

Slay Some Earthly Demons XVII

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Undefined Behavior: Function takes a variable number of arguments but is not defined with ellipsis.

Example:

```
void test()
{
    extern void f(int, ...);
}
```

```
extern void f(int);
```

Godbolt Link

Analysis: The two function types would then not be compatible. This invokes a constraint violation for declarations in the same scope (6.7.1p5) or is generally UB otherwise (6.2.7p2). Thus, the specific UB is vacuous as it is either already covered by a constraint violation or a more general rule.

Recommendation: Remove.

It is further recommended to remove the implicit UB of using the `va_start` macro in a function without ellipsis.

```
#include <stdarg.h>
void test(int i)
{
    va_list ap;
    va_start(ap);
}
```

Godbolt Link

Wording

6.9.2. Function Definitions.

Semantics

~~9 If a function that accepts a variable number of arguments is defined without a parameter type list that ends with the ellipsis notation, the behavior is undefined.~~

Additional Change I

6.9.2. Function Definitions.

Constraints

7 In a function defined without a parameter type list that ends with the ellipsis notation, the `va_start` macro shall not be used.

Additional Change II

6.5.3.3 Function calls

Constraints

2 For a function declared without a parameter type list that ends with the ellipsis notation, the number of arguments shall agree with the number of parameters. **For a function declared with a parameter type list that ends with the ellipsis notation, there may be more arguments than parameters in the parameter type list. For each parameter the corresponding** each argument shall have a type such that its value may be assigned to an object with the unqualified version of the type of ~~its corresponding~~ **the** parameter.

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