

Meeting of ISO/TC 97/SC 22/WG 5 - Fortran ~~27 JUN 1983~~ 1986
at
Halifax, Nova Scotia, Canada
18 to 22 August 1986

MINUTES OF THE MEETING

1. OPENING SESSION

1.1. Opening of the Meeting

The meeting was opened on Monday 18 August 1986 by the Convenor, Jeanne Martin.

1.2. Welcome to the Delegates

Delegates were warmly welcomed by Dr. Alasdair Sinclair, Academic Vice President, Dalhousie University, Halifax, Nova Scotia, Canada.

Delegates were present representing seven member bodies: Austria (ON), Canada (CSA), European Community (CEC), France (AFNOR), German Federal Republic (DIN), United Kingdom (BSI), United States (ANSI). See Preliminary List of Participants, Document 45.

1.3. Procedural Matters

Attention of the Delegates was called to Document 43, a reprint of SC 22/N168R, "Principles of Operation of ISO/TC 97/SC 22", which govern the procedures of this Working Group.

Jeanne Adams was nominated for the position of Meeting Chairman by David Muxworthy, and was elected by acclamation.

The Chairman reported briefly on current status of X3J3 work. X3J3 is preparing a draft, which it hopes to present soon for X3J3 ballot, and is hoping for response from WG5 as well.

Minutes of the previous meeting of 1 to 4 July 1985 (Bonn, German Federal Republic) were presented. Motion: Approve the minutes of previous meeting (Jeanne Martin, Andrew Johnson); passed.

The preliminary agenda was discussed and some amendments were accepted. Motion: Adopt the agenda as revised (Gerhard Schmitt, Neldon Marshall); passed.

1.4. Drafting Committee

Drafting Committee (for resolutions at this meeting) was appointed, consisting of Christian Mas, Fausto Milinazzo, David Muxworthy, Klaus Plasser, Christian Ullrich, and Jerrold Wagener.

2. NATIONAL ACTIVITY REPORTS

2.1. Austria (Gerhard Schmitt)

Attention was called to Document 28, "Austrian National Activity Report".

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2.2. Canada (Albert Buckley)

Attention was called to Document 26, "Fortran 8x: A Canadian Position Paper". The needed compromise requires some guidelines; those suggested include (1) adopt common practice, and (2) move new features to appendix. We need to know how the compromise was reached.

2.3. German Federal Republic (Karl-Heinz Rotthaeuser)

National Activity Report for German Federal Republic is Document 32.

X3J3 Standing Document S8 has been discussed; comments have been sent to X3J3. With regard to Bonn Resolutions (from 1985 meeting):

32 (Record length in OPEN): Germany has decided not to submit a detailed proposal. Some new material in this area has been added in the meantime by X3J3.

4 (Stream I/O): Proposal has been submitted to WG5.

Concern about rejection of Indexed Input-Output.

DIN supports Schonfelder approach to pointers.

2.4. France (Christian Mas)

See Document 46. France has proposed some extensions, and has commented on Compromise.

2.5. United Kingdom (David Muxworthy)

See Document 47. A draft British standard for specification of language processor requirements is due to be distributed in September 1986. The existing ISO standard for Real-Time Fortran (IRTF) is being processed as a British standard. One or more delegates from UK attends each X3J3 meeting and reports in detail to the Fortran Specialist Group of BCS.

2.6. European Community CEC (Aurelio Pollicini)

Aurelio Pollicini has prepared an opinion paper on behalf of JRC-Ispra, regarding the evolution of the DO construct; see Document 13. It is hoped that consensus on Fortran 8x will be reached before 1990.

A task force on standards for CEC has been established in Brussels.

CEN (project to harmonize European standards) is attempting closer contact with CEC standards effort. (Gerhard Schmitt noted that Austria has also been following the CEN project. The aim seems to be to avoid overlap of efforts in an area; also to provide ways to choose a common European value for "parameterized" standards.)

2.7. United States (Neldon Marshall)

See Document 34.

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Actions at recent X3J3 meetings (95 to 100) were reviewed. Many recent meetings have included participation from outside the US (especially Meeting 95 at Oxford). X3J3 has formal liaison with approximately 12 other groups. Fortran Forum seminars have continued, including 2 outside the US in 1985.

