

Meeting of ISO/IEC JTC1/SC22/WG5 - FORTRANAFNOR - Paris, France19-23 September 1988Informal Summary of the Meeting1. Opening of the Meeting

The meeting was opened at 9:00 Monday 19th Sept. 1988 by the convener of WG5, Jeanne Martin.

2. Welcome of the Delegates

The delegates were welcomed by M. Genuys, chairman of the AFNOR programming languages committee (equivalent of SC22 in France).

3. Adoption of the Agenda

The convener outlined the responsibilities of WG5 as defined at the first meeting of SC22 in Paris in September 1985. These are contained in two resolutions (13 and 14) passed at that meeting as follows.

Resolution 13 - FORTRAN Work Item 97.22.2

ISO/TC97/SC22 establishes Working Group 5 - FORTRAN with the following terms of reference: coordinate the revision of the International Standard ISO1539, Programming Languages - FORTRAN.

The following project is assigned to WG 5: 97.22.2

Ms. Jeanne MARTIN is appointed Convener, with ANSI providing secretarial support.

Resolution 14 - Administration of WG 5

ISO/TC97/SC22

- (a) Requests ANSI to forward to the Secretariat for circulation within SC22 for comment and recommendation, working drafts of the proposed revision to the International Standard ISO1539, Programming Language - FORTRAN.
- (b) Requests ANSI to make all appropriate efforts to see that the draft proposed revision reflects the consensus of SC22 comments.
- (c) Requests ANSI at the appropriate time to provide the SC22 Secretariat with the draft proposed revision for circulation to the member bodies of SC22 for letter ballot on the D.P.
- (d) Instructs 97/22 Working Group 4 to review and comment on the content of the working drafts of the revision produced by ANSI; coordinate any contributions made by SC22 member bodies; and coordinate the comments received during the SC22 ballot period(s).
- (e) Appoints ANSI as editor for project 97.22.2.

In accordance with the above, WG5 is required to look at the following documents at this meeting:

- (a) the draft proposal DP1539;
- (b) comments returned with the ballot of the draft proposal;
- (c) proposals from member bodies.

The provisional agenda dated 26th August 1988, already distributed, was approved.

4. Election of the Chair

Bert Buckley was proposed by David Muxworthy, seconded by Laurie Schonfelder and elected unanimously.

5. National Activity Reports

Austria (Gerhard Schmitt):

Austria's letter to SC22 in response to the ballot did not arrive in time and was recorded as a late vote. Two additions had been requested: Multiple Character sets and BIT data type. Austria was surprised at the deadlock and hoped for a speedy resolution.

Canada (Graham Warren):

A written report and position paper had been produced for the meeting. Interest in Fortran had grown with the public review. Opinion was generally positive. The Fortran group meets 4 times per year and is composed of 9 active people. There is an urgent need for the 8X standard and a plea for simplification.

France (Christian Maas):

The AFNOR group has 8-10 members. The response to the letter ballot was "No" due to poor document and some omissions e.g. Pointers and Significant Blanks.

Germany (Karl-Heinz Rothhauser):

The DIN group has 7 members. Germany disapproved of the draft standard due to the lack of BIT data type, lack of variable length character strings and REAL (*,*).

Japan (Akira Owada):

The Japanese Fortran group meets each month and sends delegates to X3J3. Major concern is the provision of a multi-octet character set based on NCHARACTER rather than the earlier proposal of (KIND=). This should be in all languages. There is already a Japanese extension to Fortran 77. Japan also considers the language to be too large.

Netherlands (Leo ter Haar):

The Dutch group meets every 2 months. Fortran 8X is considered to be going in the right direction, but the group is astounded to hear that 3 separate proposals are now being considered.

Sweden (Ingemar Dahlstrand):

There is no permanent Fortran activity but several seminars were held during the public review. Sweden voted "Yes" without comment and will be happy to go along with the majority.

UK (David Muxworthy):

The UK produced a written report for the meeting. The main activity of the BSI group has been to publicize the draft document and co-ordinate comments received. A Forum, attended by over 150 people, was held and 40-45 written comments were sent to CBEMA. The UK broadly approves of the draft document but voted "No" due to BSI guidelines concerning voting procedures. The main changes requested are stated in the paper N464. It is important that a standard is produced quickly. The BSI document "Method for Specifying Fortran Language Processors" finally appeared in 1988.

USA (Andy Johnson):

X3J3 meets 4 times per year and consists of about 40 members. The USA voted "No" to the draft document because X3J3 had already made changes to the document since its release for public review. About 400 registered and 100 unregistered (received after the deadline) comments were received. Currently 3 proposals are being examined with a view to producing consensus on 1 of them.

6. Liaison Reports (Jeanne Martin)

6.1 EWICS

Jeanne Martin is the official liaison with EWICS (European Workshop on Industrial Computer Systems). However the group appears to be defunct.

6.2 SC24/WG4 Graphics Bindings

The group is working on bindings to C and Ada at present.

7. Appointment of the Drafting Committee

The following delegates were appointed to the drafting committee by the chairman:

David Muxworthy (UK) - Chairman of Drafting Committee
Jerry Wagener (USA)
Karl-Heinz Rothauser (W. Germany)
Gerhard Schmitt (Austria)
Graham Warren (Canada)
André Créhange (France)
Edgar Soulier (France)

8. Approval of the Minutes of the Liverpool Meeting

A motion to approve the minutes was proposed by Jeanne Martin, seconded by Laurie Schonfelder and passed unanimously.

9. Status of the Liverpool Resolutions

Jerry Wagener listed the resolutions passed at the Liverpool meeting and the action taken by X3J3 on those requiring action as follows:

<u>WG5 Resolution</u>	<u>X3J3 Action</u>
L6 - Resolution Response Document (provide full text, voting, explanation where appropriate)	as requested: see WG5-N286

