Algorithms

Interactive Headerless Code

Contributed by Jose Betancourt, Electronic Technician, General Instrument Corporation, Government Systems Div., 600 West John St., Hicksville, NY 11802.

For certain Forth applications a few words constitute the user-interface, but the underlying supporting words are useful during development. There should be a simple method of creating headerless words or structures, while still maintaining an interactive environment, and without having to resort to complicated metacompilers, etc.

A simple approach is presented in listing one. Three transient utility words [WAS82] are used to create a definer, HEAD: , which in turn creates TRANSIENT headers. Once the program development process is complete, they are DISPOSED and the dictionary is relinked to any new PERMANENT headers that may have been defined.

Besides saving some memory and providing some application security, this experimental structure may have other uses. For example, it can be extended to allow compilation to extremely fast mass storage; creating virtually linked run-time code, somewhat like non-loading overlays. Then maximum use of Forth's virtual memory management design is possible. Is a 16M byte program that uses only 1K bytes of RAM possible?

References

[WAS82]   "Transient Definitions", Phillip Wasson, *FORTH Dimensions*, Vol. 3, no. 6, 1982, Forth Interest Group, P.O. Box 1105, San Carlos, California 94070.

[LAX83]   "Parameterized CREATE DOES>", Henry Laxen, *FORTH Dimensions*, Vol. 4, no. 5, 1983, Forth Interest Group.

System

Language: valFORTH, based on Fig-Forth. Valpar International, Tucson, AZ 85713, USA.

Headerless Code Via Transients

```
: HEAD:                        ( ——— )
   ?EXEC HERE TRANSIENT
   <BUILDS
          , IMMEDIATE PERMANENT
   DOES>
          @ STATE @   .
          IF , ELSE EXECUTE THEN ;
```

Example: transient colon head

                                TRANSIENT

```
: T:            ( ———— )
  [ ' : CFA @ ] LITERAL , ] ;
  IMMEDIATE
: T;            ( ———— )
  COMPILE ;S [COMPILE] [ PERMANENT ;
  IMMEDIATE
```

                                PERMANENT

```
: HEADED
  ." A headed colon." CR ;

HEAD: NO_HEAD
T: ." A headerless one." CR HEADED T;

: TEST     CR HEADED NO_HEAD ;
```

                                DISPOSE

Test run of example

```
FLOAD TRAN.4TH FLOAD HEADER.4TH

TEST
A headed colon.
A headerless one.
A headed colon.
ok
```