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-‘OLES, 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

AIN'T—NINT (vf)—NANT—NATT (vf)—NATTI (vf = argot)
AIRS—SIRS—SARS (vf)—SAIS—SAIR
ALES—LLES (The New Welsh Dict)—LAES (vf)—LASS—LAKE
ARSE—ERSE—EASE—EARE (vf)—EARS (two human parts)
BALE—EAL(E) (vf)—ELLE—ELBE (German river)—ELBA (Napoleonic did 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—REAE (W70-200 pl of REA, or river in Oxfordshire)—READ
DASH—SASH—SH—SH (OED shorshshsh)—SHAH—SHAD
DATE—TADE—TEDE—TEDE (type of tree, OED under torch)
DEMO—MEMO—MOMO—MODO (OED)—MODE
DIME—MIME—MEME (OED)—MEDE (vf)—MEDE (vf = brike or reward)
DOME—MOME—MEME (OED)—MEDE (vf)—MEDO (vf meadow or mead)
DYNE—EYNE—ENNE (TAW)—ENDY (vf to finish). First of three for DYNE
DYNE—Nyne (vf)—NENE—NEDE (vf)—NEDY (vf = needy)
DYNE—Nyne (vf)—NENE—NEYE (vf)—NEYD (vf = need)
EARS—SARS (vf)—SEERS (vf)—SEAS—SEAR
EART (vf, to be)—TART—TERT (Sted)—TEAT—TEAR
EAST—TAST (vf)—TAST—TETE (Sted)—TEAT—TEAR
EATS—SATS (Saturdays or Scholastic Aptitude tests)—SETS—SEAS—SEAT
ELAN—LLAN (Mynydd-Llan, Flintshire etc)—LAAN (OED)—LANN (vf)—LANE
ELAN—LLAN (as above)—LEAN—LENN (vf)—LENA (pers name or river)
EONS—SONS—SEONS (vf)—SEON (vf to be)
ETAS—STAS (vf)—SEAS—SETS—SETA (animal bristle)
FARE—RARE—REAE—REAE (pl rea)—RAEF (OED = plunder)
FINE—NENE—NEIE (vf)—NEIF (= serv
GASH—SASH—SH—SH (OED sh or shshsh)—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)—TATE—TEAE (vf)—TEAK
LATE—TATE—TEAE—TEAE (vf)—TEAL
LEAP—PEAP (OED)—PAAP (EDD)—PALE—PALE
LEAS (untilled 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
LIES—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)
MANE—NANE—NENE—NEME (vf)—NEMA (Web3, tubular filament)
MARE—RARE—REAE (pl rea)—REAM
MASH—SASH—SH—SH (OED sh or shshsh)—SHAH—SHAM
MATE—TATE—TEAE (vf)—TEAM
MESH—SESH (OED)—SHSH (OED sh or shshsh)—SHEH (vf)—SHEH (OEDd = seam)
MONA—NONA—NANA—NAMA (vf)—NA MO (vf = no more)
NITE—TITE—TETE—TIEE (vf)—TEIN (vf = harm)
OARS—SARS (vf)—SORS—SOAS (OED)—SOAR
OAST—TAST (vf)—TOST—TOAT—TOAS (vf = to separate ore)
OURS—SOURS (vf)—SORS (Pull)—SOUS—SOUR
PARE—TARE—TERE—TEAE (vf)—TEAP (= male sheep)
PATE—TATE—TETE—TEPE (vf, or Tio Pepe sherry)—TEPA (= insect sterilant)
PEAT—TEAT—TAAT (EDD)—TAPT (Pull)—TAPE
PIES—SIES (vf)—SPES—SPIS (vf)—SPIE (= spy)
PISH—SISH—SHISH (OED sh or shsh)—SHIH—SHIP
PORE—RORE (vf)—RERE (vf)—REPE (vf)—REPO (OED)
PURE—RURE (vf)—RERE (vf)—REUE (vf)—REUP (= re-enlist)
RATE—TATE—TETE—TEAE (vf)—TEAP (= male sheep)
RISE—SESE—SESI—SERI—SERI (vf = tropical shrub)
RITI—TETE—TEIE—TEIR (vf = tear)
ROSE—SOSE (vf)—SESE (vI)----SE RE—SERI (vf = tropical shrub)
RISE—SISE—SESE (vf)----SIE RE—SERI (vf = tropical shrub)
ROSE—SOSE (vf)—SESE (vI)----SIE RE—SERI (vf = tropical shrub)

