TEN-LETTER WORD LADDERS

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In my article "Near-Ideal Nine-Letter Word Ladders" in the August 2000 Word Ways, I stated six criteria for a Connoisseur's Ladder: the technical criteria of changing all words in the minimum number of steps (in sequence), and the aesthetic ones of familiar words with apposite meanings. I found about 50 ladders which met some of the technical criteria, and perhaps none which met the aesthetic ones, though BRAWNIEST-TWINKLERS might be regarded as amusing. The case of ten-letter words is much more difficult. Compare the problem with word squares: there are thousands of nine-letter word squares, but no ten-letter word squares with straightforward dictionary words or phrases (though perhaps judicious addition of prefixes and suffixes might make the task possible). So ideal ladders are much harder to find than word squares, and we might expect to find no ten-letter examples, which is indeed the case. Indeed, I am not aware of any ten-letter ladders published, though there are undoubtedly billions if we relax the criteria sufficiently.

Below are listed the closest to ideal ladders found, with just one or two letters remaining unchanged after ten steps. There are also two ladders with three letters unchanged, because they have apposite terminal words: the dangerous INCESTUOUS AFFECCIOUN, and the game of consequences in which AFFECCIOUN leads to INSERTIONS.

Ideal ladders stretching between two heterograms are clearly rarer, not least because there are fewer than ten thousand ten-letter heterograms. Examples of ladders with three letters unchanged are listed (compare one letter unchanged for nine-letter ladders), together with a mere taster of those with four letters unchanged.

Note that some of the ladders achieve their stated results in just eight or nine steps, and in some such cases, nine steps change nine letters: asterisks or NBs indicate words that may be omitted without changing the number of letters changed by the ladder. That makes it especially grievous that there were no eleven-step ladders worth reporting, in that the results are no better than those for ten steps. There are more than ten times as many eleven-step ladders missing the ideal by just one letter, but they are merely elaborations of the ten-step ladders below. The number of interesting ladders with heterogrammatic terminals actually seems to decrease, so the ladders starting with IMBRANCHES below seem to be exceptional.

A perusal of the ladders below will reveal the few areas in which the complete net-
work of ten-letter words is highly connected. Although some groups of ladders could have been shown as a single graph, the reader would then have had to tease out all ten-step sequences with all words different.

The order of the words within the ladders below is such that the first word occurs earlier in a dictionary than the last word. Within each category of ladders, the source for a given word is given the first time only. Unless otherwise indicated, words are to be found in more than one dictionary from among the OED, Webster 2, Pulliam, OSPD, and Stedman.

deriv = derived  vf = OED variant form  obs = obsolete

Near Ideal Ladders (one letter unchanged)

1. BESPORTING (OED besport)—DESPORTING (OED desport)—DISPORTING—DISSERTING (OED dissert)—DISEASING (OED disease, obs decease)—DISSEASING—DISSEISINS (OED diseasin)—DISSEISONS (OED under diseasin)—DISSEISORS (OED)
as 1 to DISSEATING, then —DISSEAZING (vf diseaze vb)—DISSEIZING—DISSEIZINS (vf disseizin)—DISSEIZENS (vf)—DISSEIZERS (deriv. diseize, OED)
as 1 to DISSERTING, then DISSERTING—DISSENSING (OED dissense)—DISSEASING—DISSEISINS—DISSEISONS—DISSEISORS

2. BESPORTING—DESPORTING—DISPORTING (vf deriv dispert = desparate?)—DISSERTING, then as 1 as 2 to DISSERTING, then DISSEATING—DISSEAZING—DISSEIZING—DISSEIZINS—DISSEIZENS—DISSEIZERS
as 2 to DISSERTING, then DISSERTING—DISSENSING—DISSEASING—DISSEISINS—DISSEISONS—DISSEISORS
as 2 to DISPERTING, then DISPERSING—DISPENSING—DISSENSING—DISSEASING—DISSEISINS—DISSEISONS—DISSEISORS