L7 -	Temporary Nature of Appendix F (remove in final standard)	as requested; JOD to be instituted
L8 -	Pointers (recommend adding pointers)	deferred until after public review (1)
L9 -	Pointers and IDENTIFY (broaden IDENTIFY to pointers, or delete IDENTIFY)	deferred until after public review (1)
L11 -	Decremental Features (identify deprecated features in the standard)	problem resolved, but not as WG5 suggested (removed from standard)
L12 -	Significant Blanks (make blanks significant in free form)	deferred until after public review (1)
L14 -	Language and Style (improve index, add more examples)	index not changed (but X3J3 agrees it needs changing), examples added
L15 -	Section Notes (introduce reference mechanism)	references to standard added to section notes
L16 -	Revision Indication (indicate changes between versions)	not done (mechanical limitations)
L17 -	Program Size and Complexity (report processor dependent limits)	not done (potential run-time costs)
L18 -	Usage of Interfaces (clarify usage of this concept)	agree, section to be rewritten
L19 -	Multiple Character Sets (in same program)	deferred until after public review (2)
L21 -	Use of National Characters (remove use of square brackets)	not done (3) (ISO4873 has them)
L22 -	Bit Data Type (add a bit data type)	not done (4) (several proposals)
L23 -	Passed-On Precision (DIN comments on REAL(*,*) concerns)	problem resolved
L24 -	RANGE and SET RANGE (delete from language)	deferred until after public review (3)

notes: (1) done by at least one of the post-review plans
(2) done by at least two of the post-review plans
(3) done by most or all of the post-review plans
(4) MIL-STD bit intrinsics added by most plans

summary: 6/16 resolutions acted on favourably by X3J3.
5/16 resolutions not adopted (but see notes: 1 for L21, 4 for L22).
5/16 resolutions deferred until after public review
(all addressed in one or more of the post-review plans).

Discussion

ADAMS: Fortran 77 is being re-affirmed as the standard due to the 10 year rule. The review is currently underway but at a low key.

BUCKLEY: This is an ANSI rule only.

MARTIN: WG5 policy is that resolutions live only until the next meeting. Therefore they must be re-affirmed or die.

SCHMITT: If ANSI don't re-affirm Fortran 77 where can one buy the standard document: the ISO standard is only 2 pages? Also, CEN/CENELEC are proposing to adopt Fortran 77 as a European standard.

SCHONFELDER: The European standard will be very important after 1992

REID: X3J3 has removed deprecated features and they are not in a Journal of Development.

TER HAAR: Resolutions at WG5 have little or no impact on X3J3, therefore only "real" resolutions should be put on the list. We need an indication as to what is likely to cause a "no" vote in ISO if a resolution is not adopted. The country votes should be indicative of this.

WAGENER: The point is well taken, but the picture is not quite so bleak as it appears.

TAIT: What is the relationship between WG5 and X3J3?

MARTIN: SC22 delegated to ANSI the responsibility for producing a draft proposal for Fortran. This they have done with the document DP1539. WG5 was established in Sept. 1985 to coordinate the revision of the language. We now have to decide what to do with DP1539 in order to proceed to an international standard.

SCHMITT: There is a difference between what we read and what we are now told. From the X3J3 minutes I am not optimistic about the status of WG5 resolutions. Most of the Liverpool resolutions have not been adopted.

WAGENER: There is a difference between ignoring and not adopting.

SCHONFELDER: There is a problem of attitude. WG5 comments are not ignored but are not given much weight. Comments from single individuals are given equal weight to reports from member bodies.

WEAVER: Annual meetings are not enough, we need a WG5 representative on X3J3.

ELLIS: WG5 doesn't discuss how to do the technical work.

JOHNSON: It would be reasonable for someone representing WG5 to present the resolutions to X3J3.

SCHMITT: There was an attempt to send someone from the EEC to represent EWICS proposals but it was too expensive. If we go our own way, we should recognise that it may lead to two standards.

MARTIN: Before DP1539 was produced we could only advise X3J3 what to do. Now we can do something different based on this document. I remind X3J3 at each meeting that it is trying to produce an international standard as well as a US one.

SCHONFELDER: ISO working groups are directed to produce a draft standard. The working group can delegate the revision to a member body or do it itself. We can decide.

10. Disposition of the Liverpool Resolutions

In accordance with WG5 rules, these resolutions now die. Any which the group wishes to resurrect must be re-affirmed as Paris resolutions.

11. Results of the SC22 Ballot on S8.104

The Convener reported as follows (see paper N307):

Yes - 9	Austria, Belgium, Denmark, Finland, Hungary, Italy, Netherlands, Sweden, USSR
No - 7	Canada, China, France, Germany, Japan, UK, USA
Did not vote - 4	Bulgaria, Czechoslovakia, Norway, Turkey

All the "No" votes, except USA, contain requirements for changing their vote to "Yes". Two of the "Yes" votes contain recommendations. The items most wanted were:

add bit facilities	6	(Austria, Canada, France, Germany, Netherlands, UK)
add pointers	5	(Canada, France, Germany, Netherlands, UK)
add significant blanks	5	(Canada, France, Germany, Netherlands, UK)
support multi-octet characters	4	(Canada, China, Japan, Netherlands)
remove RANGE	4	(Canada, Germany, Netherlands, UK)
add exception handling	3	(France, Netherlands, UK)
reduce language complexity	3	(Canada, France, Netherlands)

Other areas of concern or procedural comments were made by 2 or fewer member bodies.

Thus, a package which will deliver the most "Yes" votes should include the following:

- add bit facilities
- add pointers and remove IDENTIFY
- add blank significance
- add support for multi-octet characters
- remove RANGE
- simplify precision.

Discussion

SCHONFELDER: The UK also gave a list of items not to be removed.

PAUL: We need a matrix of which countries voted for or against which issues.

BUCKLEY: Some compromise may be needed.

DU CROZ: Countries must not take too tight a view, and allow for positions to be changed.

The group expressed thanks to Jeanne Martin for her presentation.

12. Revised Language Plans Under Consideration by X3J3

(a) Weaver's Plan (Dick Weaver)

Scribe: George Paul

(paper N316 /COMMON/FORTRAN)

Discussion

ROTH: Does this allow global allocatable arrays? **Ans.:** yes?

SCHONFELDER: Would you have to include all specification statements in subprograms using them? **Ans.:** yes.

BUCKLEY: Are you allowed to be selective in use of items in Common? **Ans.:** not certain.

WALTER: What would happen if there are several levels of INCLUDE, perhaps repeated? **Ans.:** same as modules, unless you have a compile environment.

TER HAAR: USE allows ONLY, does INCLUDE have this? **Ans.:** no.

SMITH: Parameter has implications on other statements in INCLUDE.

WAGENER: I believe that the thrust of your argument is that modules offer no advantage, but you imply some disadvantage. I claim that you need not precompile modules, hence what is the reason?

WEAVER: I was trying to find the underlying basic requirement.

SCHONFELDER: INCLUDE in F77 allows the incorporation of a block of text in the program at point of include - hence you will make existing programs which use INCLUDE non standard-conforming if you restrict what may be included.

WEAVER: This INCLUDE is not to replace the existing INCLUDE but it can replace module.

