Minutes of WG21 Meeting, October 19, 2009

1. Opening activities

Clamage called the meeting to order at 09:00 (UTC-7) on Monday, October 19, 2009.

Clamage noted that P.J. Plauger was awarded the 2009 INCITS Merit Award in recognition of his service to INCITS.

The following countries were represented:

- Canada
- Finland
- Spain
- Switzerland
- United Kingdom
- USA

1.1 Opening comments

Plauger noted that the logistics of the meeting were set up by John Benito of Blue Pilot Consulting. He described that Dinkumware and EDG agreed to pay for half of the costs of the meeting each, and subsequently Gimpel Software contributed additional funds. He went on to explain that after this Bloomberg generously offered to pay the expenses for the entire meeting. Plauger announced that due to these additional funds a reception would be held on the Wednesday evening of the meeting.

Plauger noted that EDG, Gimpel Software and Bloomberg should be acknowledged for contributing funds, and John Benito should be noted for handling the logistics of the meeting.

Benito described the arrangements and facilities for the meeting.

1.2 Introductions

Clamage had the attendees introduce themselves.

Roll call of technical experts

Name	Country	HOD?
Barry Hedquist	US	Yes
Steve Adamczyk	US	
Walter Brown	US	
Steve Clamage	US	
Stefanus Du Toit	CA	
J. Daniel Garcia	ES	Yes
Howard Hinnant	US	
Alisdair Meredith	UK	Yes
Tana Plauger	US	
Tom Plum	US	
Peter Sommerlad	CH	
Nick Stoughton	US	
Bjarne Stroustrup	US	
Detlef Vollmann	CH	Yes
Ville Voutilainen	FI	Yes
Michael Wong	CA	Yes

1.3 Meeting guidelines (Anti-Trust)

Clamage reviewed the patent disclosure rules.

The following materials were displayed without any further interpretation or discussion:

- http://www.incits.org/inatrust.htm
- http://www.incits.org/call.htm
- http://www.incits.org/pat_slides.pdf

1.4 Membership, voting rights, and procedures for the meeting

Clamage reviewed the rules for membership and voting rights.

1.5 Agenda review and approval

Plauger reminded the attendees that the first line of the meeting agenda states that the "meeting is devoted to finishing comments received on the first Committee Draft, and issuing a Final Committee Draft." He noted that concepts were removed in Frankfurt thanks to the efforts of the Project Editor. Applause for the Project Editor's efforts followed.

Plauger went on to describe that the group's plan is to produce a CD2 in Pittsburgh, and that much work remains to clean up the standard following the removal of concepts. He stated that if a CD2 is produced in Pittsburgh, this cannot be done with any loose ends, and noted that the schedule is very tight. He pointed out that there is only a week or two available to put together a draft and start balloting after the Pittsburgh meeting. Plauger noted that ISO and those that need to provide comments were ready to move fast given the current schedule. He stated that if the group did not meet the schedule, they would not be allowed to work on the comments in Switzerland.

Plauger re-emphasized that the committee agreed to a tight schedule in Frankfurt. Plauger stated that if the schedule were wrecked, it would be very difficult to work around this. He noted that when the situation was explained to SC22, the response was to consent to delay the schedule by one year, or, more precisely, that SC22 would ask JTC1 to extend the schedule by one year. He warned that a delay, or producing a CD2 that is not complete, would put timely publishing of the next C++ standard in peril.

Plauger then went on to state that he noticed the group still has a steady stream of new ideas coming in, and in particular new ideas coming in since after the San Francisco meeting. He gave the proposal related to "SCARY iterators" as an example, noting that discussion of this proposal took up meeting time in Frankfurt and that there had been further time for discussion of SCARY requested at the Santa Cruz meeting. He stated that his personal feeling was that the group should stop doing any of this and requested a sentiment poll.

Stroustrup commented that SCARY was discussed without him present at the Frankfurt meeting. He stated that he had given a brief presentation, but claimed the majority of the people discussing the proposal in Frankfurt did not know what was being discussed. He stated that trying to dismiss the proposal without discussion here is not appropriate in his opinion.

Miller raised the question as to what exactly the state of the schedule was, and what the impact of new proposals would be. He asked about recent procedural changes at INCITS. Plauger responded that the INCITS changes were merely changes in nomenclature and did not substantially affect the schedule. Plauger went on to state that if a clean CD2 draft is produced in March, the hope and expectation is that

completion might be possible in the Summer, more likely Fall. He noted that the more new things that are added to the standard, the higher the chance would be that the group would receive a larger number of NB comments and a less sympathetic reading. He concluded that if there were much further delay, e.g. if a CD3 were deemed to be required, pressure from JTC1 on SC22, and from SC22 on WG21 would result as a consequence.

