

## Minutes of DPCE Meetings

6 &amp; 8 June 1994

Hotel Sainte Claire  
San Jose, CA

Minutes of DPCE subgroup meeting, 6/6/94 7:10-9:15PM

Attendees: David Keaton, Linda Stanberry, David Alpern, Tom MacDonald,  
Tom Plum, Frank Farance

Stanberry requested she not take notes; Alpern was volunteered for this session.

## VOTING RULES FOR DPCE

First question asked was when 2/3ds votes are needed. Keaton replied he feels this really does not apply to DPCE votes, as only X3J11 votes count.

Discussion of group's history that we've treated internal votes as straw polls. Keaton suggested we stick to the same, with the rules that votes have the weight of straw polls, anyone (including non-X3J11 members) can vote, but each company should have only one vote. No objections were made to this proposal.

## RESOLUTION OF ISSUES SINCE LAST MEETING

Stanberry hypothesized that Farance (not present yet, but had put together the original proposed agenda for this meeting) wanted this slot to discuss resolution of e-mail discussions regarding prior meeting minutes. Part of this was separation of secretary and technical editor positions, now accomplished.

Keaton and Stanberry discussed proposals for handling disagreements regarding minutes; maybe we need to procedurally approve them.

Further discussion was postponed awaiting Farance's arrival.

## TRACKING PUBLIC COMMENTS

Keaton hypothesized Farance's concern is how to respond to X3J11 concerns. He feels we should address unresolved concerns from X3J11 meeting minutes in DPCE subgroup meetings.

## FUTURE MEETINGS

Supercomputing probably doesn't fit our time plan to be a working session, so not an official DPCE meeting then.

September 26-28 (Mon-Wed): Keaton hosting in Boulder. Hatcher, Stanberry, Keaton are expected to attend, Peter Bigot also maybe?

December - hopefully proposed technical report contents in prior mailing, so should need little new work. Monday evening session should probably be planned to discuss issues raised by other X3J11 members in response to technical report contents, with most such discussion in X3J11 agenda time.

## RESOLUTION OF ISSUES SINCE LAST MEETING (continued)

Farance noted he has proposals in this week's X3J11 agenda time to discuss VLAs and F90 comparison. We'll have a preference poll later this week on parallel indexing syntax options. Farance also cited separability of concepts and left-indexing as unresolved action item from Kona meeting.

Plum, as liaison with X3J16, took issue with left-indexing and other new syntax rather than our making use of C++ mechanisms to extend the language without parser changes. He and Farance noted other efforts to implement C\*-like features with existing C++ syntax.

Farance noted his paper from about two years ago on declaration syntax for right-side-indexed ALOs, showing alternatives to left-indexing are possible. We should consider such because (1) C++ desires, and (2) if all indices will get moved to the left, why not move them back to the right.

Keaton likes not needing punctuator between distributable and contiguous dimension indexing, which he had thought he would if shifted all to right; Farance's paper shows this would not be needed.

Farance's proposal still needs syntax extensions to C++ for declarations and for whatever represents all items along a dimension.

Plum noted that RogueWave (Al Vermueller) has F90-like array container class for C++. Kent Budge from Los Alamos/Sandia also has a container class, and there are various "smart-pointer" classes proposed. He also noted that C++ has problem of needing to schedule deallocation of objects on exception throwing. All these relate to X3J11's fat pointer proposals, VLA proposals, and the DPCE effort. Plum would like to see a unified approach to controlled storage develop answering all these needs. He feels it's probably too late to be part of X3J16's next release, but should probably be the first amendment to it. He thinks there may yet be an array class in the X3J16 work, maybe based on RogueWave's work.

Syntactically, Plum noted the X3J16 group would probably prefer comma-separated parenthesized list, overloading the () operator. Special identifiers will likely be needed for "any" and for slicing.

Plum feels left-indexing requires understanding old C arrays first. He'd prefer something new that starts over more completely and doesn't require a student being taught the old array notation first.

Discussion amongst Plum, Farance, MacDonald, Alpern re C/C++ similarities and differences, what C++ committee might accept, what compilers need for vectorization.

Plum noted C\* advantage of having implicitly-defined overloaded meaning of scalar operators when applied to shaped objects; in C++ these need to be defined by hand.

Alpern cautioned against choosing C++-like syntax without being sure semantics can be melded compatibly. Plum agreed we should not approve syntax before working through semantic details, but maybe we should get sense from X3J11



of whether it'd be useful for someone to invest the time to work up a proposal.

Plum noted C++ community already knows it has weaknesses regarding vectorization and may be open to suggestions that would help on this.

Farance noted his folks have C++ class implemented using overloaded right-side () operator for indexing ALOs.

Group discussed having preference poll later this week on indexing syntax, approval to mean preferring further exploration, not necessarily adoption.

Farance, Plum, MacDonald, Alpern then had some brainstorming discussion regarding syntax possibilities.

Keaton noted re separable concepts issue that we should just inform X3J11 of the reasons for the decisions reached, as lots of discussion has already occurred by e-mail and at last meeting.

#### ITERATORS -- presentation by MacDonald

Foils presented will also be shown in X3J11 time later this week.

( Note taker has chosen not to try to re-present MacDonald's presentation here; details should be available via submitted X3J11 papers. )

Stanberry feels there are lots of questions whether contextualization does exist in this proposal even though MacDonald believes it does not.

#### SEPARABILITY OF CONCEPTS -- presentation by Farance

Foils presented will also be shown in X3J11 time later this week.

( Note taker has chosen not to try to re-present Farance's presentation here; details should be available via submitted X3J11 papers. )

Due to time constraints, there was little discussion after the presentation.

Meeting adjourned.

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DPCE subgroup meeting, 6/8/94

Attendees: David Alpern, David Keaton, Linda Stanberry.

Due to low attendance, the formal meeting was canceled. Informal discussion followed with limited notes taken by Keaton.

Doug Gwyn appeared for the purpose of observing only.

Stanberry, Alpern, and Keaton discussed the issue of "same shape," structural vs. type and compile-time vs. run-time equivalence. Keaton noted that Jamie Frankel had definite opinions on this and should be brought into the discussion if possible.

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Bob Jervis arrived.

DPCE document status from Stanberry -- random notes:

- "same shape" is now structural equivalence
  - discussion pointed out not necessarily most efficient
- parallel pointer handles
  - some difficulty specifying them
- parallel arrays
  - some confusion there

Fred Tydeman arrived to observe.

Jervis thinks DPCE is going in the right direction.

Nodal and elemental function qualifiers.

Not ready to ask X3J11 about these. Try to specify them first.

Only one question for X3J11 at this point: parallel indexing syntax.

X3H5

Not in our charter.

No resources.

Prior agreement that there was no overlap between DPCE & X3H5.

-- That is one reason DPCE was allowed to proceed.

Recommend to X3J11 that no action be taken on X3H5 unless  
someone will commit to championing the cause.

DPCE mailing lists

Jervis has had difficulty getting on dpce-gypsies.

(This was resolved at a later date. -- DMK)

Gwyn & Jervis offered to ask for management blessing to host  
the lists if it were to become necessary.

Stanberry has asked but has not received a response.

DPCE discussion ended.