JOHNSON: Are these pointers restricted to be pointers to structures? **Ans.:** yes.

MUXWORTHY: The Liverpool resolutions were based on the S8 document, hence Dick's claim gives the wrong impression.

REID: Who is meant by "we" in this proposal? Name the other people.

WEAVER: This plan has come together since the Jackson meeting based on comments from several people, but no one has seen it in its present form yet.

SCHMITT: I believe that having this list gives a very wrong impression. Since you now have new text it is not easily verified. There may be side effects, etc..

SHEN: Since Liverpool, instead of most of the work being done we are in a more confused state. How are we going to come to agreement? Even if we agree, will the users agree? One user group wants to conserve old programs; the progressive users want new features. This is the fundamental split.

(b) Philips' Plan (Ivor Philips)

Scribe: Miles Ellis

(papers N293 and N324 Simplification of Fortran 8X)

Discussion

SCHONFELDER: Is storage association the only form of global data?

PHILLIPS: No.

SCHONFELDER: How do you know that two derived type definitions are the same, if they are not in a module?

PHILLIPS: If they have the same pattern of components then they are the same.

ROTH: Are allocatable arrays allowed to be passed other than through argument lists?

PHILLIPS: Yes, in modules.

SHEN: I am opposed to the concept of reduction of complexity. Complexity varies from one person to another.

PHILLIPS: I agree that complexity is partly subjective, but there is also an absolute complexity, such as, for example, calculus is more complex than arithmetic.

WARREN: X3J3 seems to believe that its Public Review calls for less complexity. WG5 seems to want more than we have. How do we resolve this?

SHEN: My scheme would resolve this problem.

POLLICINI: I have some objections to your criteria. You said that some features were not bad, but should be moved to a Journal of Development and that some new and simpler features should be added. Then, for example, HIGH PRECISION and MAXIMUM PRECISION will be in Fortran for ever, and when a generalised precision feature is added in a future revision the language will be much too big and complex.

PHILLIPS: I don't believe that we can keep revising the language. Eventually we will have to stop and start again. For example, we could have implemented what is left of modules without MODULE/USE, but some people wanted to keep it so that next time they can restore module procedures, etc.

SCHMITT: The two presentations so far appear to be in response to the X3 Public Review, and are not relevant to the comments in the SC22 ballot. If these major changes were wanted they would have been raised by SC22. If we adopt this approach we will get NO votes in SC22.

PHILLIPS: The last (Fortran 77) committee put a lot of things into the language that this committee wants to remove. This committee is making much greater changes and should show some humility.

CREHANGE: I am opposed to the Microsoft representative handling the Journal of Development. It should be done by ISO.

MUXWORTHY: I object to individual comments being given the same weight as country votes. Most of the latter NO votes were basically in favour. I received a lot of criticism for the UK NO vote.

(c) Reid/Smith Plan (Andy Johnson)

Scribe: John Reid

(paper N294 Reducing the Complexity of Fortran 8X)

Discussion

JOHNSON: We need rules on the side effects of procedures called as defined operators or defined assignments.

PAUL: In practice, the existing operators cause side effects whenever there is an exception.

JOHNSON: Exceptions are outside the scope of the Standard.

WARREN: Does your plan include multi-octet characters?

REID: Our suggestion is that they be standardized in a collateral standard.

TAIT: DEC structures were designed for communication with other languages: you cannot do much with them. Similarly, you cannot do much with Mil.Std. bits: they are too much of a stop-gap measure.

SHEN: Recursive procedures used to be regarded as too inefficient, but are now regarded as acceptable by all the plans. For other features, too, we should be thinking about human efficiency as well as hardware efficiency.

BUCKLEY: I would like to see a bit type, but the overriding requirement is to get the new standard out soon.

13. Other Plans

- (a) Adams, Brainerd, Martin, Smith, Wagener and Schonfelder Plan (Laurie Schonfelder)
Scribe: Steve Morgan

(papers N310 and S8.108)

This plan was placed on the agenda at the specific request of the UK delegation.

Discussion

SCHMITT: What about establishing registration of "KINDS" for characters ? Ans: This is a question for another part of ISO.

SCHMITT: Have you thought of KIND= on LOGICAL ? Ans: Yes, we could do that and it would regularise the language. It is more work.

BUCKLEY: Could you summarise whether you've covered all points covered in public comment. Ans: Only major technical features described but it deals with all international comment. There is no bit data type - X3J3 could not agree.

WAGENER: It would be easy to extend KIND= to LOGICAL to achieve a bit data type. Technical work has already been done. It could be incorporated fairly quickly. Variable character data type has not been addressed. Ans: Pointers + derived types give variable length strings but can't read strings of characters and leave pointer at end of string.

SCHMITT: I was one of those who wanted i/o for data structures. I have changed my mind slightly. This i/o only addresses line-oriented i/o and not things like laser printers. I am not sure that modifying Fortran i/o is the way to do it. Ans: We really do need to do something now. There ought to be GETCHAR, PUTCHAR, NEWLINE. These give the basic capability to do anything required.

WILSON: Reid indicated in his plan the amount of reduction in the size of the standard: have you estimated the reduction effected by this proposal? Ans: We have counted very little reduction up to Ch. 10 in S8 but there may be more reduction in Ch 13 and the Appendices.

POLLICINI: My concern is that we need to know what the differences (in the plans) are, e.g.: there are differences in the proposed precision models. Let's see if we can get to a single proposal.

JOHNSON: KIND=4 would give single precision, KIND=8 would give double precision. On a processor with 2 intrinsic types, if I say KIND=3 what happens? Ans: If user requests KIND=3 and there is not an available intrinsic precision then it is a processor dependent error.

REID: International comment wanted simplification of the language. Schonfelder et al's plan does simplify the language. My plan goes further. It is a question of how far you want to go.

METCALF: At some stage I'd like a discussion on the names of the bit intrinsic procedures.

PHILLIPS: I would like to eliminate the need for interface blocks. Ans: Weaver is allowing you to create local names. Link level compatibility is retained. You can achieve this without interface blocks.

BUCKLEY: Are there pointers to scalars? Ans: Yes

BUCKLEY: Are there pointers to skew section arrays. Ans: No

PAUL: I want to get Skew section arrays in as an intrinsic function.

BUCKLEY: We [Canada] said that if ALIAS/IDENTIFY was to be deleted then a pointer facility should subsume ALIAS/IDENTIFY.

WALTER: Is it possible to do precision with integer? Ans: One could do it as for reals.

WALTER: Would you prohibit addition of integers of different KIND. Ans: It would be an error.