Miller asked exactly what extension was given to the group. Hedquist responded that the deadline for an FDIS was extended to August 2011 from August 2010. He noted that previous between now and the production of an FDIS, a CD2 and FCD were required. He pointed out that the FCD ballot is 4 months, and the CD2 ballot will be 3 months. He also noted that changes in a CD that are not in response to ballot comments would not lead to an FCD.

Meredith inquired where the August 2011 date originated. Plauger responded that the original date was set a while back for August 2010, and that SC22 and JTC1 provided an extension to August 2011 at the last SC22 meeting.

Austern stated he could not vote on the question of whether or not to accept "new" features in the abstract, and required a clearer definition of what is meant by such a phrase.

Nelson relayed that he was told for now, all we can do is deal with NB comments. He stated that members who would like to have an issue dealt with in the next round of drafting would be able to arrange for an NB comment for that around. Plauger noted that it would raise a red flag for other NBs if comments indicating added scope were present. Plauger commented on the process followed by the group thus far, and noted that it was his feeling that time spent outside of WG meetings to work through issues had relaxed pressure to resolve NB comments.

Benito noted that the danger of Nelson's suggestion would be a large number of NB comments on CD2, causing that CD to be considered a failure. Benito urged the group that if they wanted to publish within the set timeframe, they should close the door on new features and focus.

Seymour stated that the issue was to determine on a case-by-case basis whether a given change would be possible to be introduced in time for a CD2.

Meredith noted he was getting the impression that the group wished to pass CD2, unlike CD1. Plauger pointed out that CD1 barely passed, so there was an expectation for CD2 to pass also.

Stroustrup notes that "SCARY is still the elephant in the room." He claimed that not only Dinkumware, but other vendors would be affected as well. He claimed that in the previous standard, the behavior related to this issue was undefined and that there is therefore a portability problem. He claimed there were significant performance implications to this issue, and stated that it is not a trivial optimization. He went on to say that felt that technical discussion could have been completed by now, but there was "mis-discussion." He stated that he felt this would surface as an NB comment, because of the significance of the issue, if it were not discussed at the Santa Cruz meeting.

Spicer noted that the group was trying to do everything to stick to the work already set out, and should make every effort not to add new work items.

T. Plauger asked the Project Editor to give a review of what work was still outstanding to clean up the standard after the removal of concepts.

Becker noted that three main areas of cleanup remained: random numbers, allocators and uses of concepts in the library in general. He stated that he used version control to remove the appearances of concepts, and noted he was not confident that issues were not still remaining. He claimed that someone would need to look very carefully at library issues filed since San Francisco to change concept-related changes to non-concept related changes, and that such changes went beyond the notion of "editorial." He went on to state that the first two areas of concern could be handled by specific groups close to those issues. He noted that the library work would be tedious, stating that 100-150 issues would need to be looked at, filtered, and the group would need to ensure that technical changes are not lurking in concept-related issues.

Plauger posed the the following question: "What is the sentiment for something new coming in that was not discussed by San Francisco and not presented as an NB comment. Should we discuss such things?"

Meredith noted he was concerned about cases where we find things already discussed but better solutions might be possible. Plauger stated that this is not a clear-cut issue with a clean answer, and explained that he was trying to pin down one end of the spectrum in regards to this question.

Hinnant noted slight discomfort with such a vote. He stated that if the committee gave direction to the smaller working groups to talk about specific things, he would still ask those present in the Library Working Group to state what they wanted to discuss, and noted he would not be able to prevent anyone from talking about anything in particular.

Plauger stated that the intention of such a vote would be to provide direction, not specific instruction as to what should or should not be discussed.

Halpern stated that he would be comfortable with this as a guideline for helping groups make decisions.

Austern asked whether there were any proposals other than SCARY that were being contemplated at this meeting that would be covered by such a sentiment.

Crowl noted that he had written a paper on compatibility between C and C++ threading libraries, and asked that given a lack of previous discussion of these issues whether this would be considered new or not.

Stroustrup objected to characterizing the issue was "If we look at SCARY, we can look at anything."

T. Plauger addressed Hinnant as the Library Working Group Chair. She asked, given the information presented by the Project Editor with regards to the state of the standard as it stands, how much time it would take to get through the cleanup issues in the library at the beginning of the meeting.

Hinnant responded that a lot of issues filed recently were the about portions of the standard broken by the removal of concepts. He stated that there were roughly 300 open issues at the moment, which he noted represented a huge amount of work.

T. Plauger asked whether those 300 issues included the 150 or so issues referred to by the Project Editor.

Hinnant stated that there was no way to answer that question at the present.

T. Plauger asked if, then, there was no understanding of how long it would take to make the draft into what it should be.

Hinnant stated that at that point the number of open library issues was increasing over time.

