

# PALINDROME AND PALINDROMES

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Long-time **Word Ways** readers will remember previous articles of mine where I take a particular word (or group of letters) and then transpose it, transdelete it, transadd it, and so on. For example, I have subjected CAROLINE, NEUSTRIA and the letters ACEIN-ORST to such manipulation. Two further words which I have been examining carefully are PALINDROME and PALINDROMES. In this article, I look at various surgeries which can be performed on these two words.

This article has an added purpose: to propose a new, more systematic nomenclature for these surgeries. Transdeletions, double transdeletions, etc., are categorized by the number, *n*, of letters that are removed before the rest are rearranged; I propose that they be collectively named **trans-*n*-deletions**, by analogy with certain chemical nomenclature. Trans-0-deletions are, of course, merely transpositions. Similarly, one may categorize transadditions as **trans-*n*-additions** according to the number of letters added. More generally, if one both adds and subtracts letters before rearrangement, one can envisage **trans-*i,j*-positions**. When *i* and *j* both equal one, these are substitute-letter transpositions.

## PALINDROME

There are 45 possible trans-2-deletions, or double transdeletions, of a ten-letter word such as PALINDROME. I have found valid words or terms for 26 of these:

- AD LEPROMIN (W3)
- AM LINE DROP (W3)
- AN IMPILORED (W3), IMPOLDER (W3)
- DE LAMP-IRON (W3), PROLAMIN (W3)
- DI PERMALON (Chemical Synonyms)
- DL POMARINE (W3)
- DM PARELION (OED), PAROLEIN (OED Supp), PELORIAN (W3), PERONIAL (W3), PROALIEN (W2)
- DN EMPORIAL (W2), PROEMIAL (W3)
- DO PALMERIN (W3)
- DP ALMOINER (W1)
- DR MELIPONA (W3)
- EL DIAMPRON (Chemical Synonyms)
- EN MAIL DROP (W3)
- IL NAME-DROP (W3), POMANDER (W3)
- IM POLANDER (W3), PONDERAL (W3), PRENODAL (W3)
- IP ALMENDRO (W3), MODERNAL (OED)

- LM OPERANDI (in MODUS OPERANDI, W3), PRODENIA (W3)
- LP AMOINDER (W2), ARMENOID (W3), RADIOMEN (W3)
- LR DOPAMINE (Chambers)
- MN PAROLIED (W3)
- MP IRONDALE (Random House Dict), OLIANDER (W1)
- MR ENOPLIDA (W3), LAPIDEON (W2), PADELION (W2), PALINODE (W3)
- NP MELIDORA (Chemical Synonyms)
- OP MANDERIL (W2), REMINDAL (W2)
- OR IMPLANED (OED), PLAIDMEN (W2)
- PR DEMONIAL (W2), MELANOID (W3)

I am missing trans-1-deletions of PALINDROME for A and E, and would much appreciate improvements for N and O:

- P ALMONDIER (a comparative form of the adjective 'almondy', which is given in W3, although W3 does not indicate the comparative and superlative forms)  
MOLE DRAIN (W3)
- L MAN-PERIOD (a coined term, analogous to man-week, man-month and man-year; in the company I work for, a year is split into 13 four-week periods, with all work effort calculated and described in man-periods)  
MEROPIDAN (W2)
- I POLDERMAN (W2)
- N REDIPLOMA (a coinage formed from the common prefix RE- and the W2 verb DIPLOMA)
- D PROLAMINE (W3)
- R DIPLONEMA (W2)
- O PRIME LAND (a reasonably common sounding term, although a straightforward dictionary entry cannot be found; however, the phrase 'prime farming land' occurs in W3 under adjective 4b of the second 'prime', and the same phrase also occurs in the OED Supplement, in the 1961 quotation under 'prime', a, b)
- M POLIANDER (an obsolete spelling of 'polyander'; see the 1683 quotation under the OED entry for 'polyander')

I can find no genuine trans-0-deletion, or just plain old transposition, of PALINDROME, so I have to resort to offering coinages of varying degrees of acceptability. Here are a baker's dozen:

