Informal Summary

Meeting of ISO/TC97/SC22/WG5 - Fortran

University of Liverpool, England

August 3-7, 1987

and

Documents Distributed since August 3

Documents N230 - N266

X3J3/214
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MEETING OF ISO/TC97/SC22/WG5 - FORTRAN

University of Liverpool, England

August 3-7, 1987

Informal summary of the meeting

Present:

Jeanne T. Martin (USA)
Gerhard J. Schmitt (Austria)
Klaus Plasser (Austria)
Fausto Milinazzo (Canada)
Graham Warren (Canada)
James H. Matheny (USA)
Leonard J. Moss (USA)
E. Andrew Johnson (USA)
Leo G. F. ter Haar (Netherlands)
Richard W. Weaver (USA)
Neldon H. Marshall (USA)
Jerrold L. Wagener (USA)
T. Miles R. Ellis (UK)
Akira Ohwada (Japan)
Yasumasa Kenada (Japan) (Monday and Tuesday)
Hirosi Ina (Japan)
Michael Geary (UK)
Brian T. Smith (USA)
Katsumi Yamamoto (Japan)
Kohmei Kuroda (Japan)
David T. Muxworthy (UK)
Brian L. Meek (UK)
Fred Hopper (UK)
Meinolf Munchhausen (Germany)
Christian Mas (France)
John Wilson (UK)
David M. Vance (UK)
Aurelio A. Pollicini (Italy)
Karl-Heinz Rotthauer (Germany)
Richard Hendrickson (USA)
Carl Burch (USA)
Kurt W. Hirchert (USA)
Lawrie Schonfelder (UK)
Steve Morgan (UK)
Alan Wilson (UK)
Jeanne Adams (USA)
Colin K. Mackinnon (UK) (From Tuesday)
Jeremy Du Croz (UK) (Thursday and Friday)
1. OPENING OF THE MEETING

The WG5 Convener, Jeanne Martin, opened the meeting at 9.00 a.m. August 3, 1987.

2. WELCOME OF THE DELEGATES

The delegates were welcomed to the University and to the City of Liverpool by the Vice-Chancellor of the University, Professor Graham Davis.

3. ADOPTION OF THE AGENDA

The provisional Agenda, dated June 10, 1987, was adopted with one change:

Delete item 8 (Approval of the minutes of the Halifax Meeting)

as these minutes were not yet available.

The following items were added to the Agenda:

13. (j) Discussion of Passed-on Precision

17.5 Discussion of S8 Copyright

(Under 18) Discussion of PHIGS binding

4. ELECTION OF THE CHAIR

Jeanne Adams was proposed, seconded and elected unanimously to the Chair for the meeting.

5. NATIONAL ACTIVITY REPORTS

AUSTRIA

The Austrian delegates had reviewed the X3J3 progress and comments on the WG5 ballot.

CANADA

The Canadian Fortran Working Group has 8 members and holds 4 meetings per year. Canada had voted Yes in the WG5 letter ballot so that a wider audience could comment on S8. Canada had produced a position paper for the Liverpool WG5 meeting.

FRANCE

The French Fortran Working Group has 8 members. The Group had followed the progress of S8 and had sent a letter ballot voting Yes with comments. The French Group had produced a position paper which now effectively votes No with comments which would be treated by X3J3 in the same way as any other comments.

It was noted that the next WG5 meeting has been
GERMANY

The Fortran Working Group of DIN has 7 members. The Group had discussed the S8 document and comments with No votes together with their X3J3 responses. A German position paper had been prepared. WG5 members' attention was called to the document called "Fortran SC" which is a language similar to Fortran 8X suitable for the development of scientific and numerical programs. The Germans have a compiler for this language.

ITALY

Agreement has been reached with the Italian Standards Organisation. An official letter will shortly be sent to SC22 and WG5. No report has yet been produced because there is no Italian Working Group. There is an express intention to have an Italian National Report in 1988. Italy needs to build a group because Aurelio Pollicini cannot express a personal opinion as a national position. Pollicini is planning to organise a Fortran 8X course for existing Fortran 77 programmers so that programmers will be able to see in practice what Fortran 8X looks like.

JAPAN

The Japanese Group has been examining the Fortran 8X draft for many years. The Japanese position is Yes with comments. The Japanese are strongly proposing multibyte character codes (e.g. for Kanji).

NETHERLANDS

Activities have been restricted to discussions on the S8 proposals. The Netherlands Group consists of 8 members and meetings of the Group are convened approximately every 3 months. The Group did not take part in the WG5 letter ballot because of time constraints. The Dutch position is Yes with comments. The Netherlands delegate has a position paper to present.

Fortran 8X is of interest to Shell. S8.104 is a better document than the previous versions and X3J3 are to be congratulated on their work.

A major reservation is the way in which C is becoming a very popular language because of its functionality. The Dutch Group did not agree with the removal of Fortran 8X language features to an Appendix.

UK

The UK Group has tabled an activity report. The UK position can be informally stated as "get the draft standard out to public comment as soon as possible".

provisionally scheduled for September 19-23, 1988 in Paris but that these dates might conflict with the meeting of the SC22 Advisory Committee in Tokyo.
The UK Group drew X3J3's and WG5's attention to the forthcoming British Standard: *Method for Specifying Fortran Language Processors*. This standard will be published by BSI in November 1987 as BS 5832. A set of special concessionary order forms will be sent by the BSI to Brian Meek and to Laurie Schonfelder so that X3J3 and WG5 members can obtain copies of the standard at a discount. (Note added later: The forms were available during the meeting and stated September as the publication date.)

(Report of the X3J3 committee) X3J3 had met 5 times since the Halifax meeting. 5 more meetings are planned for 1987/88. Four Fortran Forums have been favourably received. One of the main causes for objections to Fortran Bx in these Forums is the presence of obsolescent features.

The main documents that had been produced were:

- X3J3/58.104
- X3J3/59 {Comments on Fortran Bx}
- X3J3/510 {Fortran Bx historical document}

The following ballots had been held:

- X3J3 letter ballot 1986 NO (44% voted Yes)
- WG5 letter ballot YES (93% Yes)
- X3J3 letter ballot YES (81% Yes)
- X3J3 Roll Call vote YES (74% Yes)

6. **APPOINTMENT OF THE DRAFTING COMMITTEE**

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

- Graham Warren
- Gerhard Schmitt (Drafting Committee Chair)
- Aurelio Pollicini
- David Muxworthy
- Dick Hendrickson
- Karl-Heinz Rottkaufer
- Hiroshi Ina

7. **STATUS OF THE X3J3 RESPONSES TO THE HALIFAX RESOLUTIONS (J WAGENER)**

The latest version of the status of these resolutions is in document ISO/TC97/SC22/WG5-N227 (Standing Document 6). This represents a first draft of the wording of the X3J3 responses. Jerry Wagener's personal feeling regarding the X3J3 attitude to each resolution is summarised as follows:

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a SF</td>
<td></td>
</tr>
<tr>
<td>1b MF</td>
<td></td>
</tr>
</tbody>
</table>
2  MU  SF  Strongly Favourable
3  ?   MF  Mildly Favourable
4  SF  MU   Mildly Unfavourable
5  SF  SU   Strongly Unfavourable
6  SF   ?   Neutral
7  SF
8  SF
9  SF

10 SF
11 MU
12 SF
13 SU
14 SU
15 SF
16 SF
17 Failed in WG5
18 Failed in WG5
19 SF
20 MU
21 Failed in WG5
22 SU
23 MU

Two levels of deprecated features
Blanks made insignificant
RANDOM intrinsic subroutine adopted
Investigated by X3J3: Proposal failed
Replaced by NAMELIST
Also a Bonn resolution. Not possible in confines of current syntax.

Items 1 to 9 are procedural; items 10 to 23 are technical.

Strongly favourable technical issues are:
Processor conformance
Data Abstraction
RANDOM intrinsic
Character intrinsics
Structure constructors

Strongly unfavourable technical issues are:
Deprecated features
Significant blanks
Name-directed I/O

Mildly unfavourable technical issues are:
Pointers
Operator renaming
Procedure interfaces

7.1 Discussion

MEEK suggested that the texts of the resolutions should be interspersed with responses so it was always obvious what any response referred to. WAGENER expressed his agreement to this suggestion.

MARTIN noted that Document N205 contained the text of the resolutions.
MEEK also felt that, if a WG5 resolution was not accepted by X3J3, the text of the failed resolution should appear with the reasons for its non-acceptance.

HIRCHERT remarked that a negative vote does not necessarily mean that a technical reason is given.

SCHMITT suggested, and the Chair agreed, that, if a resolution is re-affirmed by WG5, a new resolution with new text should be prepared so that old resolutions do not need to be carried forward.