T. Plauger noted that that number should be decreasing at the time.

Hinnant noted that the number did decrease a lot during the last meeting, but the curve of issues over time had not yet been permanently bent downward.

T. Plauger stated that another way to look at this question was to state it as whether the group is trying to achieve a downwards trend in open issues again, or whether it is looking at opening new things.

Hinnant noted that the removal of concepts opened up a huge number of issues.

T. Plauger stated that the library group took votes on concepts to the effect of adding concepts to the library not being feasible. She noted that the group then went to the committee as a whole, who she claimed gave direction that the library working group must do so nonetheless.

Nelson stated that he had noticed people expressing nervousness about voting on new issues. He asked whether the group would be more comfortable voting on whether to commit to maintaining the current schedule.

Brown stated that he wanted to make two comments. First, he wished to remind the group that work that had to be done by the library group typically lagged behind work that had been done by the core group. He stated that until the WD contained wording for new features in core, LWG was generally not comfortable using such features. He concluded that therefore it was no surprise that LWG work was still in a mode of increasing. He noted there had been a major change in the last meeting, and the group was only at that point about to approve a WD including those changes. He went on to say that it was only after such time that LWG could work on dealing with the fallout of these changes. Additionally, he noted that integration work was still occurring related to other features. He therefore asked that members of the group that were unsure of where they should contribute apply their efforts to the library.

Brown then stated that, on the subject of SCARY, he had been asked by his employer to lobby in favor of SCARY due to past issues encountered in a very large particular code base that was influenced but not controlled by his employer. He explained that the code base had been scrutinized attempting to reduce its size and improve its performance, leading to absurd recommendations to a very large user community to "do things like require not using specific portions of the standard library." He stated that a few people had become aware of the SCARY proposal, and would have liked to see it explored at the very least. He stated he hoped we would still have the opportunity to undertake issues as they arise.

Becker stated that he wished to clarify his comment regarding 150 open issues given earlier. He stated that this represented a total number of issues since San Francisco. He noted that some of those issues do not involve concepts, but some are affected by concepts. He went on to state that some of those affected by concepts will not need to

be reworked, but someone will have to go through and triage them. Thus he concluded that the number of 150 issues given was probably pessimistic.

Stroustrup addressed Hinnant, asking whether there is any sign that the size and complexity of issues is on average decreasing. Hinnant responded by saying he did not have a good enough feel to characterize that. Hinnant did say that the beginning of a downturn in issue count might be occurring, noting that the number of open issues at the time was less than the number of issues post-Summit and pre-Frankfurt.

Meredith stated he had investigated some statistics of the open issue count at the end of each meeting. He said his projections showed that by the end of the Santa Cruz meeting we would be about 20 issues up compared to the Frankfurt meeting. He claimed that open issues were still trending up in a big way.

Becker wanted to note a "semi data point" for Stroustrup's previous question. He claimed that from an editor's standpoint, issues had recently been less complex than in the past.

Plauger stated he would like to ask for a sentiment for how many people, given a new issue coming in that had not been contemplated in San Francisco, would have a sentiment for discussion time being spent on such an issue.

A straw poll on this question showed the following results:

| Strongly in Favour: 0 |
| Weakly in Favour: 6 |
| Neutral: 8 |
| Weakly Against: 4 |
| Strongly Against: 13 |

Plauger asked Hedquist for his interpretation of this vote. Hedquist stated that the sentiment seemed to be towards not having such discussions. He stated that the vote implied that the group as a whole may be inclined to turn down the addition of new elements, even if a recommendation comes out of CWG/EWG/LWG.

Abrahams stated that prior to taking the vote he had attempted to introduce a suggestion that the question to be asked was "are we in feature freeze mode?" Plauger responded that he had been under the impression that the group had been in feature freeze mode since San Francisco.

Meredith asked whether this vote had any bearing on the new function syntax. Plauger responded by stating that this vote was merely a characterization of whether "this is new" was a legitimate reason to not pursue discussion on a topic.

Stroustrup noted he was confused about what the vote was about.

Merrill claimed the vote was not useful.

Plums stated that his interpretation of the outcome was that the convener would have the ability to ask the group whether a given issue represents a new feature, and if the group agreed, that this would allow further discussion on such an issue to be deferred.

Abrahams voiced a concern that the wording was getting fuzzier. He suggested a question of "are we in feature freeze now, except for issues that are broken and need to be fixed?"

Hinnant stated that he was all in favor of wrapping up the work, calling it feature complete, and so on. However, he went on to state that he was extremely against taking such a vote at the time, because he expected the Library Working Group to spend more time arguing about whether something is a new feature or not. Therefore he claimed he would vote in such a way that LWG would not have to spend time on what can be discussed.

Hedquist noted that the guidance from ANSI was that if an issue is not in response to a ballot comment, it was new. He stated that if we had known something was broken, there was a question of why there was no ballot comment for the issue. He reiterated that if there was no ballot comment, an issue should be considered as new.