X3J3 has heard some objections, that they have felt impelled to look at very seriously.

The atmosphere has changed from "Are we ready?" to "We are going to do it: what do we need to do to get ready?"

(Gerhard Schmitt asked about X3J3 plans to respond to Fortran 77 issues prior to Fortran 8x release; Andrew Johnson responded: (1) the May 1984 FIB included about 1/2 of the outstanding issues, although as a whole these were the easier ones; this document should be distributed to WG5; (2) Further action later in 1986 is planned.)

3. SC 22 Activities

3.1. SC 22 Meeting in Paris, November 1985

Brian Meek and Gerhard Schmitt had reported to SC 22 on Fortran activities (see Document 5). Attention was called to the following Resolutions adopted by SC 22 at that meeting (see Document 6):

Resolution 4 adopts SC 22 procedures.

Resolution 13 establishes Working Group 5: Fortran.

Resolution 14 concerns administration of WG5 (note Item d should be WG5, not WG4).

Resolutions 21 to 25 deal with preparation of standards.

3.2. Liaison with SC 22/WG 12: Conformity of Standards

See Documents 7 and 8. Karl-Heinz Rotthaeuser reported briefly.

3.3. Liaison with SC 22/WG 10: Guidelines for the Preparation of Standards

See Documents 9, 10, and 38. Brian Meek reported that SC 22/WG 10/N 257 is the final draft report of WG10. This document is distributed as Document 38 from this meeting.

4. Results of Fortran Survey

Andrew Johnson presented Document 27, which records the results of a survey distributed by X3J3 at Fortran Forums and in ForTec and SIGNum newsletters. More than 1/4 of these came from outside the US, mainly from persons who attended the presentations at Bonn and London in 1985.

5. Results of WG5 Informal Ballot, July 1 1986

Jeanne Martin presented Document 37, which summarizes the ballot results. The vote was 11 Yes, 4 No.

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6. X3J3 Compromise Plan

Jerrold Wagener discussed Document 39, which summarizes the "Compromise Plan" that resulted from X3J3 letter ballot. The ballot revealed a strong feeling that the currently proposed language was "too large". Many features were moved to an Appendix. Still at issue is the question of how to present these features in future drafts for public review.

In response to Bonn (WG5 1985 meeting) resolution 19, Wagener pointed out that use of "assumed shape dummy arrays" now requires explicit interface.

Discussion --

Buckley: Criteria and guidelines should be developed first; see Canadian Position Paper (Document 26).

Burch: Commented on "safe" vs "unsafe" pointers; overloading of user-defined operators; parameterization of CHARACTER.

Schonfelder: Deplored the process by which the Compromise Plan was developed: should begin with a design philosophy, not "ad hoc".

Schmitt: Compromise plan is too vendor-oriented; has implications on other features that are not explicitly mentioned; extended features will be implemented anyway but less portably.

Meek: Attempt to proceed by starting with Criteria inevitably degenerates; should go back to "99A" draft.

Wagener: Main themes of 8x are: Array processing, Numeric processing, Data structuring, Modular organization, Evolutionary model.

Hendrickson: X3J3 ballot forced us to look at 8x "as a whole".

Hirchert: Compromise Plan was not an improvement.

Moss: Agreement to Compromise Plan was subject to further detailed study.

7. Status of Resolutions from WG5 1985 meeting at Bonn

7.1. Report (Jeanne Martin)

See Document 4. It is not easy to summarize activity because of changing circumstances. Of 26 resolutions that requested X3J3 action, X3J3 has taken adverse action (or no action) on 10 items, has acted favorably on 8 items, and is still considering 8 items.

Meek and Schmitt called for better procedures to track resolutions.

7.2. Conformance (David Muxworthy)

See Document 30. Bonn Resolution 23 (Conformance) is related to British draft standard for specifying conformance requirements beyond those specified in Standard.

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Discussion --

Meek: Pascal language design makes conformance checking easier.

Hirchert: "One man's error is another man's extension." Need to determine which conformance violations are detectable by processor.

Johnson: Need to admit existence of "processor", not just abstract language.