- ALMOND-RIPE as ripe as an almond
- DION PALMER a possible personal name
- IMPONDERAL not ascertained by weight (formed from the prefix 'im-' and 'ponderal')
- IRON-LAMPED decorated or equipped with an iron lamp
- IRON-PALMED having an iron palm; similar to 'ironfisted' and 'ironhanded', as well as a host of similar words listed in W2
- LAMPION-RED a shade of red, typically associated with a lampion, an oil lamp in a red glass pot
- MINERAL POD a mineral aggregate in schist or gneiss, which is roughly cylindrical in shape and dwindling at each end like a cigar; to better understand

this definition, consult the entry at the second 'pod' in W3, specifically definitions 5a and 5b having a normal foot (pedi- + normal)

PEDINORMAL PLAINERDOM the world of plainers, who may be either planers (people who use planes) or complainers (people who complain)

PRE-MONDIAL prior to the existence of the world

RAMPION-LED led by a rampion, a flower used in salads

PROLAMINED treated with prolamine, an alcohol-soluble protein

RED LAMPION an oil lamp in a red glass pot

MINERAL POD is so close to existing in W3 that it probably can be found somewhere in print. Can anyone find it and give a precise reference to the editor?

As well as my collection of coinages, I ought to point to the existence of a variety of other PALINDROME transpositions which appeared in Dmitri Borgmann's Language on Vacation (pages 89-90):

MODERN PAIL undefined

PAIN-MOLDER a figurative description for a physician, who is capable of controlling pain

PRALINEDOM a realm in which confections of the sort called 'pralines' are of primary importance

RANDOM PILE undefined

RIPE ALMOND undefined, but obvious in meaning

There are 26 ways in which trans-1-additions, or just transaditions, can be formed -- obviously each letter of the alphabet in turn -- but I have only been able to find three words for two of the possibilities:

+S PALINDROMES (W3)

+S SEMORDNILAP (a word discussed in Dmitri Borgmann's Language on Vacation, page 42, and also in C.C. Bombaugh's Oddities and Curiosities of Words and Literature, on page 345 of the edition edited and annotated by Martin Gardner. The word is defined as words that spell different words in reverse, such as parts/strap)

+T TRAMPOLINED (W2)

I have also been able to find a handful of trans-n-additions, for n equal to 2 through 6:

+BE IMPONDERABLE (W3)

+BY IMPONDERABLY (W3)

+CU UNPROCLAIMED (W3)

+DU DEMIPAULDRON (W2)

+ABY PYRAMIDAL BONE (W3)

+EET PROMENADE TILE (W3)

+ABII IMPONDERABILIA (W3)

+AHSY HYPOADRENALISM (Dorland's)

+AIRT MERIDIONAL PART (W3)  
 +EERU NEUROEPIDERMAL (W3)  
 +IOST POSTMERIDIONAL (W2)  
 +AAEHY HYPOADRENALEMIA (Dorland's)  
 +ABHNO NEPHROABDOMINAL (W2)  
 +AINOT PREDOMINATIONAL (W2)  
 +BIITY IMPONDERABILITY (W3)  
 +IISTV PROVIDENTIALISM (W2)  
 +AEIITZ EPIDERMALIZATION (W3)

Note that IMPONDERABLY is a trans-1-deletion of PYRAMIDAL BONE.

Take the word PALINDROME. Delete any one letter and substitute a different letter. Transpose the resulting 10 letters to give a new word or term. That's a substitute-letter transposition, or, as I call it, a trans-1,1-position. There are 250 different trans-1,1-positions possible for a ten-letter word. Here are examples for 37; what can you offer for the other 213?

