

C9X Revision Proposal

=====

Title: Allow empty arguments in macro replacement
Author: Fred J. Tydeman
Author Affiliation: Tydeman Consulting
Postal Address: 3711 Del Robles, Austin, Texas 78727, USA
E-mail Address: tydeman@netcom.com
Telephone Number: +1 512 2558696
Fax Number: _____

Sponsor: _____

Date: 1995-01-09

Proposal Category:

- ☐ Editorial change/non-normative contribution
- ☐ Correction
- ☒ New feature
- ☐ Addition to obsolescent feature list
- ☐ Addition to Future Directions
- ☐ Other (please specify) _____

Area of Standard Affected: _____

- ☐ Environment
- ☐ Language
- ☒ Preprocessor
- ☐ Library
 - ☐ Macro/typedef/tag name
 - ☐ Function
 - ☐ Header
- ☐ Other (please specify) _____

Prior Art: Several commercial compilers with large user bases.
Only one compiler I know of catches this current undefined
behaviour.

Target Audience: All users.

Related Documents (if any): _____

Proposal Attached: ☒ Yes ☐ No, but what's your interest?

Abstract: In writing a test suite for the FPCE (Floating
Point C Extensions), I had a need to generate float, double,
and long double versions of the same numeric value.

Given the following macros:

```
#define PI 3.1416
#define F f
#define D /* expands into no preprocessing tokens */
#define LD L
#define glue(a, b) a ## b
#define xglue(a, b) glue(a, b)
```

This code:

```
float      f = xglue(PI,F);
double     d = xglue(PI,D);
long double ld = xglue(PI,LD);
```

Should expand into:

```
float      f = 3.1416f;  
double     d = 3.1416;  
long double ld = 3.1416L;
```

The expansion of `xglue(PI,D)` first expands into `glue(3.1416,)` which would then expand into `3.1416` on most compilers. This currently is undefined behaviour, but most compilers do what I wanted. Only one compiler flagged this usage.

For this particular problem, another solution is to allow a 'd' or a 'D' suffix on floating-point constants to indicate that they are double precision.

In talking with some `x3j11` members, they indicated that they have had a need for empty arguments to function-like macros, so I think that is the better solution.

Proposal: In section 6.8.3 Macro replacement, page 90, line 5, change the word 'undefined' to 'defined'.