

Earthly Demon: Accessing a Member of an Atomic Structure or Union

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Undefined Behavior: A member of an atomic struct or union is accessed.

Example:

```
void f(void *p)
{
    _Atomic struct foo { int x; } y;
    _Atomic int *p = &x.y;
    *p = 1;
}
```

Godbolt Link

Analysis: This is problematic as it could lead to data races and also incorrect atomic accesses. Compilers warn about this already. It may be possible to define useful semantics in the future.

Recommendation: Make this a constraint violation.

Wording (n3550)

6.5.3.4 Structure and union members

Constraints

5 A member of an atomic structure or union object shall not be accessed.⁹⁶⁾

Semantics

~~5 Accessing a member of an atomic structure or union object results in undefined behavior.⁹⁶⁾~~