Burch: Everyone expects Fortran to be unsafe; users will not accept required warnings of all violations.

Muxworthy: Fortran standard must state which errors to be flagged.

Dale Ellis: Need ability to flag extensions.

Schmitt: Exception Handling was deleted -- this provided a means for detecting non-conformance.

Miles Ellis: Consider a supplementary standard on conformance.

8. Details of the X3J3 Compromise Plan

This consisted of reports by X3J3 members, mainly aimed at giving details and rationale for what was removed from the previous draft.

8.1. Modules and Use (Wagener)

Discussion --

Pollicini: Names of procedures in module were handled better before "compromise".

Discussion of scope of names in internal procedures; PRIVATE; user-defined operators; comparison with INCLUDE.

8.2. Internal Procedures (Kurt Hirchert)

Discussion --

WG5 has previously expressed wish to pass IP name as actual argument, primarily to library routines. Maybe this can be done with modules, but it complicates the simple user. Object code compatibility is a related issue. Other scoping issues for IPs.

8.3. Precision (Carl Burch)

"REAL * (*)" was part of compromise for non-technical reasons.

Discussion --

With several arguments, precisions cannot be specified independently.

8.4. NAMELIST (James Matheny)

"Good design" syntax vs. "existing practice".

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Discussion --

Still under consideration by X3J3. Can existing functionality be standardized without ugly syntax?

8.5. Deprecated Features (Neldon Marshall)

Terminology is confusing: e.g., obsolete vs. obsolescent.

Discussion --

Criteria are not always clear. Users will ultimately decide. X3J3 recommendation is to avoid using features on any of the lists. Some items (e.g., 3-branch IF) can be replaced overnight; others (storage association) permeate the language.

Should deprecated features be kept in appendix during public review? In final standard? (Discussion pro and con.) Is appendix a "cop-out" to cover up X3J3 indecision or disagreement? Make a Journal of Development?

Public has never given good guidance on deletions: they say "language is too big but it still needs X".

8.6. Types in 8x (Brian Smith)

"Compromise" deleted BIT, Condition Handling, Variant record, Structure constructor, and Operator overloading.

Discussion --

Should such deletions be made? And how to decide? Deleting some small features does not really affect language size and complexity. Derived-type I/O still needs improvement.

8.7. Procedure Extensions (Richard Hendrickson)

Deleted: Nested internal procedures; IP as actual argument.

8.8. Condition Handling (Leonard Moss)

Deleted due to effects on performance. A large item, mostly orthogonal; valuable but not vital; large cost for limited value. Based on limited experience.

Discussion --

Some equivalent error condition, compiler switch, or conformance requirement is needed if no Condition Handling. Will this cost just as much?

Was not a good debug tool.

8.9. Array Extensions (Richard Hendrickson)

Deletions: Bit array as logical mask, FOR ALL, IDENTIFY, Structures of arrays, Vector subscripts, several array intrinsics.

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Discussion --

Should keep IDENTIFY and vector subscripts. Need skewed sections.

8.10. Source Form and Significant Blanks

Discussion --

Significant blanks in new source form? (Pro and con.)

9. Relations Between WG5 and X3J3

This was a recurring topic during the meeting. Some non-US members felt that X3J3 had attached insufficient importance to the role of WG5. The chairman appointed a committee on Relations Between WG5 and X3J3, consisting of Gerhard Schmitt, Leonard Moss, and Aurelio Pollicini.

10. Discussion of Halifax Resolutions

Document Reference: ISO/TC 97/SC 22/WG5-N205: Halifax Resolutions

This report relates to discussion of Draft Resolutions proposed for adoption at Halifax. Straw votes were taken, which guided the Drafting Committee in the final stages. Discussion is reported chronologically, based principally on the numbering of the draft resolutions, but is labelled according to the relevant resolution (if any) adopted at the Halifax meeting.

10.1. Resolution 3: Deleted Features in Public Review Document

Discussion --

What is needed is a resolution setting forth criterion for reconsidering deletions. "Compromise" needs further refinement. Must soon produce a document acceptable for public review: should not rehash Compromise without a definite plan. Previous draft was too big; some feel Compromise is still too big, others disagree.

