

NAME

vw – VW-grammar sentence generator

SYNOPSIS

vw [**-dopt** **-lopt**] [file]

DESCRIPTION

vw reads a two-level (van Wijngaarden) grammar and produces **all** its terminal productions; a production is "terminal" if no hyperrule applies. If there are infinitely many of these, this will take infinite time, but given that, they'll all be there. The production process is "fair" in the sense that any given terminal production will appear in finite time.

The grammar of the input is:

```

input:
    metarule-sequence, point-symbol,
    hyperrule-sequence, point-symbol,
    starting-notion-sequence, point-symbol.

metarule:
    metaletter, colon-symbol, colon-symbol,
    meta-alternative-series, point-symbol.

meta-alternative:
    letter-sequence.

letter:
    metaletter;
    small-mark.

hyperrule:
    hypernotation, colon-symbol,
    hyperalternative-series, point-symbol.

hypernotation:
    hyperletter-sequence.

hyperletter:
    primed-metaletter;
    small-mark.

primed-metaletter:
    metaletter;
    primed-metaletter, prime-symbol.

hyperalternative:
    hypernotation-list.

starting-notion:
    hyperalternative-series, point-symbol.

```

Here a "series" is separated by semicolon-symbols, a "list" by comma-symbols and a "sequence" by nothing, as usual in two-level grammars. A "metaletter" is a capital letter; a "small-mark" is any printable character except a capital letter, a point-symbol, semicolon-symbol, a comma-symbol, a colon-symbol or a prime-symbol. Comment starts at a back-slash and continues until end-of-line. Layout is allowed everywhere.

Example:

```

\ A grammar which produces  $a^n b^n c^n$  for all n
\ The metarules:
N :: n N ; .
A :: a ; b ; c .
.
\ the hyperrules:
NnA : A-symbol, NA.
A : .
.

```

\ The starting symbol(s)
Na, Nb, Nc.

.

There are two groups of options, one starting with **-d** and one starting with **-l**. The **-d**-option is used for debugging, mainly of the program itself, but occasionally for a grammar; it may be followed by a combination of the following letters:

G display grammar;
I display input;
M show memory requests;
P print intermediate results;
S display substitutions;
T trace parser.

The **-l**-option sets the level of error messages:

W suppress warnings;
E suppress warnings and error messages.

AUTHOR

Dick Grune, Vrije Universiteit, Amsterdam.

BUGS

The metagrammar may not be left-recursive.

Metanotions can only be one letter long; the number of primes to a metanotion is limited to 3. I see no way of lifting these restrictions without seriously impairing efficiency.

The debugging options produce tons of output.