-SALE. ATES-SATE is not quite what it appears: ATE means infatuation, so SATE makes a semantic Connoisseur’s Ladder, as might VILE-LEV.

Among ladders between reversals, we have FEAR-RAEF (=plunder) with forward replacement, and SLAP-PALS and ELAM-MALE with backward replacement.

It is quite rare under such restrictions to find a ladder consisting entirely of common words.

“Snakes and Ladders” in the May 1998 Word Ways reports a number of ideal ladders between heterogrammatic reversals, but none offers sequential change of letters. This is true also of PETS-STEP, which does however have the special quality that the whole ladder is palindromic, i.e., the intermediate words are reversals of each other (see Leonard Gordon’s examples in the February 1991 Kickshaws).

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Connoisseur’s Ladders with terminal words which are permutations of each other (10% selected)
forward replacement
AINT—NINT (vf)—NANT—NATT (vf)—NATI (vf = argot)
AIRS—SIRS—SARS (vf)—SAIS—SAIR
ALES—LLES (The New Welsh Dict)—LAES (vf)—LASS—LASe
ARSE—ERSE—EASE—EARE (vf)—EARS (two human parts)
BALE—EALE (vf)—ELLE—ELBE (German river)—ELBA (Napoleonic bale out to ELBA)
BASH—SASH—SH—SH (OED sh!)—SHAH—SHAB (= get rid of)
CHAT—THAT—TAAT (Ch Scot Dict)—TACT—TACH (...ometer or clasp)
COAT—TOAT—TAAT (EDD)—TACT—TACO
CODE—DODE (vf)—DEDE (vf)—DECE (vf)—DECO
COPE—POPE—PEPE (vf or pers name)—PECE (vf)—PECO (vf = pekoe tea)
DALE—LALE (OED)—LELE (vf)—LEDE—LEDA (and the swan, or celestial body)
DARE—RARE—REAE (plrea)—REAM
DATE—TATE—TAAT (vf)—TACT—TEAT—TEAS
EARS—SARS (vf)—SERS (vf)—SEAS—SEAR
ELAN—LLAN (Mynydd-Uan, Flintshire etc)—LAAN (OED)—LANE
EONS—SONS—SENS—SEOS (vf)—SEON (vf to be)
ETAS—STAS (vf)—SEAS—SESS—SEAS (animal bristle)
FARE—RARE—REAE (plrea)—REAM (OED = plunder)
FINE—NENE—NEIE (vf)—NEIF (= serf)
GASH—SASH—SHSH (OED sh or shasshh)—SHAH—SHAG
GORE—RORE (vf)—RERE—REGE (vf)—RE-GO (OED)
HEAT—TEAT—THAT—THET (vf)—THEA (obs tea, or pers name)
KATE (pers name, also dialect for various species)—TAAT—TEAT—TEAE (vf)—TEAK
LATE—TATE—TETE—TEAE (vf)—TEAL
LEAP—PEAP (OED)—PAAP (EDD)—PALP—PALE
LEAS (untiiled land)—SEAS—SAAS (EDD)—SALS—SALE
LEOS (vf = lions)—SEOS (vf)—SOOS (vf)—SOLS—SOLE
LIAM (vf, leash for hounds, also pers name)—MIAM (vf)—MAAM (bird)—MALM—MALI
LIESS—SIES (vf)—SEES—SELS (OSPD)—SELI (vf, strange, wonderful)