Concern was expressed at the time taken to get the draft standard out to public comment. The Chair noted that public review in the USA is only possible when the X3J3 parent X3 committee allows it.

SCHMITT reminded the meeting of the Halifax resolution "send out the draft for public review prior to the next (Liverpool) WG5 meeting".

ELLIS noted that the review was delayed and that the Halifax resolution was also aimed at the X3 committee.

8. STATUS OF FORTRAN 8X IN X3J3 (JEANNE ADAMS)

The ballot on the question of S8 public comment had passed. A response had been prepared based on the votes cast which contained both positive and negative votes as well as the final roll call vote. The SPARK committee had checked the draft for compliance with drafting standards in early July. On July 20, 1987, a ballot had been sent out to X3 members asking them to vote on whether S8 could now be sent out for public review. If the ballot is favourable, S8 will be available, bound together with the response document, from Global Engineering of Washington D.C. at a cost of maybe $100 per copy.

8.1 Discussion

It was still hoped to keep the ANSI and ISO public reviews in step. It was noted by WEAVER that the timescales involved in procedural rules will probably mean that the US review cannot start until October 1987.

As a result of the need to circulate the S8 document for public comment, there was discussion amongst the delegates (notably SCHMITT, MECK, WILSON, HIRCHERT, VALLANCE, WEAVER and ADAMS) about the copyright status of the S8 document both in the USA and elsewhere in the world. ADAMS noted that S8 was an internal X3J3 document. MECK noted that S8 was also an SC22 document. Andy Johnson was asked to obtain a statement on the copyright of S8 from CBEMA. The response was allocated to Agenda item 17.5.

MECK wanted the drafting committee to re-affirm any outstanding resolutions from Halifax. The Chair instructed Gerhard Schmitt to renumber and re-present all such items.

SCHONFELDER proposed that the drafting committee should prepare a resolution along the lines: "A set of WG5 resolutions from Halifax was
put before X3J3 and a set of responses have been received. Does WG5 think these responses are adequate?" The Chair noted that, as X3J3 had considered the Halifax resolutions formally, WG5 should make a formal response to X3J3.

9. PROJECT STAGES IN ISO (JEANNE MARTIN)

The ISO standardisation process consists of the following stages:

Stage 1: Development of WD (Working Draft)

Stage 2: Registration of DP (Draft Proposal)
- 3 month vote/comment period amongst P members of SC22
- 2 month vote period for successive drafts
- SC Secretariat decides when to proceed

Stage 3: Registration of DIS (Draft International Standard)
- 6 month vote period in TC97
- 75% of votes cast must approve or revert to Stage 2

Stage 4: Four months allowed to prepare (possibly revised) DIS and report of processing history for Central Secretariat.

Stage 5: If no more than 2 negative votes cast in Stage 3, go to Stage 7. Otherwise Council decides outcome within 6 weeks.

Stage 6: Council decides to publish or revert to Stage 2

Stage 7: Publication of IS (International Standard)

There was confusion over the number of P members in TC97 and the countries that they represented. The Chair nominated Jeanne Martin to present the list later in the meeting. (The list in N235 inadvertently omitted China and the Netherlands.)

Jeanne Martin had sent the S8 document to Stage 2.

9.1 Discussion

ELLIS asked what happened if the X3J3 review period changes S8 during the ISO review.

MEEK noted that the US comment period merely produces US comments for the ISO review.

SCHMITT noted the following:

(a) The name of TC97 will shortly change to Joint Technical Committee Number 1. The first meeting of this committee is in November 1987.
(b) Discussion had so far left out the problem of the French translation of 58.

(c) The 58 document is a revision of an existing standard and will be allocated the same number as its predecessor. ISO will normally print a suitable cover page for the ANSI standard text.

(d) We may need special wording in the ISO Standard that is not in the ANSI Standard.

MARTIN noted that the wording in the 58 foreword is inadequate for an international standard.

MAS said that the French Group were waiting until the end of the current WG5 meeting to decide what to do about translation. Translation would take about a year, but this would not be a major obstacle to voting within SC22.

There was discussion between the Chair and HIRCHERT regarding the status of the SC22 TAG in relationship to X3.

MEEK noted that the existing 58 layout did not conform to ISO drafting standards, thus it is likely that ISO will prepare a one page standard which simply references the ANSI Standard.

10. ISSUES ARISING FROM THE WG5 BALLOT COMMENTS

(These issues were not necessarily discussed in the order presented here.)

10.1 Pointers (Carl Burch)

Burch referred to paper 21, page 243 of the upcoming X3J3 premeeting distribution. Burch presented the contents of that paper.

SCHONFELDER: The proposal is still not a completely general pointer facility. It doesn’t distinguish a pointer from the object that it points to. I dislike having both keywords (ALIAS and ALLOCATABLE) – we need only one of them.

MATHENY: I question whether a pointer facility that doesn’t say "pointer" anywhere will sell to people who must have pointers.

MOSS: I think it will.

JOHNSON: The facility is what a Fortran programmer would expect to find.

SMITH: What do you use for actual and dummy arguments?

MOSS: The advantage is that it doesn’t look pointer-like. My users like things to be simple.

HOPPER: I want to see procedure variables referred to by pointers.
HIRCHERT: The framework described could support procedure variables. The rules needed are rules for ALLOCATABLE attributes.

SCHONFELDER: There is no pointer to pointer facility in the proposal as it stands.

MARTIN: Putting ALLOCATABLE and ALIAS together is a good idea. I like "VIRTUAL".

SCHONFELDER: The dereferencing problem becomes critical.

ADAMS: Has any non-X3J3 member a view?

SCHMITT: Against pointers in F8X.

MOSS: Right way to approach a problem is to try to implement it without altering the language.

TER HAAR: Apologise for lack of knowledge of subject area. Understand that F77 does not have certain functionality. Community wants those facilities. Do we need to give facilities to Fortran community to solve this sort of problem. If so, how do we do it? Pointers introduce dangerous things. If needed have to accept the danger in use. Would vote yes if needed.

MEEK: The difficulty of storing records with pointers within so they can be retrieved later is not new. Nothing inherently dangerous about pointer if used sensibly (no worse than the dangers of unconditional GOTO).

MOSS: Pointers will not degrade performance with an optimising compiler if there are rules for the use of pointers.

MUNCHHAUSEN: If we want pointers, they should be restricted to certain objects. Like the way pointers are implemented in C.

MAS: In favour of Munchhausen view of pointers.

MILINAZZO: Proposal goes a long way very cheaply. In favour of it.

MOSS: Can do the Burch proposal by a very small change to current draft.

HENDRICKSON: Doesn't think the concept is an easy thing to add to the language.

MOSS: Meant that it looks the easiest way to proceed not that pointers were easier.

WARREN: Seems to provide functionality at little cost. Schmitt will produce a resolution.

10.2 Significant Blanks (Andy Johnson)

The proposal for significant blanks affects only the new free-form source.
[1] The syntax of the language does not require significant blanks


TER HAAR commented that S8 should not advocate the use of non-significant blanks (e.g. in labels, page 3-4 line 21 of S8).

A straw vote on the proposal that a resolution be prepared on significant blanks was 10-12-5. As the vote was close, Schmitt would still prepare a resolution.

10.3 Multibyte Characters (Jim Matheny)

KANJI problem

It is very desirable that new capabilities be within the existing extension mechanisms in 8X. When Matheny started to write a Kanji module, he felt that no further I/O was needed. The problem can be solved with a derived type module without impacting the people that don't need it. An intrinsic module of derived type can be made available as an Appendix to the Standard or published elsewhere. A module is not necessarily inefficient.

Matheny has prepared a document for the X3J3 pre-meeting distribution (see X3J3/212, page 259).

SCHMITT: How do you handle a substring?

MATHENY: I haven't tried to solve that problem.

SCHMITT: What about the source form?

MATHENY: I'm not yet sure how to handle the escape sequences.

SCHMITT: In your model, 5 one-byte characters and 5 multibyte characters do not have the same length. A-format is not suitable for such strings.

MATHENY: The output routine can get the length of any concatenated string. This is not a problem on output but might be a problem on input.

MOSS: On output, you don't want type CHARACTER, but type KANJI. Matheny has not answered all of his own questions.

HIRCHERT: Escape sequences are not going to keep tabs, etc. aligned.

BURCH: There is a requirement to allow an extended, but limited, mixture. I cannot see how tab left with a Kanji character will ever work.

ADAMS: Detailed discussion of the technical issues should be deferred until the X3J3 meeting.
HOPPER: How will ICHAR work?

HIRCHERT: We can’t decide what we are doing unless we understand the technical alternatives. Either we make Fortran processors work completely or we provide a complete module solution. The Japanese want their programmers to be able to freely use their own character set. I wonder if a processor option would solve the problem.