Abrahams noted that there had been at least one bug found since San Francisco, and that papers had been written about it. He asked the question of how such a bug could not be fixed. T. Plauger responded that the reason was that the group is in CD. Benito said it shipping an incomplete CD would be a big mistake. Plauger stated that this was part of the price we're paying now due to an incomplete CD1. Nelson asked whether the issue referred to by Abrahams was broken in C++03. Abrahams responded stating that the issue was introduced with a new feature in C++0x. Hedquist asked if then there should have been an NB comment. Abrahams responded, saying that he would have written an NB comment if he had known about the issue at the time.

Stroustrup asked for a sentiment vote to be taken with Abrahams' earlier question of "are we in feature freeze now, except for issues that are broken and need to be fixed?"

The outcome of this vote was as follows:

Strongly in Favor: 12
Weakly in Favor: 7
Neutral: 8
Weakly Against: 4
Strongly Against: 12

Plauger stated that it was clear there was no consensus. He then stated that he would expect to step down as convener at the end of this meeting. He concluded that he felt the committee was not being led in one direction.

Willcock asked a question about the vote. Plauger responded stating that the vote had been clear enough, and noted it indicated that the committee did not want to quit [introducing new issues].

Clamage presented the agenda (document [PL22.16/09-0081 = WG21/N2891](#)).

A new item was added to the agenda, a short US TAG meeting, item 1.11.

Motion to approve the agenda as amended:

Mover: Hedquist
Seconder: Stoughton

Approved by unanimous consent.

1.6 Distribution of position papers, WG progress reports, WG work plans for the week, and other documents that were not distributed before the meeting.

Each of the Working Group chairs presented their plans for the coming week.

Library Working Group (LWG)

Hinnant reported LWG status. He stated that there were several papers and several hundred open issues to be discussed. He said that the initial plan was to determine what to attack first.

Core Working Group (CWG)

Adamczyk reported CWG status. He stated that CWG had had several conference calls between meetings. Adamczyk noted there were 54 issues in ready status and 24 in tentatively ready status. He pointed out that one of those issues was elimination of deprecated conversion of string literals to non-const pointers. He asked that if anyone present had objections, they should speak up at that point, and noted that the resolution will be in the "pass ready issues" motion on Friday.

Adamczyk stated that the number of issues to work on is not too large, but 85 issues were in drafting status. He noted the possibility of reaching out to people assigned to those to get them to commit to completing the drafting soon or otherwise hand the work off to someone else. Adamczyk reported there were 25 new unclassified core issues, a few more since the most recent mailing. He noted that this was slightly lower than previous meetings, but not enormously so. He said there was some sense the group was getting control of the issues list. He went on to note there was some variation in size and weight of issues.

Adamczyk stated that the big thing to be accomplished during the week was to bring the unified function syntax proposal to the full committee. He stated that he was hopeful that this could be accomplished. He added that he also expected the group to work through any items coming through from the Evolution Working Group.

Brown noted that there had been some discussions recently on the reflectors regarding attributes. He asked Adamczyk whether he expected any conversations around this. Adamczyk responded saying that he had no sense that there was any intention to look at it this week. He went on to say that there might be EWG discussions leading to CWG discussions, but that there was otherwise no plan to discuss this.

Evolution Working Group (EWG)

Stroustrup noted that EWG would be meeting during the week. He stated that async was the biggest issue to be discussed, and noted that Wednesday at 10 AM would be the earliest that the issue could be talked about. He indicated optimism with regards to this issue.

Stroustrup went on to list other issues that were on the agenda for EWG discussions, including the copy/move issue raised by Abrahams, the question of whether constexpr functions could take const T& arguments, the discussion of allowing uniform value initialization for enumerators and default arguments, the question of whether uniform initialization should be applied to types and namespace (noting that it was not clear whether this should be discussed in EWG or CWG), and, a discussion on whether

uniform syntax involves a linear syntax for types. He asked that any additional proposed discussion items be raised at that time.

Meredith noted that he had experience with uniform initialization syntax at that point, and stated that while he didn't know that there were necessarily problems with it, he did not know that there weren't any problems either.

Maurer noted that there was a list of papers on the CWG wiki page which CWG would like to have EWG look at first. Stroustrup promised EWG would go through those papers.

Hinnant asked whether LWG and EWG would like to jointly meet to discuss the issues related to move constructors and async. Stroustrup responded indicating a preference for a smaller discussion amongst EWG first, especially for the async issue, with the hope of reaching a joint proposal to bring to LWG. He stated it would be counterproductive to have too many people involved, both for EWG and LWG.