LIMA (eg Lima bark)—MIMA—MAMA—MAIA (OED)—MAIL. Also—MALA—MALI
LINE—NINE—NEIE (vf)—NEIL (vf, also pers name)
LOAM—MOAM (vf)—MAAM (bird)—MALM—MALO (Web3, Hawaiian loincloth)
MAME—NANE—NENE—NEME (vf)—NEMA (Web3, tubular filament)
MARE—RARE—REAE (plrea)—REAM
MASH—SASH—SHSH (OED sh or shasshh)—SHAH—SHAM
MATE—TATE—TETE—TEAE (vf)—TEAM
MESH—SESH (OED)—SHSH (OED sh or shasshh)—SHEH (vf)—SHEM (OEDd = seam)
MONA—NONA—NANA—NAMA (vf)—NA MO (vf = no more)
NITE—TITE—TETE—TEIE (vf)—TEIN (vf = harm)
COTA (OED under coterie) — COTO — COCO — CACO (vf) — TACO
DANE — DAND — DAAD (EDD) — DEAD — NEAD (vf)
DARE — DARD (OED) — DAAD (EDD) — DEAD — READ
DEIH (vf) — DEIE (vf) — DEDE — DIDE (vf) — HIDE. Same central three words: DEIR (vf) — RIDE, DEIS (vf) — SIDE, DEIT (vf) — TIDE
DELI — DELD (vf) — DEED — DIED — LIED
DEMA (vf) — DEME — DEDE — DADE — MADE
DEMO — DEMA — DEDE — DODE (vf) — MODE
DENU (vf) — DENE — DEDE — DUDE — NUDE
DENY — DENO — DEDE — DYE — NYDE (vf)
DERI (vf) — DERE — DEDE — DIDE (vf) — RIDE
DERO (OED under leet n) — DERE — DEDE (vf) — DODE (vf) — RODE
DES (Pull) — DESE (vf) — DEDE — DADE — SADE
DESI — DESE (vf) — DEDE (vf) — DIDE (vf) — SIDE
DEWA (Pull) — DEWE (vf) — DEDE (vf) — DADE — WADE
DEYR (vf) — DEYE (vf) — DEDE (vf) — DYDE (vf) — RYEDE (vf, or in Isle of Wight)
DILO — DILLO — DDOL (in Flintshire) — IDOL
DIRE — DIRD — DIED — DRED (vf) — RED (vf)
DOLI (Web2) — DOLL — DOOL — DDOL (in Flintshire) — IDOL
DOLI (Web2) — DOLLO (Latin, whence sedulous) — DODO — DIDO — LIDO
DOME — DOMO (vf) — DODO — DEDO — MEDO (vf)
ELAM (vf) — ELAE (Med) — ELME (vf) — EAME (vf) — LAME
ELAN — ELAE (Med) — ELNE (vf) — EANE (vf) — LANE
ELSA (eg E Martineilli, film actress) — ELSE — ELLE — EA (vf)
ENKI (a god, BI) — ENKE (vf) — ENNE (TAW) — EINE (vf) — KINE
ENON — ENON (vf) — ENEN (vf) — EWEN (vf) — OWEN (vf)
ENSA (vf) — ENSE — ENNE (TAW) — EANE (vf) — SANE
ERLI (vf) — ERLE (vf) — ERRE (vf) — EIRE (Pull) — LIRE
ERLY (vf) — ERLE (vf) — ERRE (vf) — EYRE — LYRE
ERMA (pers name, OED shoth 1960 quote) — ERME — ERRE (vf) — EARE (vf) — MARE
ESPY — ESPE (vf) — ESSE — EYSE (vf) — PYSE
EVIN (vf) — EVIE (in UK, or pers name) — EVN (vf) — EINE (vf) — VINE
EVIR (OED) — EVIE (in UK, or pers name) — EVRE (vf) — EIRE — VIRE
GATO (Pull) — GATA — GAGA — GOGA (Pull) — TOGA
KALE — KALK (vf) — KAAK (vf) — KEAK (OED) — LEAK