INA: A comment on the Chinese paper (N251). The whole problem has been discussed about 10 years ago. The Chinese paper leaves the user to take care of the escape sequences and does not solve the substring problem.

We need a facility that will be useful for old Egyptian and old Indian characters - in fact any characters.

10.3.1 Presentation on Kanji (Akira Ohwada)

The Japanese have tabled a paper on Kanji (Document N238). About one billion people in the world do speak non-English. Fortran needs to make it easier for such people. There are many other nations as well as Japan who would benefit. If the S8 draft does not accept multibyte characters, Japan is against the draft. The Japanese delegation would like WG5 to recommend the feature to X3J3.

The Japanese delegation gave a demonstration of the use of Kanji in Fortran on a PC.

WEAVER: There is no doubt that the Japanese need a mixture of Latin and Kanji characters. Kanji takes 2 character positions on a line.

INA: For reasons of efficiency, the current Japanese processors do not handle mixtures: a character is either Kanji or EBCDIC for reasons of efficiency.

MOSS: Thanked the Japanese for the examples which had clarified the issue for him. Noted that KIND=2 means a second type of character not a 2-byte character.

INA: A set of character codes could be given to a compiler as an option. Currently, each character in the NCHARACTER implementation takes two places on output. In the future, possibly each Kanji character would take only one place.

SCHMITT: Has seen two solutions to the problem. The Japanese solution requires a change in the language. Noted that the use of Aw with the KIND= implementation causes problems.

HIRCHERT: I suggest that we have been characterising the problem backwards. What we really have is one very large character set and we take subsets of this major character set. The user should not need to be aware of the use of any escape sequences, etc.

WAGENER: One-byte/multi-byte emphasis is practical but does not necessarily capture the strategic issues. If we implemented Fortran
characters as a 32 bit word, would this problem arise? Is Kanji a special case of integral signs, square root signs etc? Does the use of KIND= trigger a data type that is not type CHARACTER?

SCHMITT: Typesetting facilities and the need for a large character set are not the same. Typesetting requires that each character has attributes.

MOSS: You shouldn't map all possible characters into one huge character set. How do you collate italic letter A and roman letter A?

HENDRICKSON: In some abstract sense characters are characters but, practically, switching to bigger characters increases storage requirements and reduces performance.

ADAMS: I have a note from Rich Ragan saying that CDC strongly supports extensions to Fortran 8X that support Kanji.

VALLANCE: We once implemented F77 on a 24 bit word/6 bit character machine by using only 8 bits of a word for each ASCII character.

POLlicini: Will character size change as KIND= changes the character set?

HIRCHERT: KIND= does not cause a different data type. Whether we allow assignment or conversion depends on whether we define appropriate conversions. Note in passing the possibility of KIND=* to declare character dummy arguments. Note also that there is nothing in 8X that defines a relationship between how characters are held internally and how they are held on a disc.

MEEK: I do not like the KIND=2 concept as you can run the same program on 2 systems and get 2 different sets of results.

I am also concerned about the problem that KIND=2 means different things on different machines. There are registration mechanisms for character sets. There is a committee in TC97. I would recommend that any WG5/X3J3 proposal should not conflict with anything done in that committee.

The reference to using an option to invoke the Kanji mechanism makes me think that the standards committee cannot avoid the concept of options in standards for ever.

Has anyone considered putting the Kanji proposal forward not as part of the 8X standard but as an incremental standard (not a module)?

It is unwise and probably counterproductive if X3J3 tried to look at this problem only in relation to Fortran.

INA: I will summarize the Japanese proposal. Within our proposal you cannot concatenate different KIND=; you can only concatenate within the same KIND. The operation of concatenation is the same. You don't need to change any specification and can still use the A/W formatting for I/O. The compiler can distinguish between different KINDs. By using KIND, everything else in the standard is the same.
Matheny's simple module example was not complete or perfect but the Japanese feel that this approach could not properly support Kanji. How is a substring handled?

Demand for different kinds of character sets will increase in the coming decades. China will eventually require its own character set on a computer.

WEAVER: What forums exist to address Kanji as a cross language problem? (remark addressed to Meek)

MEEK: I was saying that you don’t solve the problem in isolation but you see what other languages are doing. We will have to rely on the Japanese delegates to other language working groups. The Forum is SC22. Each national body will have to give consideration to the general problem. Something should be done in the Fortran arena as soon as possible. Kanji could be raised at the SC22 meeting in September.

SCHMITT: We need to address the problem at the Fortran level and also get the issue tabled at SC22.

HIRCHERT: We need to pursue both options for implementation. There is no way that we can predict all characters that will be used on a Fortran processor.

POL LICININI: I remind the meeting of Halifax resolution 1b.

A straw vote on a resolution to investigate Kanji was 32-0-2.

MEEK: Would the Japanese delegation consider an incremental standard to be acceptable?

SCHMITT: We want a resolution to ask SC22 to take the issue to TC97.

10.4 Exception Handling (Kurt Hirchert)

Standard Fortran is only defined when things work well. X3J3 looked at adding a standardized error handling facility in the language. Initially, this resulted in "event handling". There was concern in X3J3 at the cost of implementing this, particularly as the proposal allowed a program to continue (optionally) in the event of a failure. A second approach was proposed ("condition enable") which was simpler and easier to implement. This proposal was not as thoroughly integrated with the rest of the language as it might have been because of time constraints. There was "nagging doubt" on the part of X3J3 that the proposal was not technically sound. The proposal was moved to Appendix F of S8.

MOSS felt that the actual responses in the ballot were not the real reasons.

MUNCHHAUSEN asked if there were any plans to support multitasking in the model. HIRCHERT noted that the design was for error handling and not to aid synchronisation.
SMITH had presented the proposal to two members of the IFIP 2.5 committee who had not understood the proposal until he explained the underlying models. Both then thought it was an excellent framework to assist numerical calculation and both wanted the ability to substitute a default value if something went wrong during a calculation.

There was further discussion (MEEK, SCHMITT, HIRCHERT, VALLANCE) followed by a straw vote on whether there should be a resolution to put exception handling back into S8. The result of this was 10-15-6.

10.5 Bit Data Type (Lawrie Schonfelder)

Bit data type is in Appendix F. Anyone looking at F8X sees masked arrays with logical as in F77 but not bit data. The bit proposal was really a one-bit logical supported by a small number of instructions. Other proposals have wanted bit-strings. Such bit-strings have a different application.

HOPPER: Desirable especially for the array processing associated with image processing.

MEEK: You need multi-dimensional bit arrays for crystallography.

MOSS: Main problem is with the format of bit strings. The best choice is logical bits.

HIRCHERT: Apple brought out Mac 2 which uses bit strings to describe the screen.

MAS: Had written signal processing program both in Fortran and PL/I. Very efficient in Fortran using extensions but harder to program. Easier to use bit strings in PL/I.

ADAMS: If bit goes back in the language is the language too large?

MOSS: Wait for public comment.

MEEK: Should be reconsidered during public comment period.

HENDRICKSON: Easy to overestimate how useful bit data type is especially when concerned with 2-d arrays.

TER HAAR: Important to have bit type.

WEAVER: In letter ballot, 6 of 7 no votes mentioned missing bit data type. There is evidence from implementation of bit intrinsics by vendor that bit data type is wanted.

HOPPER: Need to be able to write and read back.

Schmitt will prepare a resolution.

Straw Vote Logical bits 16
Bit string 3
Undecided 16

W65 LIVERPOOL 15
WAGENER: Maybe it doesn't do what it is intended to do. It has a lot of new operators. Perhaps it is better as a parameterised logical. Maybe the Appendix f version is ill-advised.

10.6 Vector Valued Subscripts (Dick Hendrickson)

Vector valued subscripts had been in S8 for a long time. They were removed 18 months ago. The main problems were the different rules regarding many-to-one mapping that applied depending whether an assignment was involved or not and the implied gathering when a vector valued subscripted array element was used as an argument.

No straw vote was taken.

10.7 Deprecated Features (Andy Johnson, Carl Burch)

Appendix B of S8 lists all these features.

(1) There are no deleted 77 features.

(2) Obsolescent features are those features that X3J3 recommends should be removed at the next revision of Fortran.

(3) Deprecated Features carry the recommendation that they are removed two revisions later. This introduces the concept of language evolution. To date, there is no such mechanism. It is inevitable that mistakes are made and that things will need to be removed sooner or later. However, even allowing for the possibility of removing things from the language is politically fraught.

Most Code presented to 8X compilers will be 77 code in transition. Appendix B tries to deal with anticipated public comments.

MUXWORTHY: Deprecated features should not be mentioned as such in the body of the Standard. You should identify items that might be deleted next time round.