TAIT: If you had 4 & 8 byte integers and you wanted to pass into integer argument what storage is implied? Would you have to have interface blocks?

SHEN: You say you can write procedures to convert from one character KIND to another? Ans: The only way it becomes possible is if smaller set is subset of larger.

BUCKLEY: This is the same problem as with EBCDIC and ASCII

SHEN: If I have a two byte character, can I operate on one byte?

WEAVER: If I'm supporting Dutch and Italian are they different KINDs? Ans: That is a processor choice.

WEAVER: If I provided one KIND could implementor cope with Dutch and Italian? Ans: If the processor gives only one KIND and programmer asks for two then the processor should give an error.

BUCKLEY: Would the KIND= proposal be acceptable to Japan?

OWADA: We will give a presentation tomorrow. We would like to wait until then.

ADAMS: In answer to Schmitt's question on Logical KIND=, there is a proposal in the X3J3 papers.

REID: The Chinese would like KIND=.

SCHMITT: Martin has gone through the document showing which areas are commented on by public comment. Has X3J3 done this?

BUCKLEY: The answer is 'yes'.

SCHONFELDER: It was that analysis that gave rise to the issues at X3J3.108.

REID: X3J3 has never voted up a document which is an agreed summary.

SCHMITT: I am surprised!

ADAMS: I would like to explain. There were 400 comments compared with 288 for FORTRAN77. Each comment was classified by Carl Burch. Each was given a code, and entered into a database by Ivor Phillips. In coding, comments were divided into 4 subgroups. Editorial comments were dealt with and this resulted in S16. At the May meeting comments were divided into major and minor. Each subgroup gave Jeanne Martin's group a list of major issues. At Urbana this list of major changes was processed and voted on. Separate items got yes votes but the whole package was voted down. The difficulty seemed to be complexity. There were different philosophies. It would be untrue to say that X3J3 had not dealt with public comment.

BUCKLEY: I will give my personal opinion. I am substantially more optimistic that agreement can be reached. I could not vote for Weaver or Phillips plans since they are too far from the DP1539. Reid/Smith and ABMSW are close on key issues. Could you come to agreement?

REID: Main point is Module procedures. It would be helpful to discuss this.

WARREN: I have a problem that the plans are not sufficiently responsive to public comment. We would get the same public comment again. It would be useful if the raw data was made available so that we could draw our own conclusions.

SCHONFELDER: Rich Ragan has a long list of comments. There was no single issue that was clear. There were issues on which there was discernable bias.

TER HAAR: I want to discuss DP1539. This is the only document with status. The Netherlands thinks that S8 is reasonably good. X3J3 must compromise. If we want to keep Fortran alive we must get on with it! I would like a list of issues which would affect future voting. It is not good if we replace features with others that will get different negative votes.

BUCKLEY: As an international committee, my interpretation is that we are discussing DP1539. X3J3 has provided 4 modifications of S8:

Weaver's is total rewrite - document exists.

Phillips has not produced a document.

ABMSW - document exists - revision of S8

Reid/Smith has not produced a document.

We are discussing 4 proposed revisions of S8.

METCALF: Weaver's is not a revision of S8.

BUCKLEY: Personally I agree.

TAIT: ABMSW received the least support in X3J3. They want greater simplification than either ABMSW or Reid/Smith plans. There is a clear divergence of opinion between US and rest. X3J3 is giving more weight to US comment. What is the relationship between WG5 and X3J3?

POLLICINI: We should not go back to DP. We should take account of things that have happened at this meeting.

TER HAAR: I think international comment wants extra features.

SCHMITT: We have DP1539 + international comment except from the US. We are trying to assess things without the major comment. We have 4 plans: 3 are directed at X3J3, 1 at WG5 i.e. only one plan says how to revise DP1539. We must say how WG5 wants the document to look and make a proposal to SC22. We could try to get a compromise with X3J3 but the last 3 years shows you can't get X3J3 to agree. Who is to do the work? If X3J3 is not willing then we have to search for somebody else. i.e. WG5.

METCALF: The situation may be even worse. Within X3J3 there are 40 individuals who use the public comment to suit their own arguments. Their company representatives etc.. It increasingly looks to me as if X3J3 cannot produce a standard which reflects international comment. WG5 could give X3J3 very strong direction in the hope that they will compromise or they could do it at international level. WG5 has to choose one direction. I prefer Reid/Smith plan as it least upsets WG5 and goes furthest towards simplification.

ADAMS: We've talked lots about plans. Lets look at features and determine which features are significant. Then determine where WG5 stands on each issue.

DU CRUZ: X3J3 have a duty to WG5/ANSI. Duties conflict. There are a few key features e.g. module procedures.

SCHONFELDER: In reply to Schmitt on US comment: there is no US comment because there is no US consensus. Otherwise there would already be a plan before WG5. We have looked at lists in X3J3 ad infinitum. On one issue we get consensus but not on the whole package. This group must make a recommendation to SC22. ANSI is treaty bound to bring the ANSI standard into line with the ISO standard.

BUCKLEY: There is disparity in US comment. It bothers me that people say that 60% of US comment is negative. There were a lot of one page letters. I'm not convinced that the US comment was negative.

JOHNSON: The last thing I want to see is that this meeting turns into another Scranton [compromise]. That was a disservice to the community. The danger of looking at lists is that you end up with a non-consistent language. It didn't work in X3J3 and it won't work in WG5.

PAUL: The US position is NO without comment.

ADAMS: The reason I want to discuss particular issues is that X3J3 must have concrete instructions on e.g. multibyte characters.

BUCKLEY: We have to recommend how to deal with DP1539. I propose we insert new item 14.1 in agenda to discuss WG5 recommendations regarding further processing of DP1539.

[proposal agreed unopposed - agenda modified]

POLICINNI: A specific question - if KIND= solves the multibyte problem, would a processor supporting only one KIND be standard conforming. Ans: Yes.

JOHNSON: Concerning the US vote, a response document has still not been produced. X3J3 is going to have a firm position. New procedures are being discussed which will, in future, avoid the problem of having the body proposing a draft standard voting NO.

BUCKLEY: I would like to see a clear motion to give us direction.

SCHMITT: We should defer discussions until we have more information on what differences there are in the plans.

DAHLSTRAND: We should choose a plan which is reasonably close to our feeling and discuss that.

The chairman invited motions concerning further consideration of the four plans.

Motion: "WG5 gives no further consideration to the Weaver or Philips plans and limits further discussion to the Reid et al and Adams et al plans" - proposed by Laurie Schonfelder, seconded by Gerhard Schmitt. The motion passed on a voice vote.