KEIL (vf) — KEIE (vf) — KEKE (vf) — KEKE — LIKE. Same central three words: KEIM (author, OED outpost 1870 quote) — MIKE, KEIP (vf) — PIKE
KEPI — KEPE (vf) — KEKE (vf) — KEKE — PIKE
KERA (vf) — KERE — KEKE (vf) — KAKE (vf) — RAKE
KETA — KETE (vf) — KEKE (vf) — KAKE (vf) — TAKE
KEYS — KEYE (vf) — KEKE (vf) — KYKE — SYKE
LAIN — LAIA (Latin America Integration Assn) — LA — LA — LILA (OED) — NILA (OED under lilac)
LAZ0 (Pull) — LAZA (BI) — LA — LA — LOLA ("whatever I wants", song) — ZOLA (Emile Z, Fr novelist)
LEIM (Mod Ger, OED tithe 1892 quote) — ERME — ERRE (vf) — EARE (vf) — MARE
LEVI — LEVE — LELE (vf) — LlLE — LlVE
LEWA — LEVE — LELE (vf) — LlLE (OED) — VALE
LEVI (vf) — LEVE — LELE (vf) — LlLE — VILE
LIME — LINI (Sted, or toppus lini, OED top) — LILI (The New Welsh Diet) — LELI (vf) — NELI (vf)
LISA (my daughter) — LISI (Pull) — LILI (The New Welsh Diet) — LALI (Pull) — SALL (= dirty, OED signifying 1956 quote)
LIVE — LIVI (vf) — LILLI (The New Welsh Diet) — LEI (vf) — VELI (Sted, or Latin whence veliform)
LOSE — LOSS — LOES (vf) — LLES (The New Welsh Diet) — OLES (OSPD)
MARE — MAR — MAAM — MEAM (Roget, or Latin accust fem singing) — REAM
MARO — MARA (vf) — MAMA — MOMA (NY Museum Mod Art) — ROMA (vf)
MARO — MARA — MAAM — MOAM (vf) — ROAM
MENU — MENE (Pull) — MEME (OED) — MUME (Pull) — NUME (OED)
MERO—MERE—MEME (OED)—MOME—ROME (vf)
MESÉ—MESE—MEME (OED)—MAME (vf)—SAME
META—METE—MEME (OED)—MAME (vf)—TAME
MONA—MONO—MOMO—MAMO—NAMO (vf)
MONE—MONO—MOMO—MEMO—NEMO (OED). Same central three words: MORE—REMO (San R, Italy)
MÔTE—MÔTO—MOMO—MEMO—TEMO (OED draught-tree 1789 quote)
NAIT—NAIA (vf)—NANA—NINA (pers name)—TINA. Also NATI (vf)—NATA—
NAWE (vf)—NAWN (vf)—NAAN (vf)—NEAN (OED)—WEAN
NEIP (vf)—NEIE (vf)—NEE—NINE—PINE. Same central three words: NEIS (vf)—PINE
NEPA (spider, OED water 1861 quote)—NEPE (Pull)—NEE—NANE—PANE
NERO (Claudian emperor)—NERE—NENE—NONE—RONE
NETI—NETE (Web 2)—NENE—NINE—TINE
NEUT (vf)—NEUE (vf)—NENE—NUNE (vf)—TUNE
NEVA (Old Frisian, whence neve)—NEVE—NENE—NANE—VANE
NEVI—NEVE—NENE—NINE—VINE
NEYT (OED)—NEYE (vf)—NENE—NYNE (vf)—TYNE (OSPD)
OSEL (vf)—OSEE (Lo, or Osee prophet see OED favour 1526 quote)—OSLE (vf)—OOLE (vf)—SOLE
PARE—PARP (OED)—PAAP (EDD)—PEAP (OED)—REAP
PATE—PATA—PAPA—PEPA (vf)—TEPA
PERA (Latin pear, Greek purse, or in Wallachia)—PERE—PEPE (vf)—PAPE—RAPE
PERI—PERE—PEPE (vf)—PIPE—RIPE
PERO (Pull)—PERE—PEPE (vf)—POPE—ROPE