-P+A ADRIAN MOLE (the adolescent hero of the titles of two best-selling British books, *The Secret Diary of Adrian Mole*, and *The Growing Pains of Adrian Mole*)  
 -P+C DECINORMAL (W3)  
 -P+I MERIDIONAL (W3), MINERALOID (W3)  
 -P+N MOLENDINAR (W2)  
 -P+R MINERAL ROD (W3)  
 -P+S MOLE DRAINS (W3), NORMALISED (Random House Dict), SOLDIER-MAN (OED, at 'soldier', sb 7a)  
 -P+Z NORMALIZED (W3)  
 -A+G PREMOLDING (W2)  
 -A+U UNIMPLORED (W2)  
 -L+C PRE-MONADIC (OED, at 'pre-', page 1236, A IV d)  
 -L+I POMERIDIAN (W3)  
 -L+S MEROPIDANS (W2)  
 -L+Y DIMOPYRANE (Chemical Synonyms)  
 -I+D PLANTERDOM (W2)  
 -I+U PURE ALMOND (the title of an article in *The Observer*, section 5, page 7, 18 September 1988, by Simon Frith. The article was about pop star Marc Almond.)  
 -N+C PLACODERMI (W2), PROCLAIMED (W3)  
 -N+E PERAMELOID (W2)  
 -N+I PARMELIROID (W2)  
 -N+P PREDIPLOMA (W2)  
 -D+C COMPLAINER (W3), PROCNEMIAL (W3), RECOMPLAIN (W2)  
 -D+E ONE LEMPIRA (a coined phrase; the LEMPIRA is the monetary unit of Honduras, and is listed in *Chambers*)  
 -D+G PRAGMOLINE (Chemical Synonyms)  
 -D+H PHIL RAMONE (musical arranger for the film *Flashdance*)  
 -D+N PRENOMINAL (W3)  
 -D+S IMPERSONAL (W3), PROLAMINES (W3)

- D+T INTEMPORAL (W3), TRAMPOLINE (W3)
- R+C DIPLOCNEMA (Willis)
- R+E LEPIDONEMA (Willis)
- R+H LEMON APHID (W2)
- R+K DIPLOKNEMA (Willis)
- R+S DIPLONEMAS (W2)
- O+A PIMELANDRA (Willis)
- O+E DEL MAR PINE (W3)
- M+A LEOPARDIAN (OED Supp)
- M+E LEOPARDINE (W3)
- M+N NONPREDIAL (inferred from three entries in W2: 'nonpraedial', 'praedial' and 'predial')
- M+S OLD PERSIAN (W3)
- M+T RANTIPOLED (W3)
- M+V PINAVERDOL (W2)

## PALINDROMES

I have avoided trans-2-deletions where one of the deleted letters is the S, as these would merely repeat the trans-1-deletions of PALINDROME. I have also avoided words which are merely plurals of nouns already used (or -S forms of verbs):

- DP ALMOSINER (OED)
- EL PADRONISM (W2)
- EP LADRONISM (W2)
- LO PANDERISM (W3)
- MN SPIRODELA (W3)
- NP MORALISED (Random House Dict)

Six different letters can be dropped from PALINDROMES, where the resulting 10 letters can be rearranged to form valid words or terms. All of them appear elsewhere in this article, but it is probably worth re-presenting them here together:

- P MOLE DRAINS, NORMALISED, SOLDIER-MAN
- L MEROPIDANS
- D IMPERSONAL, PROLAMINES
- R DIPLONEMAS
- M OLD PERSIAN
- S PALINDROME

There is one transposition of PALINDROMES -- SEMORDNILAP, mentioned earlier in this article. Another transposition, also a coinage, is probably worth referring to. SALMONID, in W3, is an adjective referring to a fish of the family Salmonidae. Why not an adjective PRE-SALMONID, describing a stage in marine life before the Salmonidae had appeared?

