

## Re: qsort and arbitrary types

**Source:** <http://coding.derkeiler.com/Archive/Fortran/comp.lang.fortran/2004-06/0440.html>

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**From:** Catherine Rees Lay (*spamtrap\_at\_polyhedron.org.uk*)

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In article <slrnccf3ru.2f0.jblomqvi@vipunen.hut.fi>, Janne Blomqvist  
<jblomqvi@roskaposti.invalid> writes

>In article <m1smd41m52.fsf@macfortran.local>, Richard Maine wrote:

>

>[pass by reference...]

>

>> *With newer features and compilers, the exceptions are becoming less  
>> and less exceptional. Some new features are pretty much impossible to  
>> implement with pass by reference. Even for old features, things like  
>> copy-in/copy-out are sometimes used by modern optimizers.*

>

>*You are of course correct. Although I perhaps didn't express myself  
>very clearly, what I meant was that semantically, argument passing  
>behaves like pass by reference in the sense that modifying an argument  
>in a procedure also modifies it in the caller. Obviously, if an  
>argument is marked as INTENT(IN) or VALUE that isn't true, but I was  
>talking about the "general" case.*

>

>*Whether the argument passing is actually implemented as pass by  
>reference, pass by value-result or in some other way is implementation  
>dependent, as you say.*

>

>> *I recommend against programming based on the assumption that arguments  
>> will be passed by reference. It certainly doesn't seem like an  
>> assumption that will leave you well prepared for the future... or  
>> even some parts of the present.*

>

>*Hmm., are there actually legal programs which work differently  
>depending on if pass by reference is used or not? I can think of a few  
>examples where pass by reference would differ from pass by  
>value-result, but those examples would require aliasing which isn't  
>allowed anyway.*

>

If you can tell whether the arguments are pass-by-reference or not, the code isn't legal.

Having said that, most (all?) mixed language programming, especially under Windows using compilers from different vendors, requires you to

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know how your compiler passes arguments. Hopefully the f2k3 interoperability stuff will remove this requirement.

Catherine.

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Catherine Rees Lay

To email me, use my first name in front of the "at".