reverse replacement
ABEL (vf)—ABEE (vf)—ABLE—AALE (vf)—BALE
ADEL (vf)—ADEE (OED mitten 1880)—ADLE (vf)—AALE (vf)—DALE
AERG (Ch, Old Eng whence eerie)—AERE (vf)—AEGE (vf)—AAGE (vf)—RAGE
AGER—AGEE—AGGE (vf)—AAGE (vf)—RAGE
AGES—AGEE—AGGE (vf)—AAGE (vf)—RAGE
AGET (vf)—AGEE—AGTE (OED)—AATE (Sted)—GATE
AGEW (vf)—AGEE—AGGE (vf)—AAGE (vf)—WAGE
ALED (vf)—ALLE—ALLE (vf)—AALE (vf)—DALE
ALEM—ALEE—ALLE (vf)—AALE (vf)—MALE
ALEN—ALEE—ALNE (vf or in NYorks)—AANE (vf)—LANE
ALES—ALEE—ALLE (vf)—AALE (vf)—SALE
ALET (vf)—ALLE—ALLE (vf)—AALE (vf)—TALE
ALEY—ALEE—ALLE (vf)—AALE (vf)—YALE
ALIR (vf)—ALIA (inter alia)—ALRA (vf)—AIRA (OED air)—LIRA
AMIR (Indian commander, like emir)—AMIA—AMMA—ARMA (Arma Christi, OED emblem)—IRMA (eg Ila Douche)
ANEL (Old Fr, OED under anes)—ANEN—ANAN—ALAN—ELAN
ARED—AREE (vf)—AREE (vf)—AREE (vf)—DARE
AREF (OED)—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE, AREP (OED)—MARE
ARES—AREE (vf)—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE
ARES—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE
ARES—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE
ARES—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE
ARED—AREE (vf)—AREE (vf)—AREE (vf)—FARE. Same central three words: AREM (OED)—MARE, AREP (OED)—MARE
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 — DEME — DEDE — DOE (vf) — MODE
DENU (vf) — DENE — DEDE — DUDE — NUDE
DENY — DENE — DEDE — DYDE — NYDE (vf)
DER (vf) — DERE — DEDE (vf) — DIDE (vf) — RIDE
DERO (OED under reef n) — DERE — DEDE (vf) — DODE (vf) — RODE
DESA (Pull) — DESE (vf) — DEDE — DADE — SADE
DESIE (vf) — DESE (vf) — DEDE (vf) — DIDE (vf) — SIDE
DEWA (Pull) — DEWE (vf) — DEDE (vf) — DADE — WADE
DEYR (vf) — DEYE (vf) — DEDE (vf) — DYDE (vf) — RYDE (vf, or in Isle of Wight)
DILO — DILL — DIOL — DDOL (in Flintshire) — IDOL
DIRE — DIRD — DIED — DRED (vf) — IRED (vf)
DOLL (Web2) — DOLL — DOOL — DDOL (in Flintshire) — IDOL
DOLL (Web2) — DOLO (Latin, whence sedulous) — DODO — DIDO — LIDO
DOME — DOMO (vf) — DODO — DEDO — MODO (vf)
ELMA (vf) — ELAE (Med) — ELMF (vf) — EAME (vf) — LAME
ELAN — ELAE (Med) — ELNE (vf) — EANE (vf) — LANE
ELS (eg E Martineili, film actress) — ELSE — ELLE — EALE (vf) — SALE
ELVA (pers name, OED shook 1960 quote) — ELVE (OED) — ELLE — EA (vf) — VALE
ENKI (a god, BI) — ENKE (vf) — ENNE (TAW) — EINE (vf) — KINE
ENOW — ENON (vf) — ENEN (vf) — EWEN (vf) — OWEN (vf)
ENSA (vf) — ENSE — ENNE (TAW) — EANE (vf) — SANE
ERLE (vf) — ERLE (vf) — ERRE (vf) — EIRE (Pull) — LIRE
ERLY (vf) — ERL (vf) — ERRE (vf) — EYRE — LYRE
ERMA (pers name, OED throb 1892 quote) — ERME — ERRE (vf) — EARE (vf) — MARE
ESPY — ESP (vf) — ESSE — EYSE (vf) — PYS
EVIN (vf) — EVIE (in UK, or pers name) — EVNE (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) — KER (vf) — 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)
LAZO (Pull) — LAZA (BI) — LA — LA — LOLA ("whatever L wants", song) — ZOLA (Emile Z, Fr novelist)
LEIM (Mod Ger, OED lime) — LEIE (vf) — LEIE (vf) — LILE — MILE. Same central three words: LEIN (vf) — NILE (vf or river), LEIP (vf) — PILE, LEIR (Pull) — RILE, LEIT (vf) — TALE, LEIV (vf) — TALE
LEMA (Sted) — LEME (vf) — LEIE (vf) — LAIE (OE) — MALE
LEPA (Web2) — LEPE (vf) — LEIE (vf) — LAIE (OE) — PALE
LEPI (OED) — LEPE (vf) — LELE (vf) — LILE — PILE
LERI (Med) — LERE (Pull) — LEIE (vf) — LELE (vf) — RILE
LES (OED under lease) — LESE (vf) — LEIE (vf) — LAIE (OE) — SALE
LETA (vf) — LETE (Web2) — LEIE (vf) — LAIE (OE) — TALE
LETI (Rog) — LETE (Web2) — LEIE (vf) — LILE — TALE
LEVA — LEIE — LELE (vf) — LAIE (OE) — VALE
LEVI (vf) — LEIE — LELE (vf) — LILE — VILE
LINE — LINI (Sted, or toppus lini, OED top) — LILI (The New Welsh Dict) — LELI (vf) — NELI (vf)
LISA (my daughter) — LISI (Pull) — LILL (The New Welsh Dict) — LALI (Pull) — SALI (= dirty, OED signifying 1956 quote)
LIVE — LIV (vf) — LILI (The New Welsh Dict) — LELI (vf) — VELI (Sted, or Latin whence veliform)
LOSE — LOSS — LOES (vf) — LLES (The New Welsh Dict) — OLES (OSPD)
MARE — MARM — MAAM — MEAM (Rog, or Latin accus fem sing my) — REAM
MAREO — MARA (vf) — MAMA — MOMA (NY Museum Mod Art) — ROMA (vf)
MAREO — MARM — MAAM — MOAM (vf) — ROAM
MENU — MENE (Pull) — MEME (OED) — MUME (Pull) — NUME (OED)
MERO—MERE—MEME (OED)—MOME—ROME (vf)
MESA—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)
MOTE—MOTO—MOMO—METE—SAME
MESA—MESE—MEME (OED)—MAME (vf)—SAME
META—METE—MEME (OED)—MAME (vL)—TAME
MONA—MONO—MOMO—MAMO—NAMO (vf)
MONE—MONO—MOMO—MEMO—NEMO (OED).