PESO—PESE (vf)—PEPE (vf)—POPE—SOPE
PETA (Pull)—PETE—PEPE (vf)—PAPE—TAPE
PETO—PETE—PEPE (vf)—POPE—TOPE
PETY (vf)—PETE—PEPE (vf)—PYPE (vf)—TYPE
PORE—PORO—POPO (OED)—PEPO—REPO (OED)
REAW (vf)—REAE (pl of rea, see OED mens rea)—RERE (vf)—RARE—WARE. Same central three words: REAT (vf)—TARE
REUS (Pull)—REUE (vf)—RERE (vf)—SURE
REV (OED)—REVE—RERE (OED)—RIRE (OED foun rire)—VIRE
REW (Webster’s New Geographic Dict)—REWE (vf)—RERE (vf)—RARE—WARE
ROTA—ROTO—RORO (OED)—RARO (Ro, or OED seldom 1440 quote)—TARO
SATE—SATSA (pl Sat, or Scholastic)—SAAS (EDD)—SAAS—TEAS. Same central three words: SAYE (vf, or Save As You Earn)—YEAS
SETH—SETS—SEES—SHES—THES (vf or pl the). Same central three words: SETI (Search for Extra-Terrestrial Intelligence)—TIES
SHAT—SHAH—SHSH (OED Shor ShShSh)—SASH—TASH. Same central three words: SHAW—WASH
SUDE (vf)—SUDD—SUED—SED (vf)—USED
SUER—SUES—SERS (vf)—SERS (OSPD)—UERS (vf)
SYEN (vf)—SYES (vf)—SYNS (vf)—SENS—YENS
TOUR—TOTT—TOOT—TROT—UROT (vf)
TWAI (OED under tway)—TWAT—TWIT—TAIT—WAIT

Connoisseur’s Ladders with terminal words which are reversals of one another (18% selected)
ANUS—SNUS (solar neutrino units, or Dutch whence snush)—SUUS (Web 3, Latin)—SUNS—SUNA (vf = sun) The sun shines out of...
BRAD—DRAD—DAAD (EDD)—DARD (OED)—DARB (whence drub)
CIRE (smooth, polished)—IRE (vf or country)—ERE (vf)—ERIE (vf or lake)—ERIC (pers name or cure)
CRAW—RAWR—WARW (Lo, or hundreds of times in OED as Guy W)—WARC (vf = work)
DEAL—LEAL—LAAL (EDD)—LAEL (Ch, Old Eng whip)—LAED (vf = lead metal)
DIES—SIES (vf)—SEE—SEIS (vf)—SEID (vf = Arab lord)
DRAT—TRAT—TAAT (EDD)—TART—TARD (vf = tarred)
DRAW—RAWR—WARW (EDD)—WARW (Guy W, OED)—WARD
ENUS (OED = once)—SNUS (see ANUS above)—SUUS (Latein, Web 3)—SUNS—SUNE (vf = sin)
FEAR—REAR—RAAR (Dutch = strange)—RAER (vf)—RAEF (vf = plunder)
FEIS (assembly or Celtic festival)—SEIS (vf)—SIIS (vf)—SIES (vf)—SIEF (OED = Arab confection)
GNUS—SNUS (see ANUS above)—SUUS (Latin, Web 3)—SUNS—SUNG
HEAL—LEAL—LAAL (EDD)—LAEL (Ch, Old Eng whip)—LAEH (vf = tell fibs)
LEON (vf = lion)—NEON—NOON—NOEN (vf)—NOEL. Lion—Xmas, or two people
LIAM (pers name or leash for hounds)—MIAM (vf)—MAAM—MAIM—MAIL
LIER—RIER—REER (vf)—REIR (OED)—REIL (vf = rail or reel)
NEAR—REAR—RAAR (Dutch = strange)—RAER (vf)—RAEN (vf = Royal power)
NOUS—Sous—SUUS (Web 2, Latin)—SUOS (Roget, Latin accusative pl)—SUON (vf = swan)