1.7 Approval of the minutes of the previous meeting

Motion to approve the minutes (document [PL22.16/09-0110 = WG21/N2920](PL22.16/09-0110 = WG21/N2920)):

Mover: Hinnant
Seconder: Hedquist

Approved by unanimous consent.

1.8 Liaison reports

WG14 Liaison

Nelson commented that given that this was the second WG21 meeting since WG14 had last met, there was not much new WG14 material to be discussed or reported.

POSIX Liaison

Stoughton reported that the POSIX/C++ liaison group had had a meeting at Google on the Sunday immediately preceding the Santa Cruz meeting. He stated that the minutes for the liaison meeting were linked to from the WG21 wiki. He noted that a liaison report was coming out of this meeting, consisting of three primary points, none of which he felt warranted discussion time in the full committee. He did, however, encourage everyone to look at the report. He noted he expected some discussion as a result of the report, especially in LWG.

WG23 Liaison

Benito reported that WG23 (Software Language Vulnerabilities) was meeting in Santa Cruz at the same time as the WG21 meeting. He reported that the WG23 group was strictly working on ballot resolution, with the goal of getting a document published in 2010.

1.9 Editor's report

The editor's report is document PL22.16/09-0151 = WG21/N2961.

Becker noted that there was no working draft in the post-Frankfurt mailing. He stated that N2960 removed concepts, and incorporated all issue resolutions from the Frankfurt meeting. He stated that random number generators and allocators still required concept removal, and noted this was being worked on this week. He asked for the working draft to be approved at the end of his presentation.

Becker stated that in its current form the index is cluttered by library names everywhere, and stated his intent to split it into two indices. He noted he would like to split the single index into one general index and a separate index for library names such as types and functions. He indicated to the group that he was not seeking detailed comments on the contents of the indices, but encouraged the group to look at the new index structure to decide if the scheme worked well. He noted he may also separate another index to solely contain grammar productions, but that he had not yet decided on this, and would like to receive feedback. He claimed that removing either separate index would be very simple if required.

Meredith indicated that he thought a separate index of grammar productions would be very helpful. Becker indicated that the hooks are in place to provide such an index.

Hinnant asked to ensure that these changes would not impact cross reference annexes. Becker responded indicating that Hinnant was correct and the new index was specific only to names of things defined by the library.

Motion to approve the latest Working Draft (document PL22.16/09-0150 = WG21/N2960):

Mover: Becker
Seconder: Hinnant

Approved by unanimous consent.

1.10   New business requiring actions by the committee

No new business.

1.11   US TAG Meeting

The PL22.16 TAG meeting was held at this time.

2. Organize subgroups, establish working procedures.

Clamage announced that those present would be breaking up into working groups until Friday. He noted that the committee was in recess until then.

3. WG sessions (Core, Library, Performance, Evolution).

4. WG sessions continue.

5. WG sessions continue.

6. WG sessions continue.

7. WG sessions continue.

8. General session.

8.1 WG status and progress reports.

Core Working Group

Adamczyk gave the following status report and reviewed the CWG motions (see 8.2 below).

> We have 50 Ready issues and 22 Tentatively Ready issues to move this time, from the pre-meeting N2962 issues list. We pulled back five Ready issues (799, 812, 861, 919, and 920).
>
> Note that the Tentatively Ready issues include 693, which eliminates the deprecated conversion from string literal to non-const pointer. We had to decide whether to allow the deprecated conversion with the new string types and we ultimately decided to be consistent by not allowing it on any strings, even the legacy strings.
>
> We prioritized 47 new issues.
>
> We reviewed drafting on issues, and moved 35 issues to Ready for next time, and one issue to Tentatively Ready. We made a point of looking at all NB comments and we're in good shape on those.

We reviewed a preliminary paper on making rvalue reference objects "funny lvalues" instead of "funny rvalues," and we liked the direction and asked the author to polish the paper. This should resolve some of the troubling issues with rvalue reference objects, like their dynamic type and the fact that they were sometimes rvalue functions. It's believed this change will be mostly terminological and not have any noticeable effect on the language as seen by libraries and users.

We reviewed N2998 on the reaching scope of lambdas and are bringing it forward for a vote.

We reviewed d2990 as a way of fixing the interaction of trigraphs and raw strings. We think the paper is ready to go, but we're holding it back because we're considering other approaches, including moving UCNs out of translation phase 1 or moving raw string recognition into phase 1. The paper as it stands does not deprecate trigraphs; it just moves them into a later phase and causes them not to be recognized in raw strings (but still in other strings).

We're still looking at deprecating exception specifications. Our current feeling is that we will deprecate them except for the ways of saying a function doesn't throw at all (e.g., the new noexcept feature, still being reviewed).

We'd like a straw poll on deprecating or removing exported templates.