Motion: "As a point of departure on the further processing of DP1539, WG5 gives no further consideration to the Reid et al and Adams et al plans" - proposed by Laurie Schonfelder, seconded by Leo ter Haar. The motion failed on a voice vote.

Thus the chairman directed that further discussion be limited to the Reid et al and Adams et al plans.

Discussion

Scribe: Brian Smith

<Scribe notes from Brian Smith not yet available>

14. Language Issues

(a) Varying Character (Karl-Heinz Rothhauser)

(paper N288)

The DIN group have proposed the introduction of a data type "character string of varying length within the bounds of a maximum length". This is additional to the fixed length character data type. Such a data type has been available in Siemens Fortran compilers for ten years and is extensively used in Germany. The omission of such a data type was one reason given for the negative vote from Germany.

(b) Octal and Hexadecimal Edit Descriptions (Leo ter Haar)

(paper N289)

The Dutch group have proposed the addition of data edit descriptors for octal and hexadecimal editing. This proposal is not considered crucial to the Dutch vote but would provide useful facilities for input and output of, for example, ASCII control characters.

(c) Case Conversion (Leo ter Haar)

(paper N289)

The Dutch group have proposed the addition of two character intrinsic functions for the conversion of a character entity to upper-case or lower-case characters respectively. These functions are often provided by vendors but in a non-standard, hence non-portable, way.

It was noted that this functionality can be provided by a more general TRANSLATE function using tables which is being worked on by X3J3.

(d) Multi-Octet Characters (Akira Owada)

(paper N322)

The Japanese group now favour the addition of the data type NCHARACTER to represent multi-octet character sets, rather than the more general facility provided by the previously proposed CHARACTER (KIND=n). NCHARACTER is commonly available in Japan and some other countries.

Several people expressed the view that NCHARACTER only solves one specific problem and expressed a preference for CHARACTER (KIND=n) as allowing greater flexibility.

(e) Pointers (Jeanne Martin)

(paper N308)

This proposal is identical to that presented by Laurie Schonfelder as part of the ABMSW plan.

(f) Other Issues

1. Module Procedures

The issue is whether modules which allow procedures should be permitted. This would simplify the language. Internal procedures can only be removed if Module Procedures are left in.

(ii) Names of Bit Intrinsic Functions

The MIL-STD intrinsic names have been changed in the ABMSW proposal so as to be more consistent with the set of Fortran intrinsic functions and avoid clashes with existing MIL-STD programs "used for other purposes". A straw vote was proposed by Mike Metcalf, seconded by Andrew Tait. "If MIL-STD bit functions are included, the MIL names should be preserved" [14-3-19].

(iii) Scientific Computation - Arithmetic (Wolfgang Walter)

More control over the arithmetic used in calculations should be allowed in the language. One should be able to require that arithmetic operations produce the exact mathematical values and define the accuracy required. Easy access to IEEE rounding operations should be possible. One needs good data abstraction and hierarchical structuring; therefore Modules are required.

(iv) Standardization of Fortran Tools (Edgar Soulier)

Lexical analysis of code is done by both compilers and software tools. It is usually host dependent and therefore not portable. If software tools were standardized they would be cheaper, more portable etc.. They could be less machine dependent if some of what a compiler produces could be standardized: for example the cross reference table could be used.

Discussion

DU CROZ: There is the TOOLPACK portable tools package.

SOULIER: TOOLPACK is difficult to install and use - 6 man months on a CDC machine.

REID: Four or five years ago the UK requested that a very minor standardization requirement be included - line numbers on the listing. No action was taken by X3J3.

SHEN: The problem of cross reference tables is not limited to Fortran.

SCHMITT: This is a matter for ISO JTC1 not WG5. If a member body produces a paper it will be considered but it is difficult to set up a new work item.

Discussion on Parameterized Integer

Scribe: Andy Johnson

SCHMITT: I support this, but need to be assured that parameter passage may be done properly.

REID: This feature is added in response to requests in many public comments.

BUCKLEY: If REAL(KIND=n) is added, does INTEGER(KIND=n) add any additional complexity?

REID: We must either move the discussion quickly or else show the entire plan, not just a feature at a time.

POLLOCINI: If KIND= is chosen as the common way to parameterize types, then this is a natural extension.

Discussion on Parameterized TYPES

REID: There is complexity introduced by having parameterized TYPES.

MARTIN: Functionality is too restrictive without parameterized types.

Discussion on Vector-Valued Subscripts

REID: Vector-valued subscripts produce an array which may have multiple members the same.

MARTIN: The trade-off is between functionality and complexity.

PAUL: Most machines support scatter/gather; this allows the use of a parallel implementation.

Discussion on INCLUDE Statement

REID: INCLUDE should be an environment tool, not an integral part of the language. INCLUDE is used typically to access COMMON definitions.

MARTIN: I agree.

ADAMS: The public comments requested it because it exists in so many implementations.

Discussion on Structures in COMMON

REID: No proposal exists, but one member has a potential scheme. The problem is with the EQUIVALENCE rules. Structures in COMMON require a more complicated rule which is storage associated or identical layouts (types, names, attributes).

MARTIN: Isn't REID supporting this concept?

SMITH: Hirschert model: every type has a storage unit class. Every other type has a storage unit class provided that the associations have the same patterns. The reason to do this is to relieve the Fortran 77 rules prohibiting the mixture of character and numeric storage units in the same COMMON.

Discussion on Stream I/O

MARTIN: Stream I/O is an issue raised in the WG5 comments.

Discussion on Allocatable Dummy Arguments

MARTIN: The Philips plan does not want allocatable dummy arguments. If we go to pointers, then the analogy is to prohibit pointer dummy arguments.

REID: When there is a pointer dummy argument, an interface is required to handle a pointer actual argument.

General Discussion

ROTHHAUSER: What about user defined operators? Ans: Already included.

BUCKLEY: This list is to focus strictly on the differences between the two remaining plans:
PUBLIC/PRIVATE is a related function to MODULE procedures.
ELSEWHERE is an item which gives rise to confusion.

SCHONFELDER: User defined types need to be parameterized to create higher order types (e.g. quaternions).

BUCKLEY: I am concerned that vector-valued subscripts require the creation of array temporaries.

TILBURY: Integer types (*n) exist in many existing implementations.

WAGENER: Structures in COMMON are proposed to allow new features to be integrated with old features in FORTRAN 77. The term is full integration. This is not a bad idea, and is not difficult to describe. I personally dislike the INCLUDE statement, but the public comment is overwhelming.