Same central three words:
MORE—REMO (San R, Italy)

MOTE—MOTO—MOMO—METE—SAME
MESA—MESE—MEME (OED)—MAME (vf)—SAME
META—METE—MEME (OED)—MAME (vL)—TAME
MONA—MONO—MOMO—MAMO—NAMO (vf)
MONE—MONO—MOMO—MEMO—NEMO (OED).

Same central three words:
MORE—REMO (San R, Italy)

MONE—MONO—MOMO—MEMO—NEMO

NEIP (vf)—NEIE (vf)—NENE—PINE. Same central three words: NEIS (vf)—PINE
NEPA (spider, OED water 1861 quote)—NEPE (Pull)—NENE—NANE—PANE
NERO (Claudian emperor)—NERE—NENE—NONE—PONE
NETI—NETE (Web2)—NENE—NINE—TWNE
NEPA (spider, OED water 1861 quote)—NEPE (Pull)—NENE—NANE—PANE
NERO (Claudian emperor)—NERE—NENE—NONE—PONE
NETI—NETE (Web2)—NENE—NINE—TWNE

Connoisseur's Ladders with terminal words which are reversals of one another (18% selected)

ANUS—SNUS (solar neutrino units, or Dutch whence snush)—SUUS (Web3, Latin)—SUNS—SUNA (vf = sun) The sun shines out of...

BRAD—DRAD—DAAD (EDD)—DARD (OED)—DARB (whence drub)

CIRE (smooth, polished)—EIRE (vf or country)—ERE (vf)—ERIE (vf or lake)—ERIC (pers name or cure)

CRAW—WRAW—WAARW (EDD)—WAR (Lo, also hundreds of times in OED as Guy W)—WARC (vf = work)

DEAL—LEAL—LAAL (EDD)—LEAL (Ch, Old Eng whip)—LAED (vf = lead metal)

DIES—SEIS (vf)—SIES (vf)—SEIS (vf)—SEIF (OED = Arabeonfeetion)

DRAT—TRAT—TRAAT (EDD)—TAR (vf = Royal power)

DRAW—WRAW—WAARW (EDD)—WARW (Lo, also hundreds of times in OED as Guy W)—WARC (vf = work)

ENUS (OED = once)—SNUS (see ANUS above)—SUUS (Latin, Web3)—SUNS—SUN (vf = sun) The sun shines out of...

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)

GONUS—SONUS (see ANUS above)—SUUS (Latin, Web3)—SUNS—SUN

HEAL—LEAL—LAAL (EDD)—LAEL (Ch, Old Eng whip)—LAED (vf = lead metal)

LION (vf = lion)—LEON—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 (Web2, Latin)—SUUS (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)—DRAM—GRAD
DART—DARD—DAAD (EDD)—DRAM—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)—TAELE, 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 entries)—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)—GORG (vf)—GOOG—GROG—TROG
HEAR—HEAH (vf)—HEEH (EDD)—HAEH (vf)—RAEH (OED). Same centre three words: HEAL—LAEH (vf), HEAT—TAEH (vf)
HOLS—HOLH (vf)—HOOH (EDD)—HLOH (vf)—SLOH (vf)
KART—KARK (vf)—KAAK (vf)—KRAK (vf)—RAK (vf)
LAES (vf)—LAEL (Ch, Old Norse whip, connected to laldie)—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)—LEAL (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—LLES (TNWD)—LAES (vf)—LASS—LASE
ALES—LLES (TNWD)—LEES—LESS—LESA (W71-006)
ALES—SLES (vf)—SEES—SEAS—SEAL
ALES—SLES (vf)—SEES—SELS (obs cell)—SELA (vf)