PRAT—TRAT—TAAT (EDD)—TART—TARP
PRAW (vf = Malay boat)—WRAW—WAAW (EDD)—WARW (Guy W in OED)—WARP
SWAT—TWAT—TAAT (EDD)—TAWT (vf)—TAWS (= thou or pl leather, marble, fibre)
reverse replacement
ARES—AREA—ARRA—AERA (vf)—SERA
ARIL—ARIA—ARRA—AIRA (Ch, genus of grass)—LIRA
DAEH (vf)—DAED (vf)—DAAD (EDD)—DEAD—HEAD
DAEL (vf)—DAED (vf)—DAAD (EDD)—DEAD—LEAD
DAER—DAED (vf)—DAAD (EDD)—DEAD—READ
DAIS—DAID (OED)—DAAD (EDD)—DIAD—SIAD (OED)
DARG—DARD (OED)—DAAD (EDD)—DRAD—GRAD
DART—DARD—DAAD (EDD)—DRAD—TRAD
DEAF—DEAD—DEED—DAED (vf)—FAED (vf)
DEAL—DEAD—DEED—DAED (vf)—LAED (vf)
DEAR—DEAD—DEED—DAED (vf)—RAED (vf)
DEIL—DEID (vf)—DEED—DIED—LIED. With the same centre three words: DEIG (Old Norse, related to dough)—GIED, DEIH (vf)—HIED, DEIT (vf)—TIED, DEIV (vf)—DIED
ELAM (vf, or land of Elamites)—ELAE (Med)—ELLE—EALE (vf)—MALE. Same centre three words: ELAN—NALE (vf), ELAT (vf)—TALE, ELAY (OED)—YALE
ELIT (vf)—ELIE (E de Beaumont, Fr geologist)—ELLE—EILE (vf)—TILE. Same centre three words: ELIM (Isle of Anglesey)—MILE
ERIS (Ch, goddess of discord, or OED obs eries)—ERIE (vf or great Lake)—ERRE (vf)—EIRE—SIRE
ESIL (OED)—ESIE (OED)—ESSE—EISE (vf)—LISE (vf)
GANS (OED)—GANG—GAAG (Manx Dict)—GNAG (vf)—SNAG
GORT (OED)—GOR (vf)—GOOG—GROG—TROG
HEAR—HEAH (vf)—HEEH (EDD)—HEAH (vf)—DAEH (OED). Same centre three words: HEAL—LAEH (vf), HEAT—TAEH (vf)
HOLS—HOLH (vf)—HOOH (EDD)—HLOH (vf)—SLOH (vf)
KART—KARK (vf)—KAAL (vf)—KRAK (vf)—TRAK (vf)
LAES (vf)—LAEL (Ch, Old Norse whip, connected to ladie)—LAAL (EDD)—LEAL—SEAL. Same centre three words: LAEM (vf)—MEAL, LAEP (OED under seed-lip)—PEAL, LAER (OED path 900 quote)—REAL, LAET—TEAL
LEAT—LEAL—LEEL (vf)—LEEL (see above)—TAEL. Same centre three words: LEAN—NAEL, LEAP—PAEL (OED pall 900 quote), LEAS—SAEL (vf)
MAIS (vf)—MAIM—MAAM—MIAM (vf)—SIAM (now Thailand)
NOES—NOEN (vf)—NOON—NEON—SEON (vf)
PALS—PALP—PAAP (EDD)—PLAP—SLAP
PERT—PERP—PEEP—PREP—TREP (vf)
RAES (vf, or pl prs name)—RAER (vf)—RAAR (Pcon)—REAR—SEAR. With same centre three words: RAET (vf)—TEAR
REIT—REIR (OED)—REER (vf)—RIER—TIER
SEIT—SEIS (vf)—SEES—SIES (vf)—TIES

Group of four Connoisseur's Ladders with terminal words which are permutations of one another, with a common terminal word (forward replacement)
ALES—LLLES (TNWD)—LALES (vf)—LASS—LASE
ALES—LLLES (TNWD)—LEES—LESS—LESA (W71-006)
ALES—SLES (vf)—SEES—SEAS—SEAL
ALES—SLES (vf)—SEES—SLES (obs cell)—SELA (vf)