MARSHALL: Feels that there are a lot of dinosaurs in Fortran. Language is becoming a graveyard of archaic statements. If we don't mark something as deprecated, the next committee cannot do anything. I would like to see a single list with a few more features.

WARREN: Agrees with Marshall - deprecated features should be identified in the text.

JOHNSON: Mandate had come from one of the parallel committees to X3J3 that incremental features should be identified in the way of Appendix B.

VALLANCE: Bit-users determine what is obsolescent.

TER HAAR: In Shell, we would have an edict not to use certain features.

HIRCHERT: Important distinction between obsolescent and deprecated was
that obsolescent features could be got rid of now in 77.

MOSS: Realised that assigned GOTO in obsolescent has internal procedure as replacement.

BURCH: Need to change.

ADAMS: May need editorial change.

WAGENER: Tremendous controversy in X3J3. Better to err on the side of going slow. Would personally prefer one list, but the mechanism in Appendix B allows us to go slow.

HIRCHERT: Possible to replace ASSIGN/ASSIGNED GOTO with safer F77 features.

MOSS: I don't think that computed GOTO can replace use of assigned GOTO to simulate internal procedures.

Straw vote on whether to retain resolution Halifax/13 on one list of deprecated features. (6-13-11).

Further discussion. Noted that X3J3 cannot bind its successor. Some feeling (Moss, Muxworthy) that shouldn't have deprecated features

Straw vote

| Like S8 description | 13 |
| Live with S8        | 15 |
| Dislike S8 description | 2 |

10.8 Syntax Charts (Miles Ellis)

Something other than words is needed to describe the language. The current Fortran 77 Standard has "railroad charts" which seem to be popular. Miles Ellis had looked at the problem of generating railroad charts from the syntax productions. After discussion (BURCH, ELLIS, MEEK) there was no straw vote.

10.9 Presentation and Readability of the Document (Jerry Wagener)

The following is a summary of the style and readability comments from the WG5 ballots:

- Too much duplicate text
- Text too verbose, tutorial, tautological
- Always have an introductory paragraph at the start of a section
- Include a new appendix with railroad charts
  Use railroad instead of BNF
  Use ISO standard form of BNF
- Forward references are too numerous and are poorly handled
- No feeling of consistency or top down design
- Section notes should be integrated with the text
- Should have a one page appendix on the history of Fortran
- Section 2 is neither a glossary nor an overview
- Distinction between program unit, subprogram, procedure
is confusing (changes made since)
- need standard organization for each concept (general, syntax, examples, semantics)
- the Standard "feels" too big

X3J3 had attempted to improve S8 in the following ways:
- many more examples had been added
- very many minor editorial enhancements had been made
- Section 4 introduction had been completely rewritten
- Overview had been added to foreword
- General organization was now considered good
- noted that the index was neither complete nor adequate
- a glossary had been added
- the BNF terms in Appendix D were cross referenced

There was discussion on the size of the line numbers at the side of the text and on the quality of the index. It was important not to overload volunteers with the work of manually preparing a completely comprehensive index.

HIRCHERT suggested that the text of S8 might be more readable if a Times Roman or similar typeface were used.

It was agreed that a resolution would be prepared which appreciated the work done by X3J3 members in the area of improving the readability of the document.

10.10 Passed-on Precision (Karl-Heinz Rotthauer)

Delegates were referred to document N245, the proposed changes for user-overloading to replace passed-on precision on page 2.

MUNCHHAUSEN: Is an interface block necessary for a (*,*) argument.

BURCH: Yes

SMITH: Implementers would not want to adopt the German solution because of the potential need to copy in/copy out where array precisions do not match. Performance problem.

There are problems with the concept of a standard-conforming processor. The German method is OK on IBM but not on CDC (say).

SCHONFELDER: For a very large proportion of numerical algorithms, you can write a generic procedure. As long as you satisfy the necessary condition that actual and dummy argument precision match. In order to get sufficient condition, the remainder of the (*,*) definition is required so that programs are both portable and standard conforming across many processors. The problem was looked at in great detail and proposals like the DIN proposal were rejected.

HIRCHERT: Model of how you could allow the compiler to remove 'clear code for a particular precision.
Some features in standard are really intended for IMSL, NAG etc. who prepare tools for other average programmers.

Typically the professional programmer will not use (*,*)

It allows overloading only amongst procedures that are nested (e.g., in a module). External procedures must all have unique names.

**MUNCHHAUSEN/MAS:** Discussion on the establishment of an interface for a procedure. The outcome - the calling procedure either has an interface block or the procedure can be in a module or be an internal procedure.

**MUNCHHAUSEN:** Would like editorial clarification of the interface problem.

**SCHONFELDER:** Can define implementation model that doesn't need interface block. No need for dynamic behaviour. Can implement by a locational replacement pre-processor.

**SMITH:** SB defines the interface problem.

**MUNCHHAUSEN:** Now satisfied.

**HIRCHERT:** There may be things that can be done to clarify.

Straw vote on whether a resolution that X3J3 should reconsider passed on precision and ensure that it is compatible with F77 (3-13-15).

**MOSS:** Some WG5 people should look carefully at the (*,*) proposals as X3J3 believe that it is now correct.

**BURCH:** C-16 lines 18-26 of the Section Notes describes how the passed on precision ought to work.

**ADAMS:** I will make a proposal to X3J3 that notes should be interspersed with text with an indication that notes are not part of the standard maybe a resolution.

11. **STATUS OF HALIFAX RESOLUTIONS**

The drafting committee had prepared an initial draft of resolutions. Delegates were asked to consider which resolutions should be brought forward from the Halifax resolutions. SCHMITT wondered whether it would be necessary to word some resolutions so that two votes were possible: (a) on the technical content of the resolution and (b) on whether the resolution proposed something that might delay the Standard. The committee wanted to carry forward Halifax resolutions 11, 13, 14, 20, 22, and 23.

**MEEK** suggested that some if not all of the Halifax resolutions brought forward should be reworded in the form: "WG5 urges X3J3 to reconsider . . . when public comments are being processed"
11.1 Operator Renaming

There was a brief discussion on the technical issues raised by this proposal (MOSS, HIRCHERT, WAGENER). A straw vote was taken on whether a resolution on the inclusion of operator renaming was necessary (11-24-10).

11.2 Name-directed I/O

X3J3 had spent a long time on this issue. X3J3 felt that the syntax/semantics of name-directed I/O was better, but that existing practice had NAMELIST.

BURCH: Current practice varied so name-directed I/O was invented. Over the years, different vendors' ideas had converged so giving a de facto standard for NAMELIST.

MEEK: Concerned about the "minor variations" amongst implementations. The original reason for WGs not wanting NAMELIST was these minor variations.

HIRCHERT: The NAMELIST defined in 58 does not correspond exactly to anyone's existing practice. Vendors could support both the standard and their own variant. NAMELIST provides a major feature (the list) which is not available in name-directed I/O.

MATHENY: The NAMELIST statement does not restrict a list to one statement.

SCHMITT: NAMELIST is not consistent with the syntax of other I/O components.

HIRCHERT: To some, the confusion already exists: e.g., in H-format and quoted strings in format where part of the format appears as output.

BURCH: Agree with Meek that current practice is not the only reason for adopting a construct into a standard language.

A straw vote on whether there should be a resolution in favour of name-directed I/O was taken (11-15-8)

11.3 Procedure Interfaces (Bonn Resolution 24)

WAGENER: X3J3 haven't seen a way to do it. It would be a nice feature but it is not possible. Any resolution should suggest a way to do it.

HIRCHERT: The X3J3 subgroup could not find a way.

MOSS: In order to use the facility, you would need access to the source code. If you had the source code, you can use a module then there is no need to use a procedure interface block.

TER HAAR: The interface block is a good idea if the same block can be used both in defining and referencing the procedure. You could, of
course, use the unacceptable INCLUDE!

HIRCHERT: I can envision reasons why a procedure would be external rather than in a module. The disadvantage of the textual include is that identical text may have non-identical meanings.

ADAMS: Is there any non-X3J3 group that will provide a proposal?

MUNCHHAUSEN: The problem has been solved in C.

JOHNSON: INCLUDE will redefine an object. You can have a procedure interface block followed by an internal procedure that exhibits the same properties. C has an equivalent to the procedure interface block.

SMITH: Misunderstands what has been said. Has a simpler model. The routine being called is either in a Fortran program or it is not. If it is Fortran, then it can be enclosed in MODULE/END MODULE statements. If it is not Fortran, then the user must specify the procedure interface block.

MUNCHHAUSEN: The problem is that you specify the procedure interface twice; this is error prone.

SCHONFELDER: You could do all that Smith says. On the other hand, Fortran allows you to define the interface twice.

