

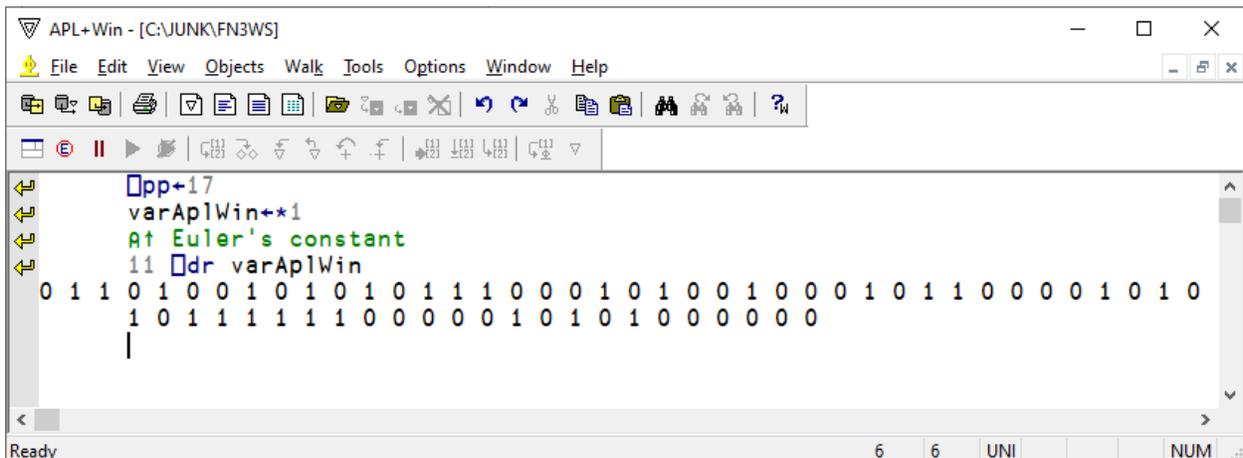
APL64 Numerical Computations and Numeric Formatting

APL64 is designed for a cross-platform x64 operating system environment. There are differences between that environment and the environment of APL+Win which may also be influenced by the APL64 programmer's workstation hardware.

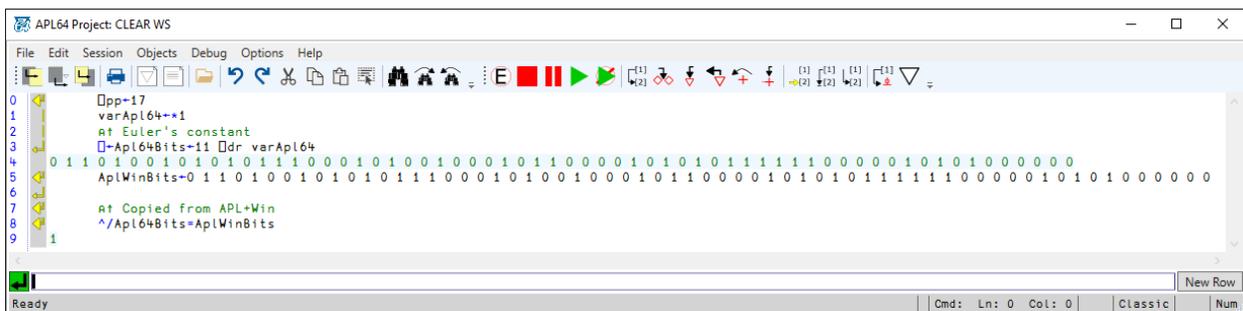
Checking the origin of apparent differences in numerical computations is easy in APL64 and APL+Win:

- Set `⎕PP` to 17 in APL64 and APL+Win
- Assign the value in question to a variable in APL64 and APL+Win, e.g. `varApl64` and `varAplWin`
- Display the base-2 bit vectors equivalent to the values using the APL `⎕DR` system function
- Copy the `AplWinBits` value to the clipboard
- Paste the `AplWinBits` value into APL64
- Perform a comparison of the bit vectors
- If the bit vectors match, the difference is a cosmetic formatting issue. The operating-system-level formatting mechanisms are different in APL64 and APL+Win
- If the bit vectors do not match, the difference is in the operating system and hardware environment provided by the APL64 programmer. The APL+Win system used a virtual 8087 processor for many numerical computations, whereas the APL64 system uses 64bit operating system mechanisms.

Example:



```
APL+Win - [C:\JUNK\FN3WS]
File Edit View Objects Walk Tools Options Window Help
⎕DR varAplWin
⎕PP←17
varAplWin←*1
⎕DR Euler's constant
11 ⎕DR varAplWin
0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 1 0 0 0 1 0 1 0 0 1 0 0 0 1 0 1 1 0 0 0 0 1 0 1 0
1 0 1 1 1 1 1 1 0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0
|
```



```
APL64 Project: CLEAR WS
File Edit Session Objects Debug Options Help
⎕DR Euler's constant
⎕PP←17
varApl64←*1
⎕DR Euler's constant
⎕DR varApl64
AplWinBits←0 1 1 0 1 0 0 1 0 1 0 1 0 1 1 1 0 0 0 1 0 1 0 0 1 0 0 0 1 0 1 1 0 0 0 0 1 0 1 0 1 0 0 0 0 0
⎕DR Copied from APL+Win
~/Apl64Bits=AplWinBits
1
```

In this case any value difference is a cosmetic formatting issue.