1. DISSEISERS (OED under disseisor)—DISSEISORS (OED)—DISSEISONS (OED under disseisin)—DISSEISINS (OED diseasin)—DISSEISING—DISSENSING (OED dissense)—DISPENDING—DISPENDING (OED, obs despond)—RESPONDING—RESPONDING
DISSEISORS—DISSEISONS—DISSEISINS—DISSEISING (OED, under disease)—DISSEISING etc as 1.
DISSEISORS—DISSEISONS—DISSEISINS—DISSEISING (OED disease, obs decease)—DISSEISING etc as 1.
DISSEISORS—DISSEISONS—DISSEISINS—DISSEISING—DISSEISING (OED, disease under dissector)—DISSEISING etc as 1.
DISSEISORS—DISSEISONS—DISSEISINS—DISSEISING—DISPENDING—DISPENDING (OED, obs dispense)—DISPENDING etc as 1.
DISSEISORS—DISSEISENS—DISSEISINS—DISSEISING—DISSENSING—DISPENDING—DISPENDING (OED, obs dispense)—DISPENDING etc as 1.
DISSEISORS (deriv. disseize, OED)—DISSEISINS (vf diseizin)—DISSEISING (OED, derived from disseissor, dissession)—DISSEISING etc as 1.
DISSEIZORS (vf under disseisin)—DISSEIZORS etc as 1.
DISSEIZORS (vf under disseisin)—DISSEIZINS (vf diseizin)—DISSEIZING—DISSEISING etc as 1.
2. DISSEIZORS (OED)—DISSEIZONS (OED, under post-disseison)—DISSEYSINS (vf)—DISSEYSING (OED, under diseise)
Near Ideal Ladders (two letters unchanged)
EMBLANCED (OED) — EMBRANCHED (OED) — ENBRANCHED (OED under imbranch) — UNBRANCHED
  UNBLANCED — UNBLEACHED — UNBREACHED — UNBREATHE — UNWRENTHES (OED)
EMBLANCES (OED) — EMBLANCED — EMBRANCHED — ENBRANCHED — UNBRANCHED — UNBLANCED
  UNBLEACHED — UNBREACHED — UNBREATHE — UNWRENTHED
EXPANDABLE — EXPANDIBLE (Web 3 under expandable) — (EXPENDABLE or EXPENDIBLE)
  EXTENDIBLE — ENTENDIBLE — INTENDIBLE — (INVENTIBLE or INTEGRIBLE (OED)) — INVENTIBLE
  INVESTIBLE — INTESTIBLE. NB just 5 valid combinations
EXPANSIBLE — EXPANDIBLE — EXPENDIBLE — EXTENDIBLE — INTENDIBLE, then
  (EXTENDIBLE or INTEGRIBLE) — (INVENTIBLE or INVESTIBLE), then
  (INVESTIBLE or INTESTIBLE or INTENSIBLE) — (INTESTIBLE or UNTESTIBLE). NB just 10 valid combinations
IF POSSIBLY (OED) — IF POSSIBLE — INPOSSIBLE (OED) — UNPOSSIBLE — PASSABLE
  UNCESSABLE (OED) — UNCEASABLE (OED) — UNLEASABLE (OED) — UNLEAKABLE
IMPOSSIBLY — IMPOSSIBLE — INPOSSIBLE — UNPOSSIBLE — PASSABLE — PESSABLE
(SPRINGSIDE place or SPRINGTIME) — SPRINGTIDE (Web 2) — SPRING TINE (Lo) — SPRING LINE (OED)
  SPRINGLING — SPRANGLING (OED) — STRANGLING — STRADDLING — STRODDLING — STRODDLYING (v.f.)
  STRIDDLING can be added between straddling and stroddling, for 11 steps
SPRINGTIDE — SPRINGTIME — SPRING TINE etc as immediately above, to make up to 12 steps

Near Ideal Ladders (three letters unchanged) — one example
6 ladders starting AFFEC:
AFFECtIOn (v.f) — AFFECtiON — AFFECtIOn — AFFECTIOn (v.f) — AFFECTIOUS — EFFECTIONS (OED)
  ENFECTIONS (OED under infection) — INFECTIONS — INFECTIONS — INFECTIONS — INFECTIONS
As affection is not necessary; and these two words may be reversed.

Ladders between heterograms, but with three letters unchanged
9 ladders starting with IMBRANCHES:
1. IMBRANCHES (OED) — INBRANCHES (OED under imbranch) — ENBRANCHES (OED under imbranch) —
  (UNBRANCHES (Sted) or ENBRANCHED (OED under imbranch)) — UNBRANCHED — UNBLANCED — UNBLEACHED
  *UNCLENCHED — UNFLENCHED (OED) — UNFLETCHED (Web 2) — UNFLITCHED (Web 2). NB enbranches is not
  necessary if unbranches follows; in which case, if unclenched be omitted, 8 steps change 7 letters.
  as 1 but — INBRANCHED — ENBRANCHED — as words 2 and 3
  as 1 but — IMBRANCHED — EMBRANCHED — ENBRANCHED — as words 3 to 5
  as 1 but — IMBRANCHED — ENBRANCHED — *ENBRANCHED — as words 2 to 4
2. IMBRANCHES — INBRANCHES — ENBRANCHES (OED under imbranch) — *INBRANCHED (OED under
  imbranch) — UNBRANCHED — UNBLANCED — UNBLEACHED — UNFLENCHED, then as 1.
  as 2 but — UNBRANCHES — ENBRANCHED — ENBRANCHED — as words 3 to 5
  as 2 but — IMBRANCHED — EMBRANCHED (OED) — as words 2 and 3
  as 2 but — IMBRANCHED — INBRANCHED — *UNBRANCHES — as words 2 to 5

Ladders between heterograms, but with four letters unchanged (samples)
BESPOTING (OED) — DESPOTING (v.f) — DESPORTING (OED deport) — DSPORTING — DISTORTING — DISTORING —
  DYSTORING — DESTRORING — DYSTURING (The last five words are in the OED under disturb)
BESHOUTING — BESPOTING — DESPORTING — DSPORTING — DSPARTING — DISPARING (v.f) —
  DISPARLING (OED) — DISPACKING (OED) — DIPACKING (v.f) — DIPACKING (v.f)
BESPOTING (OED) — DESPOTING — DSPORTING — DSPORTING — DISTORTING — DESTRORING —
  DESTRORING (OED under detour) — DYSTORMING (v.f) — DYSTORING — DYSTURING