SHEN: Concerning the confusion related to ELSEWHERE, be careful in distinguishing between confusion, efficiency, and functionality. The International Journal of Man/Machine Studies has studies of programming languages and the likelihood of programmers making errors. Such an analysis should be done in this instance.

ROTH: KIND= for some type and not others is the most natural path. This should allow some LOGICAL KIND to occupy some amount of memory other than a numeric storage unit.

BUCKLEY: This is a technical discussion. Parameterized types can be handled another way.

ADAMS: I support ELSEWHERE. It is in the Cyber 205 and in active use. It can be taught, is in effective use, and belongs with the WHERE construct.

MUXWORTHY: The Fortran 8x emphasis has been on safety, and INCLUDE is an unsafe feature.

WALTER: Parameterized types, especially INTEGER, are a logical extension.

SCHONFELDER: MODULE procedures are the mechanism to building major software building blocks.

SHEN: I support the necessity of MODULE. The complexity argument could equally apply to the array features. The modules should be divided into definition and code parts.

MILINAZZO: Why are MODULE procedures so essential?

TILBURY: There is a technical contradiction with PUBLIC/PRIVATE and host association.

BUCKLEY: I suggest that Lawrie prepare a presentation on the importance of MODULE procedures. It has been suggested that straw votes be taken to give guidance on the attempt to merge the two remaining plans.

TER HARR: I suggest that a NO vote may not reflect a dislike but a reluctance to add to the document.

Straw Votes

Integer KIND=	[30-6-1]
Parameterized User-Defined Types	[8-14-15]
Vector-valued Subscripts	[18-6-13]
INCLUDE (in Standard, in Appendix, not in, undecided)	[13-16-7-1]
Stream I/O (3 functions, full, not in, undecided)	[20-1-1-13]
Pointer Dummy Arguments	[18-6-13]
ELSEWHERE	[12-7-18]

Other technical issues raised by member bodies

Varying CHARACTER (Type, Module, not in, undecided)	[12-11-1-10]
Bin/Oct/Hex Edit Descriptors	[22-1-11]
Bin/Oct/Hex Constants	[21-3-11]
Case Conversion Intrinsic (u/) function, TRANSLATE, not in, undecided)	[3-13-5-14]
Logical KIND= (Now, deferred, never, undecided)	[18-1-9-7]
Retain MODULE Procedures	[22-5-9]

(Paper N318)

MEEK: Can KIND values be passed as arguments? Ans: No, it is not necessary.

SMITH: This provides the same functionality as the ABMSW proposal with one other characteristic: you seem to be defining a precision characteristic within a program unit. For example, if KIND=25 this has semantics in other program units. How is this communicated?
Ans: By module definition.

BUCKLEY: You still have PRECISION= and EXPONENT= and this leads to the precision/exponent explosion.

WALTER: I do not understand because this does not say that it is a REAL type.

MEEK: We cannot define and regularize generalized precision by tinkering around the edges. You have to start from the bottom.

TER HAAR: KIND= should address all the characteristics of an intrinsic type.

MEEK: I agree.

14.1 WG5 Recommendations on Further Processing of DP1539

Scribes: Wolfgang Walter, Mike Metcalf

Discussion

ADAMS: I am responsible for the resolution of the controversies. The aim is that the ISO and ANSI standards be identical. The November X3J3 meeting will discuss the explicit recommendations from WG5. I should like to request the following:

- definition of the relationship between SC22 and X3J3
- an official WG5 representative on X3J3
- the e-mail address of each member of WG5

SCHMITT: X3J3 hasn't done its job of proposing 1 standard to WG5. It is now up to WG5 to make the decisions, not pass it back to X3J3.

MUXWORTHY: I agree mostly with Gerhard. We must try to reach an agreement amongst the international community this week. The USA is not the centre of the world.

POLLICINI: It is the policy of CEN/CENELEC that ISO standards are adopted for Europe.

ADAMS: The next X3J3 meeting will be very important and tough. I should like WG5 to nominate someone, preferably not an X3J3 member, to present WG5 views.

SCHONFELDER: There are 3 possible courses of action:

- a) WG5 thanks X3J3 for producing the draft document and processes it itself from here;
- b) WG5 directs X3J3 to edit the document exactly as described in its resolutions and according to a strict timescale;
- c) WG5 continues to monitor and comment as it has done for the last 3 or 4 years.

ADAMS: X3J3 has worked on WG5's proposals from previous meetings.

TAIT: X3J3 hasn't ignored the international community but it has not always given it enough weight.

PHILIPS: We just haven't always been able to agree.

JOHNSON: People want this standard, and quickly.

MEEK: The situation has changed since the Liverpool meeting: we no longer have the same freedom since the international letter ballot. We must address the negative votes without creating new ones. Each country should set up a "shopping list" along the lines of "if this is done we will vote yes". We should not be too hard on X3J3 which has to abide by X3 rules. However X3J3 is not only producing an ANSI standard but also an ISO one. WG5 should point in the direction X3J3 should go.

DU CROZ: One more meeting should be enough for X3J3, then another revised document should be ready no later than July 1989.

SCHMITT: A delay of 9 months is not acceptable.

ELLIS: X3J3 has two masters and two sets of rules. Most of the comments in the States came from single users whereas comments from ISO were the concerted efforts of national communities which produced a different style and quality of comment.

TER HAAR: A strong statement must be seen to emerge. WG5's vote must be unanimous, except possibly for the U.S.

MAAS: There are 2 kinds of users: individuals and collective users.

SCHONFELDER: An enormous amount of consultation has always been going on. The public review is only the latest step. The proposal did not emerge by accident. I did not get a negative impression from the public review. Technical or constructive criticism was interpreted by the committee as being negative but this wasn't always correct.

DU CROZ: How do we monitor X3J3? What mechanism is there? What do we do if they don't follow our recommendations?

BUCKLEY: These and the other points must all be discussed. We must first have a document.

ADAMS: I would like a straw vote on language partitioning.

TER HAAR: I am opposed: it did not work before. The complexity in Fortran 8x is more on the users' side than on the implementers'. It is not the task of a language committee to write the standard as clearly as a textbook - they can introduce subsets.

WARREN: I have never supported subsets. I would be dismayed if ANS Fortran 8x were not a subset of ISO Fortran 8x (if that happens).

WAGENER: The FORTRAN 77 subset was a technical failure - there are no surviving compilers. It was, however, a political success as it enabled FORTRAN 77 to get through at all. It might be a justification this time.