MOSS: You can define the interface if you are in a support environment then alter the procedure body. The environment will then say what has to be recompiled if anything changes.

ADAMS: Any resolution must be complete in technical detail.

TER HAAR: It may be that X3J3 has to clarify the current S8 document.

SCHMITT: I suggest that no straw vote be taken but that anyone who is interested should attempt to draft some wording for a resolution.

11.4 Use of [ ] Characters

SCHMITT: On a system without the ASCII character set, say DIN or French, you do not have the [ ] characters. Thus you have to use the alternate forms (/ / and / ) for programs because you cannot write a standard conforming processor otherwise. Either X3J3 or WG5 has to do something. We need to word an appropriate resolution.

SCHONFELDER: How do you cope with Algol in the same circumstances?

SCHMITT: There are alternate forms for Algol symbols in systems with limited character sets. In the past, people normally used ASCII. There is now an increasing use of own language character sets. The next step is to change from a 7- to an 8-bit code.

ADAMS: Wishes it were possible for 8X to go to an 8-bit code.

HIRCHERT: [ ] could be treated in the same way as lower case so, quite
naturally, [ goes to (/ and )] to /). Then (/ and /) could be used in the primary definition.

SMITH: I have a problem with the statement "you cannot write a standard-conforming processor"

SCHMITT: Refer to p3-2 of S8.

SMITH: The alternatives (/ and /) are provided for portability.

MEEK: Discussion shows the problems caused by a number of things, most importantly ignoring the existence of other relevant standards. Recommends that whoever looks at this problem should please read the guidelines technical report which is currently being updated. Believes it possible to alter the wording in S8.

HIRCHERT: I disagree with Smith on what the portable programmer has to do. I might use [ followed by blank and ] preceding by blank then use a global edit to change to (/ and /) if necessary later.

WEAVER: [ and ] were introduced to avoid a single ambiguity viz A = [1,2] where [1,2] is not a complex constant.

It seems amazing that there is all this confusion/discussion for one use of [ ]. Perhaps S8 should specify the use of (( and )) for this one ambiguous case.

SCHMITT: The drafting committee will prepare a resolution asking X3J3 to resolve the problem.

11.5 S8 Review Period

SCHMITT: Felt that he and his National Group would restate any differences of opinion with X3J3 during the review period. We should look for ways to support WG5 convenor efficiently to respond to X3J3.

ADAMS: It is very convenient for X3J3 subgroup heads to have some collection of comments from WG5 members via the WG5 convenor. Is it reasonable for WG5 to define a collating procedure.

MEEK: WG5's job is to liaise with X3J3 to ensure that the final US Standard is acceptable to the International Community. It is the job of WG5 members to inform members in own country what (and why) things are in the standard. If there is any thought that there might be a national NO vote, members should immediately inform the WG5 convenor. The convenor could then circulate objections to other members of WG5.

POLLICINI: You should also send any communication to each national head of delegation.

MEEEK: it is important to establish a mechanism that delivers a YES vote. It is not our job to "sell" the white book. We need to inform why it is the way it is and why other countries feel the way they do.

BURCH: What does WG5 want taken out of S8?
TER HAAR: ALIAS/RANGE/IDENTIFY.

MILINAZZO: I'm not sure what SET RANGE does.

ADAMS: It limits size of array during a calculation.

MILINAZZO: I wouldn't probably use it. I would prefer to use sections. I might forget that SET RANGE had been used.

HENDRICKSON: It is a notational convenience and also guarantees conformance at compile time.

SMITH: Every element has to be same shape so every array reference has a section qualifier. If one SET RANGE is used, then the remainder of the code is easier to read.

WEAVER: Many problems have array codes where element neighbours are of interest which means there is a boundary problem. SET RANGE is a better way to represent the problem.

POLLICINI: Don't like merging of old and new DO.

MOSS: Could you use EXIT and CYCLE in the old DO? Could you nest new and old DO?

BURCH: It is a problem of maintenance of existing code. If both forms of the DO are not the same statement, you would have a significant list of illegal statement uses, so old code would not run when compiled with BX compilers.

TER HAAR: (1) I want to remove object-oriented declaration. (2) Also remove the character declaration that uses LEN=. (3) I would finally remove CASE with LOGICAL type variables. A block-IF is a better alternative.

SCHONFELDER: (1) LEN= is included for internal consistency with REAL declarations. (2) Ability to be able to declare attributes was for readability of the code. Current scattered method is bad practice. There is no different functionality.

HIRCHERT: There are two instances of SELECT CASE:

(1) Statement.
(2) Part of the variant structure declaration.

No alternative such as block-IF is available in the (2) instance so we preferred to keep both the same.

12. COPYRIGHT (AGENDA ITEM 17.5 - ANDY JOHNSON)

Johnson had spoken to CBEMA's Gwendy Phillips on August 4, 1987. The response was, that as long as the copies were not publicized, not sold, and used only for the purpose of review then they could be copied without restriction.
MEEK recommended that the cover page of public review material should say where comments should be sent to.

WEAVER suggested that a resolution should be drafted to contain the wording of the CBEMA comment on copying.

The latter suggestion was not adopted but Andy Johnson was asked to clarify the CBEMA position with regard to copying of S8 (see N253).

13. DISCUSSION ON DRAFT LIVERPOOL RESOLUTIONS

A first draft of re-affirmed and new resolutions was distributed without a number as the document was not yet complete.

13.1 DR3: Content of the Resolution Response Document

There was discussion on draft resolution DR3 which asked X3J3 to give reasons if a WG5 resolution is rejected.

13.2 DR10: Program Size and Complexity

There was discussion of the problems of reporting program size and complexity limits (WEAVER, SCHMITT, VALLANCE, HIRCHERT, HENDRICKSON). MEEK discussed reasons for the BSI Standard for specifying Fortran processors. This Standard is both for users of Fortran for implementation and for those purchasing an implementation. The word 'limits' frightens people. There are lower and upper limits. Perhaps standards should specify lower limits. Users would like no upper limit on program size and complexity.

WEAVER: What about what is commonly called overflow? This is not a static check.

MATHENY: A vendor might lose business because of a poor choice of typical values if such values were specified in a user document.

ROTTHAUSER: Would like to restrict the limitation to reporting to the compiler rather than the run time system.

TER HAAR claimed that as a user he could deceive every compiler.

The result of a straw vote on whether the changed resolution should be adopted was 18-7-7.

13.3 DR11: Envelope for resolution 4 and 5 brought forward from Halifax

There was discussion as to whether or not it was relevant or valid to note that any resolution was a reaffirmation of a Halifax resolution. Danger that one resolution would appear to have more importance than another. Meek apologised if his proposed wording implied criticism of X3J3.
It was agreed that DR11 would be redrafted.

13.4 Proposed Resolution on RANGE and SET RANGE

"WG5 recommends to X3J3 that the RANGE and SET RANGE facilities be deleted from the language."

SCHONFELDER: RANGE adds limited functionality but it adds a lot of linguistic complexity.

TER HAAR: The examples in S8 do not justify the inclusion of the facility.

SCHONFELDER: You can take a similar section of a number of arrays at the same time.

WARREN: The Canadian concern is that any function in the language should be useful to a large number of people.

SMITH: I feel that the facility is analogous to the DO-loop. You don't need DO-loops to write programs. IF and GOTO provide loops. The facility is a notational convenience.

MARBHALL: Speaking as a regular user of Fortran, I usually dimension arrays to accommodate the maximum size of a problem. SET RANGE less you do e.g. A=B+C when you don't want to add all the elements together in a particular use of the program.

VALLANCE: Does SET RANGE make a program more readable.

MOSS: Judging the significance of a facility to numbers of potential users is very difficult. There is a large class of vector processing problems that can use a facility like this. Programs can be made more readable.

HENDRICKSON: (a) Typical weather forecasting problem. Several arrays with the same subscripting pattern. (b) There are a number of facilities [e.g. modules] that cause "action from a distance". SET RANGE is just another example of this.

HIRCHERT: In any array reference, the default for an array name is the full extent of its bounds. SET RANGE does not dynamically alter the size of an array, but only the part that you can access by default. It does not stop you accessing the rest of the array.

BURCH asked Marshall the relative usefulness of ALLOCATE, passing of parameters and automatic arrays.

MARBHALL: 1 doubt the usefulness of passing SET RANGE as parameters. I feel that there is a lot of usage justification for RANGE and SET RANGE if used judiciously.

BURCH: Perhaps a RANGE facility that was local to a subroutine would be better.
MILINAZZO: You could use a subroutine call to identify all the ranges. I solve difference equations for fluid dynamics problems. I like to see the subscripts. When you hit the boundaries, SET RANGE doesn't help. I have written linear algebra in 8X. I find the subscripts easier to help check if something is right or wrong. Most of SET RANGE can be achieved by procedures.