The only trans-1-addition which I have been able to find is PROMISED LAND (W3); the additional letter is one of the D's. I have located the following trans-n-additions for n equal to 2 through 6:

- +BE IMPONDERABLES (W3)
- +BO SEMIPOLAR BOND (W3)

+AHY	HYPOADRENALISM (Dorland's)
+EET	PROMENADE TILES (W3)
+EIS	IMPERSONALISED (Random House Dict)
+INO	PRONOMINALISED (OED, see 'pronominal', 1871 quotation)
+IITV	PROVIDENTIALISM (W2)
+AEILS	PERSONAL IDEALISM (W3)
+BEENS	IMPONDERABLENESS (W3)
+EIOTT	METROPOLITANISED (OED, see 'metropolitanize', 1897 quotation)
+INORS	NORMAL DISPERSION (W3)
+ACEMTT	COMPARTMENTALISED (Chambers)

There are 275 possible ways to drop a letter and add a different one to form a trans-1,1-position, or substitute-letter transposition, of PALINDROMES. I haven't bothered to list words which are plurals of nouns offered elsewhere, or -S verb forms. Here are the additional specimens I've unearthed:

-L+H	HAND-PROMISE (Chambers), PREADMONISH (W2)
-D+H	ALMONERSHIP (W2)
-D+S	PERSONALISM (W3)
-D+T	POST-MINERAL (a coinage), TRAMPOLINES (W3)
-M+A	ANDROLEPSIA (W2)
-M+K	LEOPARD-SKIN (OED Supp)
-M+Y	POLYANDRIES (W3)
-E+Y	POLYANDRISM (W2)
-S+D	TRAMPOLINED (W2)

### Three Reader Challenges

Three letters can be deleted from PALINDROME to leave 120 different groups of letters. How many of these 120 can be rearranged to form genuine words or terms? Here are ten to get you started: PONIARD, ANEROID, LEOPARD, IMplode, NEMORAL, DIPLOMA, ROMAINE, OPALINE, MARLINE and EPINARD.

The word MINERAL has already appeared in this article. However, the names of several minerals and other chemical substances can be found from the letters of PALINDROME. Here are sixteen: ADROP, ALOIN, AMIDE, AMIDO, AMIDOL, AMIDONE, AMINE, AMINO, IRON, LEAD, LENAD, MARL, MINE, NEROLI, OPAL and PEARL. How many others can you find?

Various parts of the human anatomy can be spelled out from the letters of PALINDROMES (note that I have used the plural form). The S contributes to a lot of additional anatomical names in the singular. Here are ten: ARSE, EAR, LAP, LIP, NAIL, NARE, NOSE, OS, PENIS, SPINE. Any more, especially longer examples?

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 Webster's Third New International Dictionary (1961) (W3)

### HOW TO SOLVE WORD PUZZLES

*Can successful puzzle-solvers teach their skills to others? Are there any general principles that can be applied to activities as disparate as cryptic or diagramless crossword puzzles, monoalphabetic substitution ciphers, and word-logic problems (is Fred a carpenter who is married to Millie, or a painter married to Joan)? In Problem Solving, a privately-printed paperback of 112 pages, Frank W. Lewis passes along both specific and general suggestions for the neophyte solver of a variety of word puzzles, including the ones mentioned above. A retired cryptanalyst (he worked for the US government during and after World War II) and the setter of a British-style crossword puzzle for the Nation since 1947, he is obviously well-qualified to discuss these matters. I was most interested in his discussion of the two types of solver - the serial (rational) thinker who systematically looks at each possibility in turn, and the parallel (intuitive) thinker who looks for unsuspected relationships among a large number of different concepts held simultaneously in his consciousness. Perhaps not surprisingly, he asserts that either type will benefit by trying the other's approach. (I wonder, however, if the most fruitful symbiosis arises when a parallel thinker uses a computer as an exhaustive checker of possibilities, a collaboration hinted at by Lewis in Chapter II.)*

*Beyond this, Lewis stresses the value of a broad base of general knowledge and endless practice solving relevant puzzles, particularly for one who wishes to master advanced cryptic crosswords such as those by Torquemada, Ximenes and Azed. It seems as if the answer to the initial question is No; the skilled solver teaches himself.*

*The book, the first of a proposed series of three, is available for \$8.95 from his daughter, Elaine Lewis, 32 Pembroke Avenue, Achusnet MA 02743.*