MEEK: All users use a subset. Subsets could help to achieve agreement, but current fashion is against. A subset does help with the introduction of a new language and makes compilers cheaper. But political reasons could be decisive, though they are not yet a WG5 consideration.

PHILIPS: I will consider whether we can use this as a way out of our dilemma, but it must give a real advance in power. But it is pointless if WG5 does not approve.

BUCKLEY: It is unusual to be discussing subsets before knowing what we are subsetting.

MARTIN: I have looked over the open questions between the two plans in the light of the straw votes:

- + module procedures
- + integer KIND
- parameterized user-defined types
- ? vector-valued subscripts
- + INCLUDE in the language
- + X3J3 structures in COMMON
- + stream I/O via intrinsics
- ? pointer dummy arguments
- + ELSEWHERE
- + PUBLIC/PRIVATE

DU CROZ: I hope that the anomalous status of INCLUDE will be made clear. We have seen two documents describing plans, the rest have been shown on slides - I propose ABMSW as the base document.

SCHMITT: The drafting committee thinks it is wiser to propose S8 + S16 as the base document, and then to specify changes without detailed edits.

REID: This is appropriate only if a desperate situation is reached, such as X3J3 ignoring Resolution P4. ABMSW is not as careful a piece of work as S8 + S16.

SCHONFELDER: I think that du Croz just wants one document to consider. I agree with Reid.

BUCKLEY: I too want a document to discuss.

JOHNSON: We must discuss DP1539; S16 is only edits.

MUXWORTHY: The drafting committee must take account of the latest votes.

MARTIN: We took account of what might succeed in X3J3.

REID: Also the list must be considered as a whole.

DU CROZ: Resolution P2 does seem sensible in that it gives direction to X3J3 in terms of documents they already have. Should we now consider the list in P2?

MEEK: We must start from DP1539, but there is no conflict in endorsing a particular proposal. It is the editor who needs to understand, so we should be precise.

SCHONFELDER: We intend to collapse the two plans into one, with the open points resolved as indicated, apart from the two exceptions. So then we could have just one plan.

WAGENER: We did not put in vector-valued subscripts, although that was approved in the straw vote in order to achieve our consensus. I have now updated the list in P2, there are only four changes.

SCHMITT: This list is also to be seen as a response to ISO comments. We must decide on the remaining open points, in order to avoid delay, and not leave it to X3J3.

ADAMS: The authors of the plans are working towards having their documents accepted in totality by X3J3.

BUCKLEY: Some items from other sources must be included.

WARREN: B, O and Z constants and edit descriptors are not considered; these are examples of what we should add.

DU CROZ: Add Logical KIND= to the list.

MEEK: Does this address an issue raised in public comment?

MARTIN: This is a way to get the much asked for BIT data type.

Straw Vote: "Add Logical KIND= to P2 list"

[19-6-10]

ROTTHAUSER: Internal procedures were never in the ISO comments.

TER HAAR: The DO WHILE is not on the list.

REID: It got forgotten.

BUCKLEY: It is not a critical issue.

TILBURY: I want more discussion on dummy pointer arguments.

BUCKLEY: I want that deferred.

MEEK: WG5 is not constrained to look only at items in the public comment. A comment like "the language is too large" is not acceptable. Note that a language can sometimes be made simpler by additions.

WAGENER: I support the Chair's desire to identify a plan we can work from.

WEBER: I would add varying characters to the list.

METCALF: So we will have added 11 items but removed only nine!

TAIT: The list of items to be developed is now too long.

MEEK: Each responds to a comment.

WAGENER: We should consider how much work is needed to reach the target of the two week rule of X3J3.

TER HAAR: The list should be kept short and contain only critical items.

ROTH: We can combine the four KIND= items into one.

WAGENER: There is no text available for one of these - logical.

PAUL: Does varying character include KIND= ? Ans: Yes.

WEAVER: The list would be better controlled if the items were to include their origin.

BUCKLEY: I have marked them as either "compromise" or "other input".

Straw Vote: "Take the list in P2; as typed, as modified from the compromise, as added to from other votes, undecided. [4-6-15-9]"

SCHONFELDER: We need one list.

ADAMS: We need the country votes too.

Discussion of NCHARACTER v. (KIND=)

Scribe: John Wilson

ELLIS: What does the following mean?

CHARACTER (KIND=2) CH1
CHARACTER (KIND=3) CH2

CHI is either a character from a character set identified as 1 or a particular size of storage location. The Japanese prefer the former definition. The designation of n in (KIND=n) is processor dependent: it is not necessary to define n=2 to be Kanji.

DAHLSTRAND: The Chinese proposal provides a mechanism for defining the character sets.

ELLIS: We have to be careful. Fortran should not provide yet another way of defining character sets.

WEAVER: I need an example to see how it works.

SCHMITT: 8-bit character sets have been defined by the ISO SC2 committee. Work is underway on 16-bit ones. The Fortran standard shouldn't say which character set is meant.

ELLIS: There is an international register of character sets kept by ECMA.

SCHONFELDER: n is only a selection of a type with no defined meaning of what this is. There is no need to assume n=1 is 1 byte, n=2 is 2 bytes etc.

BUCKLEY: There is nothing that says the character set used in Canada is the same as that in the USA. We never really say what character sets are. We should leave this for the next revision when we will know better how to do it.

MEEK: I disagree. We are obliged to allow languages to handle different character sets, e.g. by collateral standards.

WALTER: We could define a very large character set which includes all known language sets, but this would not be very convenient so we need to define a data structure.

WARREN: Is it a Japanese requirement that every standard conforming compiler must be able to handle at least 2 character sets?

OWADA: No.

ROTTHAUSER: (KIND=) should have similar meanings in REAL, INTEGER, CHARACTER.

PAUL: We need to be able to handle multiple precision, exponent range sets within the same implementation.

MEEK: (KIND=n) just means more than 1 type of...whatever.

ELLIS: The Japanese want to know what n means. If this is not to be part of the language, who is going to do the detailed work?

JOHNSON: There is a difference between character storage and character sets. We need to decide which problem we are trying to solve.

TER HAAR: (KIND=n) is an extensible concept for future standards.

SCHMITT: We were asked who is to do the work. Document N302 gives a text. We should look to see if this is what is wanted and come up with a proposal.

MEEK: This is a language independent problem. It will be discussed at the SC22 meeting - in Tokyo!

A Straw Vote was taken as follows:

1. adopt KIND=n is in document N302
2. adopt NCHARACTER as in the Japanese proposal
3. neither
4. undecided.