We reviewed the Unified Function Syntax proposal and are bringing N2989 forward for a vote. We pulled the parts of the proposal dealing with return type deduction because they were not as fully baked as the rest; they may be back next time. The proposal now includes:

- Named lambdas in block scope.
- For lambdas that start with [] (i.e., they capture nothing), a conversion function to a pointer-to-function so that the lambda can be used as a function.

Not included:

- No overloading of named lambdas.
- No forward declarations of named lambdas.

During the presentation of the CWG status, the following items were discussed by the group.

Trigraphs

Plum noted that it had always been conforming to have a standalone tool that replaces trigraphs before phase 1. He expressed that he hoped the group was not introducing something that would disallow one from doing that.

Adamczyk stated that the consensus of CWG was that the paper resolved the unfortunate issues with raw strings. He noted, however, that the group is still considering some other approaches.

Plum repeated his concern that it was currently unspecified whether trigraphs would have been replaced before phase 1. He asked the group not to introduce new conformance requirements that implied one could no longer do it that way. He noted that this is a corner case, of a corner case, of a corner case.

Vandevoorde responded that it was no longer a corner case of a corner case of a corner case, and that this has already been showing up.

Adamczyk noted that he wished to emphasize that the current presentation was informational, and if anyone had strong opinions on this issue, to please contact the appropriate members.

Adamczyk stated that the paper, which he emphasized was not being voted on today, had some tiny differences to the current semantics. He noted that any difference of such a kind was previously undefined behavior.

Plum responded that it was not undefined, but unspecified behavior.

There was some disagreement amongst those present as to whether or not this was the case.

Plum stated that if one wanted to, one could translate UCNs with a separate tool, or one could make it part of one's compiler. He stated that this choice was unspecified. He noted that if the group wished to be compatible with C, there was nothing more basic than the current model. He stated that if one found this unfortunate, one would ask one's vendor to fix this.

Adamczyk again encouraged those concerned to contact the authors of the paper.

Export

Meredith wished to make a statement as the NB responsible for the comment on the removal of export. He stated that the BSI was originally not in favor of removal, but then it became apparent that vendors did not implement export. He stated that BSI would like the standard to be consistent with reality.

Stroustrup stated that he has long thought export should not have been in the standard. He noted, however, that EDG had done a very professional job of implementing this feature. He was therefore not in favor of removal unless EDG was happy with such a decision.

Abrahams asked how he could initiate the process of removing export.

Adamczyk responded that there would be a straw poll.

Vandevoorde stated that he was opposed to removing export.

Plauger stated that he was opposed to removing export for a variety of reasons.

Abrahams responded to Plauger noting he would like to hear those reasons.

Plauger stated that in the past, the committee had proliferated dialect by putting things like export in the standard. He went on to further discuss his reasons for wishing to remove it.

Plum stated that he had a slightly different view on the subject. He noted that nothing he had said previously in Oxford had changed. He expressed that he felt it was too late for this kind of change from a procedural point of view.

Willcock suggested removal of export might reduce the proliferation of dialect.

Plauger agreed that in principle, it would. However, he went on to state that in reality, there were a number of other places where compilers differed already. He stated that C++0x should have been an official approved standard by that point, and during the delay of the standard, there had been a proliferation of dialects in compilers. He claimed that the group had created a problem in conformance that would not be solved. He compared the present situation to that of FORTRAN in the 1960s. He stated that with FORTRAN, there was a common de-facto subset, and much proliferation. He concluded that the group had this situation today with C++.

Vandevoorde explained that he had people e-mailing him every now and then with questions about export, showing there were at least some people experimenting with

it. He added that he felt the group should not remove a feature that has no alternative in the standard.

Straw poll – removal or deprecation of export**:**

>   **In favor of removing export**: 12

>   **In favor of deprecating export**: 16

>   **In favor of leaving as is**: 8

Adamczyk interpreted the vote to indicate that a lot of people were in favor of removing export in some way. He asked the group, if they had the choice only between removing or deprecating, which they would prefer.

Straw poll – assuming one or the other, removal or deprecation of export:

>   **In favor of removing export**: 14

>   **In favor of deprecating export**: 22

Maurer wished to ask if anyone in favor of removal would oppose deprecation.

Sutter suggested a 4-way straw poll on each choice.

Plauger noted that procedurally, it would be much, much safer to deprecate it at present than remove it. He stated that the committee was always allowed to deprecate feature. He went on to state that doing something as dramatic as removal would be much more likely to create controversy between CDs. Thus, he concluded that the safest thing to do would be deprecation.

Plum stated he had made similar comments about procedure, but noted the people who favored removal never got a chance to say anything on the other side of the procedural question.

Halpern stated that these polls had changed his mind from deprecation to removal. He said he would prefer not to see an implementer who has not implemented export yet choose to implement it now.

