A (5,4) WORD CHAIN NETWORK

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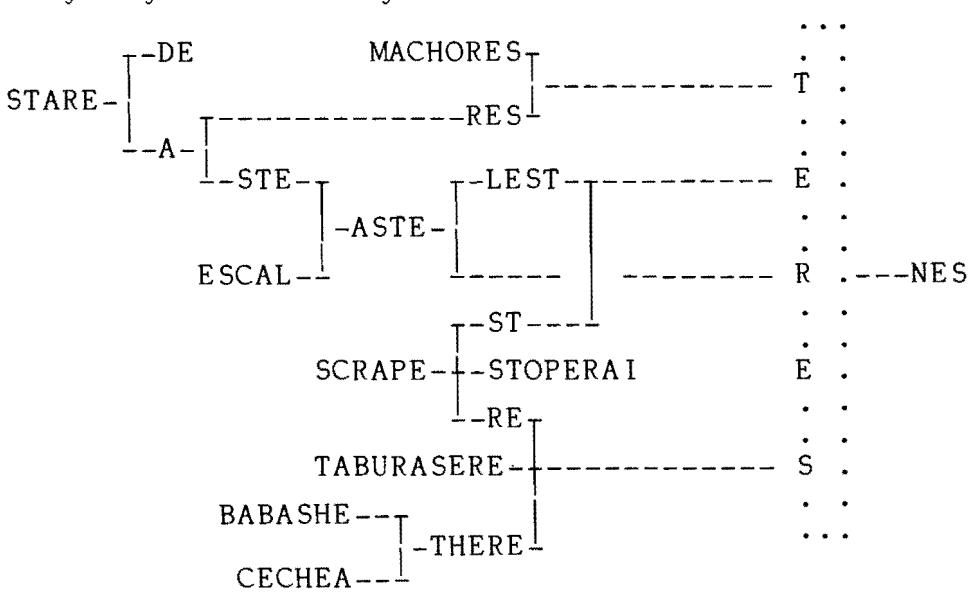
On February 27, 1994, I heard Will Shortz on National Public Radio announce the winner of a contest to form the longest possible (5,4) word chain using words from Webster's 10th Collegiate. A Tulane professor came up with the eight-step SCRAP-CRAPE-RAPES-APEST-PESTO-ESTOP-STOPE-TOPER-OPERA (which can be represented in compressed form as SCRAPESTOPERA).

Using words from the OSPD, OED and other sources, I determined by computer search a few months ago that the only cycle possible is the one mentioned by Dmitri Borgmann on page 210 of Language on Vacation: -RESTE-ESTER-STERE-TERES-EREST-. This forms the core of a 71-word (5,4) directed word network shown below in compressed form. (The core is depicted by a vertical TERES connected by a cycle of dots; trace out words counterclockwise.) The network consists of seven starters (BABAS, CECHE, TABUR, ESCAL, STARE, SCRAP, MACHO) and three enders (AREDE, PERAI, ERNES); the only way out of the cycle is via STERN-TERNE-ERNES.