Result: [30-4-1-1]

MUXWORTHY: It is important to remove items from the list that require the development of new text.

SCHMITT: There must be text available already somewhere for items in this list.

BUCKLEY: It is important that we agree on one plan.

TER HAAR: I personally will vote no because internal procedures have been removed and the list is too long - it should only contain "critical" issues, but the Netherlands will vote yes on anything WG5 produces.

SCHONFELDER: Without parameterized derived types it is difficult to provide varying character via a standard module. I am adamantly opposed to another intrinsic data type, and think that it is essential to put back derived type parameters.

HEINZ: The full list is very close to the German position, and Germany will vote yes.

ADAMS: X3J3 has the responsibility for developing a standard for WG5.

BUCKLEY: The list should be as short as possible, so remove varying character, logical KIND=, and integer KIND=. It's ok not to have internal procedures if we have module procedures.

WALTER: It is important to have pointer dummy arguments.

WEBER: I/O is awkward with modules. Therefore an intrinsic data type is better. The best solution is to have adequate derived type I/O.

DAHLSTRAND: Let's remove anything from the list that won't cause any country to vote no.

METCALF: A large community is now constrained to write in standard Fortran 77. This is inadequate, and something close to DP1539 will be satisfactory. We need a new standard very quickly. Now is the time for WG5 to show restraint in adding new features in order to be able to get a standard.

REID: I have been working very hard to reduce complexity and several countries have made requests to reduce the complexity of DP1539. How do these countries now feel about these proposals?

Ans: Canada - we don't need to add additional things.

Japan - it may be acceptable.

Netherlands - complexity has never been of major concern to the Netherlands. Our original fear that a standard would not be available is now less.

USA - X3J3 has not come to agreement yet. Much of the list is "remove", which represents reduction of complexity; this list could give good direction to X3J3.

France - originally we were concerned with "coexistence" of old and new features; this proposal may be a good compromise; it's most important to get a standard quickly.

MEEK: Most of the current concerns are related to data typing. This is related to storage association. It's too late in this revision to "redesign" the overall Fortran data concepts, but much of the apparent complexity with respect to data typing is really simplification via regularization.

SCHMITT: We should focus on the list in P2. We should not remove trivial things like edit descriptors. We should leave logical KIND= for language completeness and regularity. But the most critical thing is to get the standard out quickly.

MARTIN: With the appropriate list, we could conceivably get a new document to X3J3 by November.

BUCKLEY: The content of the list is not as important as being able to get the standard out quickly.

OWADA: Japan prefers "multi-byte character" to be used in the description of KIND= character.

(A straw vote was taken to add this wording to the resolution: [13-10-11])

MEEK: The drafting committee should meet with the Japanese delegation to arrive at an acceptable wording.

DAHLSTRAND: How can you both remove and change host associations? Ans.: Change first, then remove.

SCHONFELDER: The last two items in the list (add varying character type and add parameterized LOGICAL (KIND=)) would add substantially to the time it takes to get a new draft out.

WEAVER: WG5 must limit its work to responding to comments. I am having trouble trying to understand the process here. For example, where did the item to remove concept of deprecation come from?

BUCKLEY: Canada could probably vote yes for any list that contains pointers and REAL (KIND=).

SCHMITT: Text should be made available to WG5 via a WG5 document number. We must get the standard out quickly.

ADAMS: Some of the items on the list are not much work (e.g. array constructor syntax, binary, octet and Hex. constants), and some are (e.g., varying character and LOGICAL (KIND=)).

DAHLSTRAND: Is removing things not specified in comments allowed? Ans.: yes, if it doesn't cause any country to vote no as a result.

DAHLSTRAND: I move that the chair ask the delegations how they feel about the P2 list. Would it produce a no vote?

A country straw vote was taken: result [9-0-0]

MUXWORTHY: Would the list be acceptable if all "adds" in P2 were removed?

A straw vote was taken on whether this would be more acceptable, as acceptable, less acceptable: result [19-6-2].

SCHONFELDER: I propose the same straw vote as the previous one, except remove items 5, 8, 9 (remove parameter to derived types, add varying character type, add LOGICAL (KIND=)) in P2: result [21-4-6-4]

MEEK: These straw votes are fine, but we need to know if any country would vote no in these last two straw vote cases.

The chairman asked the delegations if there is a serious danger of any country voting no as a result of either the Muxworthy case or the Schonfelder case. Only Germany indicated they might change to No in both cases.

15. Processing of Plan Resolutions

David Muxworthy presented a first draft of the resolutions proposed by the drafting committee and invited comments. Various straw votes were taken to determine the appropriate form of words. In particular, each country was asked whether the list of items included in the draft P2 resolution would represent a position which would produce a positive vote. All countries voted yes.

The wording of the various draft proposals was modified by the drafting committee in accordance with the discussion and subsequent straw votes. The final form of the resolutions and the results of the votes are given below.

A draft resolution on permitting a subset standard was discussed. A straw vote was taken on whether the drafting committee should prepare a resolution on subsetting: result [10-1-10] by individual, [3-2-4] by country.

Discussion

WILSON: I am opposed to subsetting but cannot say I would be under all circumstances. I should prefer that no formal vote be taken.

SCHONFELDER: It depends on what is in the subset. It must be "proper" and complete.

PHILIPS: We need to give some information to X3J3. We are not talking about an American subset but an acceptable ISO subset.

WAGENER: Subsets are abhorrent but the prospect of incompatible standards is even more so.

A proposal was made by Laurie Schonfelder, seconded by John Wilson: "We do not have a formal resolution but take straw votes on whether the concept of subsetting would be acceptable to WG5". This passed on a voice vote. A straw vote was taken as follows: "WG5 considers the concept of subsetting abhorrent, however an appropriate subset would be acceptable in order to have a common international standard". The result was [27-3-6] by individual, [6-0-3] by country.

16. Adoption of the Paris Resolutions

P1 LETTER CONCERNING INTERNATIONAL FORTRAN STANDARD

That WG5 requests SC22 to ask the US member body that X3J3 be reminded that X3J3 had been given the responsibility to develop the international standard for Fortran as well as the American national standard.

Passed: Individual [35-0-2] ; Country [9-0-0].

P2 REVISION OF DP1539

That WG5 agrees, based upon the ISO member bodies' comments as documented in ISO/IEC JTC1/SC22 N464 and ISO/IEC JTC1/SC22 N495, and upon the X3J3 straw votes documented in X3J3/221 and X3J3/224, that DP1539 be revised in the following way:

a) in accordance with X3J3/S16 (S16 is a list of editorial changes).