Meredith stated that if the group were to remove it, there would be no need to resolve issues due to interactions between export and new features. He asked whether this would also be the case with deprecation.

Adamczyk stated that, even in the case of deprecation, the group would still have to address such issues.

Maurer pointed out that from a practical standpoint, there are very few such issues.

Sutter stated that from a technical point of view, he would prefer removal. He went on to note, however, that this was being done in response to an NB comment, and there are further changes to NB comments.

Witt stated that there would be no consequences in practice based on removal, and thus posed the question of why the group was considering this?

Svoboda asked whether it was possible to separate export out from the core standard.

Adamczyk responded that the group should avoid subsetting if at all possible.

Adamczyk noted the suggestion of having three four-way votes.

Nelson suggested instead asking for objections to deprecation.

Sutter stated that every time this kind of issue was discussed, it has been faster to have multiple four-way votes.

Straw poll – Four-way votes on removal of exports deprecation of exports, or status quo:

Removal	SF: 8	WF: 16	WA: 12	SA: 5
Deprecation	SF: 17	WF: 13	WA: 5	SA: 3
Leave as-is:	SF: 6	WF: 4	WA: 15	SA: 15

Adamczyk interpreted the vote as the group having a pretty strong feeling towards deprecation, and against leaving as-is. He stated that for this reason, he expected some action from the core working group in next meeting.

Unified Function Syntax

The proposal for unified function syntax was discussed and a straw poll taken, see item 8.2 below.

Library Working Group

Hinnant reviewed the LWG motions (see 8.2 below).

Hinnant reported that in total, about 70-80 issues would be closed. He announced hat another 42 issues were marked as ready for Pittsburgh. Applause followed.

Hinnant stated that thanks mostly to the work by Pablo Halpern, the group had a vastly simplified allocator proposal, which had been simplified to the point that pair looks normal now. Applause followed.

Hinnant reported that the group now had a unified async proposal that came in from EWG. He extended his thanks to EWG for their efforts.

Hinnant went on to note that EWG also made a lot of progress on futures, and one of the LWG motions would be to close a number of issues on futures. He expressed that he felt the group had made a lot of progress in that area.

Hinnant further reported that the group was finally introducing a number of new, powerful type traits. He explained that this functionality had been removed with the removal of concepts, and was now being re-introduced.

Tana Plauger asked how many new issues had come into Library.

Hinnant stated that there were 27 new issues since the last mailing, and that, from the close of Frankfurt to the Santa Cruz meeting, there had been on the order of 60 new issues. He deduced that therefore the group was doing slightly better than breaking even.

Straw polls on the various LWG motions were then taken. See item 8.2 below.

Evolution Working Group

Stroustrup described progress made by the Evolution Working Group during the week.

There was some discussion on the details of proposals that had been considered by EWG.

Note from the Convener

Plauger addressed the group and stated that during the week, several people had thanked him for his work as convener and asked him to stay on. He went on, however, to state that did not think he could stay on, and explained that this was due to an impedance mismatch between him and the group. He stated that he had been doing

this for many decades. He noted that he had had differences with the committee many times, and had hoped those would reduce over time, but felt they had not. He emphasized that there were no grudges and no hard feelings.

Sutter stated that this would leave a very big hole, and that he expected there would be a call for volunteers. He stated that he might volunteer, but did not yet know at that time.

Adamczyk thanked Plauger for his service. The group applauded.

8.2 Presentation and discussion of DRs ready to be voted on. Straw polls taken.

CWG Motions

Straw poll – CWG Motion 1

Straw poll: Move we apply the resolutions of all issues marked "ready" or "tentatively ready" from N2962 to the C++0X Working Paper, with the exception of issues 799, 812, 861, 919, and 920. (This is a total of 50 issues in ready status, and 22 in tentatively ready status.)

> **In favor:** Lots.

> **Opposed:** None.

Straw poll – CWG Motion 2

Willcock asked whether the paper brought forward included the modifications suggested by EWG during the week. Crowl responded that it did so.

Straw poll: Move we apply N2998 "Reaching Scope of Lambda Expressions" to the C++0X Working Paper.

> **In favor:** Lots.

> **Opposed:** None.

Straw poll – CWG Motion 3

Stroustrup stated that like a lot of other people he, "sort of liked it, except..." He noted that for the objects being proposed, deduction rules were not the same as for members.

Adamczyk explained that as soon as one talked about a named function, there were correspondences between that function and previous things. He asked that if one wrote "int f();" and then you wrote "auto f()", whether those two declarations would name the same function. He stated that this was a problem with templates, and that there are a number of things to be worried about here. He stated that these problems could be solved, but not in the time frame set out.

Stroustrup stated that, in that case, he would be supporting this proposal, and very much hoped a big class of these would have type deduction.

Powell stated that he was concerned about not using auto for this. He felt the reason for not using auto seemed to be going away, and thus asked why the group should not wait until then and take care of both issues simultaneously.

