Tech Info Library

A/UX: Problem With NaN, printf

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Security: Everyone

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Article Change History

08/27/92 - REVIEWED
o For technical accuracy.

TOPIC ----------

The IEEE floating point format used by the Macintosh II allows these special floating values:
- NaN (Not-a-Number)
- +infinity
- -infinity

DISCUSSION ----------

These are created by certain math library functions. For example, log(0) is -infinity. The printf(3s) C library functions should give these values special treatment; that is, print them as special strings. Instead, passing the value as a double prints the numerical value of -HUGE; passing the value as a float gives segmentation violations.

Here's a sample program:

```
#include<math.h>
main()
{
double d;
float  f;
d = log(0.);
printf("double: %g\n", d);
f = d;
printf("float:  %g\n", f);
```

```
     }
```

On A/UX, this program returns:

```
     double: -1.79769e+308
     Floating exception (core dumped)
```

For comparison, on SunOS, it gives the right answer except for the sign:

```
     double: Infinity
     float:  Infinity
```

On IBM AIX, it returns:

```
     double: -INF
     float:  -INF
```

The results with NaN are similar.

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