STRAW VOTE (14-8-11)

14. ADOPTION OF LIVERPOOL RESOLUTIONS

It was agreed that an individual roll-call vote will be taken when final voting takes place on the resolutions.

Proposed resolution: If pointers are introduced, then will X3J3 please investigate the deletion of IDENTIFY and ALIAS.

STRAW VOTE (13-4-14)

Proposed resolution: Delete RANGE, SET RANGE.

STRAW VOTE (4-11-15)

Proposed resolution: Split the old and new DD forms.

STRAW VOTE (4-15-15)

Proposed resolution: Delete object oriented declarations.

STRAW VOTE (1-19-11)

Proposed resolution: Delete the LEN= form of CHARACTER.

STRAW VOTE (1-21-5)

Proposed resolution: Delete the LOGICAL CASE statement.

STRAW VOTE (4-11-13)

A second draft of previously agreed resolutions was circulated amongst the delegates.

WEAVER: I wonder if resolutions that require no action should be labelled as comments.

MEEK: The USA is just another member body of WG5 and has the same status as any other country. I do not agree with Weaver.

HIRCHERT: Mostly resolutions that require action of X3J3 are so marked. Care is needed to double-check this wording.

WEAVER: I would be happy with anything that makes it clear who is intended to respond.

WILSON: In principle, anything not properly answered by X3J3 should be individually reaffirmed, amended or withdrawn.

MEEK: We should change the final order of DR1 and DR2.

WILSON: I would like a formal vote on the withdrawal of the Halifax
resolution on deprecated features.

MEEK: Some resolutions could be worded to say that "WG5 does not....." so that we can record a large affirmative vote. (The alternative is that no resolution is drafted after a negative straw vote result.)

ADAMS: I agree that the Halifax resolution on deprecated features would be added to the list of resolutions to be voted formally.

14.1 DR1: Status of the Halifax Resolutions

There was no discussion. The resolution was adopted by a STRAW VOTE (28-0-4).

14.2 DR2: Resolution Life Cycle

MARTIN: DR2 and DR3 are transient resolutions. The text of proposed Standing Document 4 should be examined to ensure that the correct procedures are followed.

MARTIN: I will withdraw this suggestion until after we process the draft resolutions.

WEAVER: We should change DR2 to "WG5 now establishes..."

VALLANCE: What if a smaller subset WG5 meeting takes place? Change DR2 to "regularly scheduled WG5...".

SCHONFELDER: You cannot withdraw unfinished business.

The resolution was amended. STRAW VOTE (30-0-1)

14.3 DR3: Content of Resolution Response Document

HIRCHERT: WG5 resolutions are not always directed at X3J3. We should avoid singling out X3J3 as the only respondent.

GEARY: It is not clear whether DR3 needs rewording.

WEAVER: What is the difference between a "document" and a "standing document".

MARTIN: The status of the resolutions is Standing Document/6. Standing Document/4 is the WG5 procedures.

WEAVER: Why is the response document to the resolutions a standing document?

MEEK: It changes during the year as responses are developed.

MOSS: A Standing Document gets updated. The responses is a standing document for the year during which it is updated.
HENRICKE: Standard Document/6 is a historical record that could be handed to a new WG5 member.

ELLIS: A different standing document number could be chosen for the responses to the Liverpool resolutions.

MEEEK: One does not want a 50-page document after a period of years. We could call it a "between meetings standard document".

MOSS: I prefer Ellis's suggestion. You need a complete collection of standing documents to hand on to a successor.

SCHMITT: (Speaking as Austrian member, not Chairman of Draft Committee) We should leave the exact mechanism to the convenor who can prepare a paper.

WEAVER: If "standing" deleted, the convenor can have complete flexibility.

ADAMS: We should concentrate on technical matters and debate procedural matters later.

STRAW VOTE on original (and draft) wording vs. Brian Meek's proposal vs undecided. (17-5-10)

Vote on Schmitt's resolution without the word "standing". (31-1-1)

14.4 DR4: Significant Blanks

MOSS: I am uncomfortable with "=" in the heading. Why not use "cf." instead?

BURCH: I feel that significant blanks really do help the implementation of context sensitive editors.

MUYXWORTHY: It also makes for safer and more reliable programming.

MATHENY: I oppose significant blanks for political reasons. The press can make statements which are not true but derogatory to Fortran.

MEEEK: We have an educational job to do. The Fortran Committee should learn from the COBOL experience. We should get MOSS and BURCH (say) to produce a WG5 paper giving the background.

MARTIN: Some things we have talked of changing would have a large effect on S8. Significant blanks would not require a large change.

ADAMS: Understood that large changes would be needed.

BURCH: Only if the syntax changed to use significant blanks.

HIRCHERT: Fortran editing tools are not written because it is hard to do.
Moss: Significant blanks mean to some people that blanks should also delimit an operator. This is not true. Another argument is that significant blanks would cause the two source forms to be merged.

Geary: I don't think it is worth including significant blanks if it is controversial and will delay publication of the standard.

Weaver: Tool authors must guarantee that any tool will always work.

Meek: You could preprocess source into significant blank form.

Wagner: A major reason for significant blanks is to allow future revisions of Fortran to have a more sensible syntax.

Significant blanks is an emotional topic. We are caught on horns of a dilemma. If we vote yes, we vote for a delay. I think you should base your vote on whether the long term syntax of language is important or the early appearance of the standard is important.

Weaver: I understand that X3J3 expects a second public review after changes made. Significant blanks may thus not delay standard.

Schonfelder: The only reason for X3J3 "compromise" was that members expected changes to be made after the public review.

Mulwary: The first Fortran compiler appeared 30 years ago. Changes affect more than just the lifetime of any one programmer so it seems worthwhile spending time getting this right. Since Fortran was introduced, programming styles have changed. Significant blanks automatically lead to better, more reliable programs.

Adams: In the past, X3J3 discussions were very similar to the discussions in WG5. Significant blanks have been voted in and out.

Straw Vote (23-2-)

14.5 DR5 Temporary Nature of an Extension Features Appendix

Moss: X3J3 might start a journal of development at a later date.

Hendrickson: Appendix F provides a reasonable description of potential enhancements. Why not attempt to constrain development.

Moss: Appendix F will need a lot of work to make it accurate and compatible with the rest of the document.

Straw Vote (19-1-5)

14.6 DR6: Language and Style

Schmitt: The words "X3J3" will be added to the draft words.

Ellis: The resolution implies criticism of Walt Brainerd's typesetting.
MARTIN: The final standard will take care of widows and orphans and will have a better index.

POLLIJINI: I have no objection to the draft resolution, if the words starting "and suggests that further..." until the end are deleted.

MOSS: Editorial work comes under the same principle as someone making a proposal and being sent away more than once to rework the proposal.

TER HAAR: S8 as a whole is good. The wording of DR6 seems too harsh.

SCHMITT: It is really an attempt to congratulate the editor and add a few comments.

ELLIS: The draft resolution comprises two issues. (1) The way S8 is written (English etc.), (2) The layout etc.

VALLANCE: I don't think you should state obvious sub-editing issues.

HENDRICKSON: Shorter wording is needed.

MOSS: We should thank Walt and Lloyd individually.

STRAW VOTE (32-0-0)

14.7 DR7: Revision Indication

VALLANCE: The question here is whether change bars can be automated.

ADAMS: No.

WEAVER: The proofreader could mark changes with a pen.

MEEEK: We could say "for substantive changes" or strike "minor". Change bars make it difficult to indicate where material has been reviewed. We could leave the mechanism to the editor and also use "including deletions".

SMITH: After public comments, almost everything might change.

ADAMS: Nelson Marshall has been asked to keep a proposal document for X3J3. This will be discussed at next week's meeting.

MEEEK: Change bars are an aid to the editor. We may need a covering letter to SC22 when S8 goes forward.

JOHNSON: One of the other language committees used macros in the text processing to indicate the start/end of a change proposal which could be turned off for the final document.

ADAMS: The proposed X3J3 proposal comment is added input when considering changes.

MOSS: What changes does the proposal refer to? We need a straw vote on what change bars refer to.
MARSHALL/ELLIS: We will get too many change bars if revisions are revised.

STRAW VOTE

1. Changes from S8.104 (0)
2. Changes from previous version. (22)
3. Leave document editor to say what changes mean. (6)
4. Undecided. (6)

WAGENER: I am concerned by any procedure that is not automatic. Replace "except... changes" by "if this can reasonably be done automatically".

MOSS: I suggest the wording "That WG5 suggests to X3J3 that each subsequent internal draft of Fortran 8X have some indicator of changes and deletions, except for editorial changes, with respect to the previous draft".

WEAVER: We should pass on to more important issues.

