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C9X Revision Proposal
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Title: Tag Compatibility
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Sponsor: X3J11
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Proposal Category: New feature
Area of Standard Affected:
    XX Language
Prior Art: None
Target Audience: Everyone
Related Documents (if any): WG14/N396, X3J11/94-081 Minutes of
                             Plano WG14/X3J11 Meeting, and DR#139
Proposal Attached: Yes

Abstract: Currently, two structure, union, and enumeration types
declared in separate translation units ignore the tag name when
determining if the two types are compatible. The language is
better specified if the tag names are considered for all type
compatibility (except if no tag name is specified).

Proposal: Change the following words in the current C Standard

    Section 6.1.2.6 Compatible Type and Composite Type

    From:

        Moreover, two structure, union, or enumeration types declared in
        separate translation units are compatible if they have the same
        number of members, the same member names, and compatible member
        types; for two structures, the members shall be in the same order;
        for two structures or unions, the bit-fields shall have the same
        widths; for two enumerations, the members shall have the same values.

    To:

        Moreover, two structure, union, or enumeration types declared in
        separate translation units are compatible if their tags and members
        satisfy the following requirements. If one is declared with a tag,
        the other shall be declared either without a tag, or with the same
        identifier as its tag. There shall be a one-to-one correspondence
        between their members such that each pair of corresponding members
        are declared with compatible types, and such that if one member of
        a corresponding pair is declared with a name, the other member is
        declared [either without a name, or] with the same name. For two
        structures, corresponding members shall be declared in the same
        order. For two structures or unions, corresponding bit-fields shall
        have the same widths. For two enumerations, corresponding members
        shall have the same values.

Comments: I took an action item at the Plano meeting to write a proposal
        for tag compatibility. The above proposal permits an unnamed struct,
        union or enum to be compatible with a named one.
                The clause [either without a name, or] is up for debate.
        I have a slight preference that the clause be omitted from Section
        6.1.2.6 but I can be convinced that this is a good way for
        implementors to hide information.