10.2. Resolutions 11 - 23: Specific Features of Compromise

Discussion --

Schonfelder: Resolution should specify functionality without regard to syntax.

Schmitt: Better yet, WG5 should propose guidelines.

Bruce Martin: Theoretical resolutions are useless: WG5 should vote on a list of features, item by item.

Buckley, Meek: We should not vote on a list. That is X3J3's job. You can't please everybody.

Jeanne Martin: The goal now is to get a document out for public review, not to add features (as at Bonn).

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10.3. Resolution 4: Consultation Between WG5 and X3J3

Discussion --

What is a "major change in direction"? A better distribution mechanism is needed. Some of SC22's new procedures are not fully clear.

10.4. Resolution 10: Processor Conformance

Processor must "contain the capability to detect and report" use of extended features.

Discussion --

Hendrickson, Hirschert: Limit requirement to syntactic extensions, i.e., feasibly detectable violations of syntactic constraints.

Schmitt: Processor should document parameters (e.g., size limits) and default values.

John Wilson, Schmitt: This has been requested by WG5 since 1984.

10.4. Form of User-Defined Operators (Bonn resolution 31)

A draft Halifax resolution was proposed, based on Bonn resolution 31: "That WG5 believes that user-defined operators should allow a reasonable set of unambiguous strings formed from the characters + - * / = < > ."

Country straw vote: (1-4-2); Individual straw vote: (3-19-9)

This issue was not pursued further.

10.5. Resolution 22: Procedure Interfaces (Bonn resolution 24)

"That WG5 believes that it should be possible to use the procedure interface block both to define a procedure and to describe a reference to the procedure."

Discussion --

Moss: The Bonn resolution may have been based on a misunderstanding.

Buckley: Interface needed only if procedure source is not accessible.

Hirschert: I could not find a way to implement this.

Wagener, Johnson: Possible conflict between interfaces. Procedure may USE a module that contains its own interface.

10.6. Resolution 14: Significant Blanks in Free-Form Source

Discussion --

Not too important to do this, but if it is ever going to happen it must be done when Free-Form is introduced.

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11. Resolutions Adopted

See Document ISO/TC 97/SC 22/WG 5 - N205: Halifax Resolutions (distributed 30 September 1986).

The official vote (by member bodies, i.e., by Country) for each resolution is recorded, in the order yes-no-abstain. Resolution 1 was divided into two votes. All resolutions except 17, 18, and 21 were adopted. Text of the resolutions, and additional information including the informal Individual Vote, is contained in Document N205.

1. Importance of Public Review
 - 7-0-0 a: Review prior to August 1987
 - 5-1-1 b: Form of public review document
2. 5-2-0 Size of Language
3. 7-0-0 Temporary Nature of an Extension Features Appendix
4. 7-0-0 Consultation between WG5 and X3J3
5. 7-0-0 Distribution of Information
6. 7-0-0 WG5 Schedule
7. 7-0-0 ISO Documents
8. 5-0-2 Document Numbering
9. 6-0-1 Language and Style
10. 7-0-0 Processor Conformance
11. 6-1-0 Pointers
12. 5-0-2 Data Abstraction
13. 5-0-2 Deprecated Features
14. 7-0-0 Significant Blanks
15. 7-0-0 Random Intrinsic Procedure (Bonn Resolution 16)
16. 4-0-3 Character Intrinsic Functions (Bonn Resolution 25)
17. 2-3-2 * Translate Function
18. 3-1-3 * Allocatable Scalars (Bonn Resolution 28)
19. 7-0-0 Structure Constructors
20. 6-0-1 Operator Renaming
21. 2-2-3 * Internal Procedure Control
22. 4-0-3 Name-directed I/O
23. 7-0-0 Procedure Interfaces (Bonn Resolution 24)
24. 7-0-0 Vote of Thanks
25. 6-0-1 Appreciation of X3J3 Work

* Resolution not passed.

12. Adjournment

The delegates personally affirmed the sentiment of Resolution 24, expressing appreciation to the Convenor, Chairman, Drafting Committee, and Hosts; and of Resolution 25 expressing appreciation "on behalf of the worldwide Fortran community" for the efforts of X3J3.

The meeting was adjourned.