STRAW VOTE ON MOSS TEXT (20-6-5)

14.8 OR8: Submission of S8 to SC22

WEAVER: Thought that WG5 passed the same package that goes to X3 from X3J3 to SC22.

MEEK: No. Once WG5 agrees that the document is in a fit state at National and at International level, the document can go forward to SC22 for processing in parallel.

Further discussion took place on the procedures laid down for WG5.

STRAW VOTE (27-6-0)

14.9 OR9: French Translation

MAS: I hope that the translation can be done within one year. AFNOR cannot do the work jointly with the Canadian Committee because there are no French speaking members on that committee.

STRAW VOTE (29-0-1)

14.10 OR10: Program Size and Complexity

WEAVER: Should have "its" before "processor dependent limits".

HIRCHERT: "Processor dependent" should be hyphenated as should "standard conforming".

WEAVER: What is meant by complexity?
HIRCHERT: The resolution asks X3J3 to investigate a requirement that violation of processor-dependent limits be reported.

STRAW VOTE (18-5-7)

14.11 DR11: (THERE WAS NO DR11)

14.12 DR12: Pointers

WAGENER: I am curious as to why DR4 could become part of the public review period but why DR12 is not.

MOSS: This is a big topic so the wording should indicate X3J3 action as well.

MEEK: I agree with both Wagener and Moss.

MOSS: Perhaps the resolution should indicate encouragement for X3J3's continuing work.

HENDRICKSON: "continuing work" adds nothing.

STRAW VOTE whether to remove "to" before Halifax (19-7-5).

14.13 DR13: Name-Directed I/O

MATHENY: I oppose this on grounds that it is work that accomplishes nothing.

STRAW VOTE (1-18-6)

The resolution will be rephrased to indicate that "WG5 withdraws..."

14.14 DR14: Usage of Interfaces

WAGENER: I wanted to make this resolution specific to procedure interface blocks.

MOSS: I preferred the original wording.

WEAVER: Why not replace the word "sufficient" by "more".

The wording was changed and shortened.

STRAW VOTE (26-0-2)

14.15 DR15: Multiple Character Sets

SCHMITT: Jerry Wagener wanted extended wording to refer to input/output files.
MATHENY: It is not clear what "varying number of characters" means. I would like to include the possibility of a module. I realised in discussion that the module possibility was not excluded.

INA: If we use a module, we must look at the KIND= concept. It is sufficient to make a general resolution.

SCHONFELDER: We should ask X3J3 to investigate rather than add. This concept is a large increase in the intrinsic facilities in the language.

HENDRICKSON: I don't think that that the wording means intrinsically alter the language. We could define a module.

VALLANCE: We could use "symbol" rather than "character".

MEEK: We could say "use within Fortran" instead of "implementation".

WEAVER: There is also a requirement to support names in these character sets. Vendors already provide this functionality.

SCHONFELDER: That is a different problem.

WEAVER: I suggest the use of the word "multibyte characters". I would delete "mathematical symbols".

MOSS: Source names are a cross-language problem.

MEEK: It is important not to ignore work in other standards committees.

HIRCHERT: Maybe extending to many natural languages is the place of a secondary standard.

SCHMITT: I have seen two different proposals in area of program data. No-one, even the Japanese, has made a proposal for source language names.

INA: We are not proposing the use of Kanji for a symbol name. There is demand in Japan, but this is local to Japan. We should stick to data.

SCHONFELDER: Appreciates the problem that a non-latin character user has. We create "words" from characters. Japanese/Chinese use single symbols for a "word". Should we really consider the terminal symbols of the language as terminals or should a further mapping be allowed (e.g. Cyrillic).

MOSS: May I remind the Chair of the agreed 15 minutes time limit per item.

ELLIS: If we can't use [ ] in the program, we should not consider using 10,000 Kanji characters either.

POLLICINI: Could we introduce the word "byte" into the standard.

MATHENY: No.

HENDRICKSON: Could we refer this back to the drafting committee?
SIRA VOTTS ON WORDING OF DR15

1) Use of term "byte" (7-12-10)
2) Added words by Jerry Nagenear: "WG5 recommends that such a facility accommodate mixtures of characters from the different character sets in both internal and external files."

MOSS: This wording is too specific.

WAGENER: There are various methods to achieve what is wanted; for example (1) transfer function ICHAR/CHAR, (2) Equivalencing.

STRAW VOTE (12-11-7)

STRAW VOTE ON SUBSTANCE OF DR15 (26-0-5)

14.16 DR17: Bit Data Type

After discussion (mainly MEEK, WEAVER, MOSS, BURCH, WAGENER), a revised wording was tabled. A Straw Vote (21-2-9-2-5) on various options left the original wording as-is.

STRAW VOTE (22-4-3)

14.17 DR18: Use of National Characters

There was brief discussion before a STRAW VOTE (22-1-8)

14.18 DR19: Distribution of S8

Andy Johnson had called CBEMA. The revised wording is "copies of S8 can be made by members of X3J3 or of WG5 for technical purposes and may be distributed to members of national member bodies for that purpose".

However, other X3J3 documents, for example, tutorial materials, can be freely circulated to the public.

MEEK: After the above wording, I recommend that no resolution on the topic be passed. I ask that the convenor speak to the chairman of SC22 to make him aware of the possible distribution problem and ask that he investigate it.

SCHMITT: European Community will make this standard a European Standard. You have no choice when the European community adopts a standard. It has to be used. Every standard has to go through a public comment period.

There was further discussion on problems of making the draft document available to members of the public who wish to comment. (VALIANCE, ELLIS, HENDRICKSON).
14.19 DR20: Section Notes

14.20 DR21: Pointers and IDENTIFY

SCHONFELDER/MILANAZZO: The resolution should be merged with the earlier resolution on pointers.

It was left to drafting committee to decide whether DR12 and DR21 should be merged.

14.21 DR22: Deprecated Features

J. WILSON: I find it confusing to explain to someone the three classes of features some of which are listed in an Appendix that is not part of the Standard. I would like a Straw Vote on DR22 as it stands.

WEAVER: The same problem for X3J3 from WG5 as DR3 is meant to overcome for WG5.

MEIK: I agree with Weaver.

MATHENY: I don’t agree with the resolution.

WAGENER: The issue has been thoroughly debated in X3J3. The issue has largely been defused. Re-opening the issue will add to the time taken to get 8X out.

ELLIS: The separation is useful.

WARREN: Wilson wants to see if WG5 feels the same way this year as last.

J. WILSON: Reasons for why X3J3 wants several categories is not made clear in S8.

14.22 DR23: Decremental Features

MOSS proposed revised text.

Revised wording: “strike second paragraph, and add the following sentence to the first paragraph “However, WG5 recommends that X3J3 delete all references to the concept of deprecated features from the body of the standard”.

ADAMS: I have real problems with the proposal.

MOSS: The concept is mostly explained in another appendix.

ADAMS: We could take the whole architecture and put it back into the
text.

MOSS: We would have to use two different extra fonts for this.

ELLIOT: Obsolescent features ought to be identified in the standard. Deprecated features are in an appendix - they are really a "wish list".

MEEK: I disagree fundamentally. Conformance requirement must stay. Explanation, rationale, must be in an appendix. We need a list of what the items are.

If you can list what is deprecated you can actually put the items in the body of the standard.

HENDRICKSON: There are not many features.

ADAMS: I would be happy to move these to Section 1.

MOSS: I propose a Straw Vote. Original text without "in the same way" in the 2nd line of the 2nd paragraph. "Consistently" in that line becomes "Consistent". Change "the standard document" to "text of the standard". Change "reconsider" to "consider".

STRAW VOTE (25-1-6)

14.23 DR24: Significant Blanks

ROTTHAUSER: After I proposed the resolution, I talked to Brian Smith who had said that all problems with passed on precision have not necessarily been solved.

SMITH confirmed that there is at least one outstanding problem.

SCHMITT: No implementation method should be described in the body of the standard.

BURCH: You can use the section notes to be more explicit about the implementation model.

Smith will write to Rotthauer. Moss proposed alternative wording asking X3J3 to clarify implementation model. Meek asked whether it would be enough to draw X3J3's attention to the concern expressed by the German member body.

STRAW VOTE (21-0-9)

14.24 DR25: Appreciation of X3J3 Work

No comments.
14.25 OR26: Vote of Thanks

A minor wording change was agreed.

HENDRICKSON proposed resolution OR27. The drafting committee will discuss. Principle of not holding up review document.

STRAW VOTE (27-0-3)

15. OTHER TECHNICAL MATTERS

15.1 PHIGS Binding

Delegates were asked to send any comments on the PHIGS Binding to the WG5 convenor.

15.2 SQL ISSUE

In the X3J3 pre-meeting distribution (p.221) there are the ballots on the draft proposed Database Language Embedded SQL. Brian Meek wanted comments on the proposed "bindings".

Moss: Fortran has no reserved words. Statements that start "SQL" may need some syntax.

HOPPER: Who ratifies the bindings?

ADAMS: The X3 sub-group will review all the comments.


ADAMS: Formal liaison relationships now exist in the U.S. Standards Committees. Things have changed.

HIRCHERT: To the best of my knowledge, X3J3 was never asked to contribute to the bindings. We are discussing a facility to allow a preprocessor to create appropriate procedure calls.

WEAVER: The matter under discussion is not a binding. A program with embedded SQL is not a Fortran program. You need a pre-processor.

SMITH: X3J3 had been asked for advice on whether the proposals were appropriate. Maybe X3J3 needs a one hour presentation.

MEEEK: Feels that current state of the proposal was not ready for balloting.

16. PROPOSED DATE OF NEXT MEETING

The next scheduled WG5 meeting is in Paris from 19th-23rd September 1988. AFNOR has a list of hotels from $35 to $40 upwards. There would
not be a problem getting a room for say $60. Delegates were advised to book several months ahead. The Chair asked Christian Mas to investigate booking a block of rooms in an appropriate hotel.

17. PROCESSING OF LIVERPOOL RESOLUTIONS

ADAMS: Once 58 has gone to 33, no changes can be made until public review begins. If you vote "NO" on getting to public review, we are at a standstill.

SCHMITT: Resolution 3 has been worded to stress that WG5 does not want to delay the public comment process.

HOPPER: Could we change "in a way which does not delay" to "in anticipation of".

MEEK: I think that the resolution is unnecessary.

SCHMITT: Brian - you have not read the document properly. The last word is "process" not "period".

ADAMS: I don't object to the resolution.

VALLANCE: The resolution gives WG5 a chance to set on record its feeling of the urgency.

Schmitt prepared a final version of the resolutions after the voting. It was noted that the Chair would not vote. M. Geary added to U.K. list and Kenada deleted from the Japanese list on the pre-printed voting sheets. It was noted that members were allowed to vote one of YES/NO/ABSTAIN on each resolution.

17.1 R4: Status of the Halifax Resolutions

MOSS: We had discussed reversing the order of R4 and R5.

SCHMITT: The committee has discussed this and the original sequence was preferred.

17.2 R8: Pointers

WEAVER: It doesn't ask for anything?

SCHMITT: Correct. R9 asks for something.

17.3 R11: Decremental Features

MUNCHAUSSEN: Does "detecting" mean "reporting" and is such action optional?

HIRCHERT: Yes, S8 says "has the capability of".
17.4 R13: Name-Directed I/O

SCHMITT: Some members requested that this withdrawal was explicit.

17.5 R16: Revision Indication

MUXWORTHY: I move to amend. I wish to strike "except for editorial changes".

MOSS: If editorial changes are marked as well, it will be useless.

SCHMITT: I think there are two different types of people who read the document. (a) People who read quickly, to see what changed, (b) Proofreaders. I want to see what really changed since the last time.

ELLIS: If you are going to make changes, you should mark them all.

SCHWONFELDER: The proposed resolution could only be implemented by an automatic method.

MEEK: There was an option yesterday to leave the wording to the document editor. Could perhaps change to "except for typographical corrections" although taking Miles Ellis’s remark regarding the insertion of one comma changing the sense of a whole paragraph.

MOSS: I have changed my mind since I last spoke. I think the matter should be left to the document editor. Even if we strike the last phrase, it is still up to the document editor.

DU CROZ: I agree with Len Moss.

TER HAAR: I agree with Len Moss.

Vote on whether to change the resolution. [Yes means leave as is].

STRAW VOTE (10-16-6)

Motion to amend proposed by Muxworthy, seconded by Ellis. To delete the words "except for editorial changes". Carried 19 votes to 10.

17.6 R19: Multiple Character Sets

Typo corrected to "different".

HENDRICKSON: I propose that last sentence should be deleted.

ELLIS: I would second this.

MOSS: There is nothing that says you cannot write a string, with all escape sequences etc., to an internal file so you can then look at the internal file. The A-formats would be different in a format list between KIND=1/KIND=2 characters.

SMITH: It is a problem of portability. You can’t determine, portably,
the length of the internal character variables.

**HENDRICKSON:** It is not clear what writing to an internal file means. The reason for the motion is that the request is unnecessarily detailed. Any facility that is provided will naturally be complete.

**MOSS:** I agree with Dick Hendrickson.

**WARREN:** The matter should be left to X3J3. The sentence should be struck.

**SCHMITT:** I disagree with the motion. There is a derived datatype which cannot be output. Pointers could not be output.

**INA:** From the Japanese point of view it is not necessary to put this detail in the resolution. Willing to delete internal and external.

**WEAVER:** Would it clarify if we deleted "within a single program unit"?

**ADAMS:** Consider separately Hiroshi Ina's suggestion to add "input/output" to the first sentence.

**MEEK:** I think the sentence should stay.

**INA:** I suggest replacement of "both internal and external files" by "input and output". "Mixtures of characters" should remain.

**ADAMS:** We must first vote on the motion to delete the last sentence.

Vote on deleting the second sentence. (Motion failed 15-17).

**MOSS:** I move to amend "both internal and external files" to "input and output".

**MATHENY:** I second motion.

**HOPPER:** Why not just "in files".

**MARSHALL:** I am opposed to this.

**MOSS:** I don't think it hurts to emphasise that WG5 considers I/O to be part of manipulating data.

The motion was carried by 17 votes to 10.

STRAW VOTE on changed motion (24-2-7).

**ADAMS:** Can I ask the no votes (Hopper, Schonfelder) why they voted no.

**HOPPER:** I didn't like the wording of last sentence.

**SCHONFELDER:** It is too late in the standardisation process to start a new data type. It is a major international character set issue which is outside the scope of WG5.
There was further discussion to see whether there was a better consensus.

HOPPER: I propose an amendment. After accommodating add "processing" and change "input and output" to "files".

WEAVER: I second this.

The motion was defeated by 5 votes to 6.

HOPPER: I withdraw the proposed amendment.

17.7 R20: Referral to SC22 of Processing Ideographic Languages

MOSS: I would like to add the word "further" at start.

MEEEK: I think each resolution should be complete in itself.

MARTIN: It is hard to quote a resolution on its own when it starts with "further".

MOSS: I withdraw the suggestion.

SCHONFELDER: The title of resolution should say "processing of ideographic languages" not "multiple character sets".

The drafting committee agreed.

MEEEK: There is ambiguity caused by "its" on line 2. The SC22 secretariat requires unambiguous wording of resolutions.

MOSS: I suggest a change in words. Replace "its own and related domains" by "the programme of work of SC22 and related Committees".

WEAVER: What is the resolution intended to accomplish? If X3J3 doesn't need any support from SC22 for this work what is the purpose of the resolution?

MEEEK: It is a recipe for inconsistency if all language groups solve the problem in different ways.

SCHONFELDER: Something has to be done.

ADAMS: Dick Weaver wanted us to be more specific in this resolution.

WEAVER: I have now realised that no specific action is being requested. People just want to express their concern.

Voting took place on the revised motion.

17.8 R21: Use of National Characters

MOSS: I propose "accr" be changed to "are required".

WG5 LIVERPOOL
SCHMITT: I agree.

BURCH: Is Bernard certain. This change changes the whole meaning of this resolution.

HIRCHERT: you could treat square brackets in the same way as lower case.

The motion was seconded by Meek. The motion was carried by 17 votes to 9.

Delegates were reminded by the Chair that they were entitled to change any formal vote after it had been made during the meeting.

INA: I want to clarify R3. Says 2 different things (a) Talks about changes and additions, (b) Doesn't want any delay. Japan voted NO on resolution because we wanted Kanji characters in before the standard was submitted for processing. Our NO vote on R3 was consistent with our vote on R1. We are against the second part of R3.

MEEK: I appreciate the explanation given and I believe that we all understand the reasons for these votes. A country can write to the convenor or to the Secretariat to explain the reasons for voting against a motion.

A number of individual and country vote changes were made after caucus time had been allowed by the Chair.

18. OPERATING PROCEDURES OF WG5

MARTIN: I could possibly describe voting procedures and a method of sending resolutions for pre-meeting distribution. I will change standing document 4 to reflect resolution R5.

SCHMITT: We can vote on changes by mail.

MARTIN: Can I add things to the procedures without a vote.

MOSS: Could ask for agenda items and for resolutions to be sent to the convenor.

VALLANCE: What do we want the meeting summary called.


19. ADJOURNMENT

The meeting was adjourned at 2.15 p.m. on Friday, August 7, 1987.

David M Vallance
August 8, 1987