Adamczyk responded that the clock was ticking. He explained that if the group did not pass this today, the proposal would be dead. He stated that if the proposal were passed, there might be some core issues, but nothing unreasonable.

Crowl stated it was import to ensure the group did not pick a syntax now that would prove inconsistent with what the group wished to do later.

Merrill stated that the question was about named lambdas.

Powell stated that if one wrote "auto x = [] ..." then one basically had a named lambda. He claimed that the advantage of not doing this was that one could have a forward declaration. He asked why the group would not wait until forward declarations were proposed to introduce the new syntax.

Powell stated that many things previously considered by the committee were of issues of the type of "we're not sure we can do this," and felt that often it turned that what had been planned was indeed impossible.

Powell went on to state that his objection was to adding a feature for a future feature without current support for that future feature.

Abrahams stated that he felt this proposal had good intentions, but that the realization of those intentions is horrible. He opined that the syntax did not look readable, would not help anyone understand the language better, and felt it was very late to be introducing something as optional as this proposal given how unstable the series of proposals had been and that the proposal did not fix a problem that needed to be addressed.

Meredith asked Abrahams whether he had tried writing any sizable code in this syntax. He stated that he had found that while a small example looked ugly, a large amount of code looked good to him. He noted that Jonathan Caves had had the opposite experience.

Abrahams responded stating he had not yet tried to do any coding in the proposed syntax.

Stroustrup stated that for something the group had been working on for a long time and postponed again and again for a variety of reasons, the "too late" argument did not apply.

Caves stated that he had looked at this again and again, and still felt it looked ugly, citing "punctuation overload." He said he thought it was too late in San Francisco, and felt it was too late now. He stated that there had been lots of patching of the proposal over the years.

Gregor stated that the proposal was not late because it was ignored, but rather because of issues with the proposal that were found during discussion. He stated that from a project management standpoint, it was not a good idea to put this proposal in.

Witt asked whether it was still the case that there were things that cannot be expressed in the new syntax that could be in the old.

Adamczyk stated that one could write declarations at global scope in the new syntax. He we on to explain, however, that there were things like casts to function types that could not be written in this syntax.

Crowl stated that some declarations required a typedef to write in the new syntax, but wished to point out that this had already been the case with the current syntax.

Clark stated that one could not express a function that returns a function pointer with just this syntax.

Gregor asked whether this meant that the proposal would prevent the group from doing something like linear type syntax later.

Crowl stated he did not recall an inconsistency with the linear type syntax, but could not say for sure at the time.

Crowl stated that he wished to address the perceived instability. He explained that the intent of this proposal had been to introduce a syntax on which to move forward. He

stated that after the initial proposal, people had wanted to know what the end state was. He went on to explain that he had then written the end state paper, and had asked for people to pick what they wanted. He lamented that unfortunately they had not picked, and that there had been disagreement in each meeting as to what was important.

Vandevoorde stated that the linear syntax had a colon immediately after the first identifier that disambiguated it right away.

Witt stated that declarator syntax was not one of the strong points of the C family. He expressed that if the group was now inventing something new that was just like the old, people would laugh at this.

Merrill stated that, ignoring the high-level issues, the paper was in good shape technically.

Meredith stated that the proposal was far from new this meeting.

Witt stated that the point was not that the group invented something new today, but that the group invented something that just doesn't meet the bar for him.

Straw poll: Move we apply N2989 "Unified Function Syntax" to the C++0X Working Paper.

> **In favor:** 12

> **Opposed:** 18

Adamczyk asked if any national bodies would like to express a particular opinion.

No national body representatives responded.

Crowl stated that when the auto arrow syntax came in, several members objected to the proposal on the basis of using auto. He explained that he agreed at that time that the group would put the auto in, and then revisit the keyword in the hopes of moving that paper forward. He stated that, as a result, he voted for that proposal. He concluded that he now felt this did not happen, and wished to consider removal of the auto arrow syntax on the basis of not following procedure.

Adamczyk stated that he felt there had been sufficient attention given to this issue, and that the straw poll showed a clear direction.

Crowl stated that his point was that the group had a problem with the current WD that would not have gone into the WD had he known the future.

Crowl went on to note that the result of this is that he would be extremely reluctant to agree to the procedure of saying "OK, we understand your concern, we'll address it later", because now suddenly the working paper would be the fixed point, and he felt the other point would not have equal weight anymore.

Adamczyk asked whether anyone wished to comment on the procedural issue.

Plauger stated that, with all due respect, he had trouble stretching the rules to cover the future.

Hedquist stated that he saw no procedural problem here.

Sutter agreed, and pointed out that this had happened to other proposal. He said it was a good learning experience. He noted that this was part of the normal procedure; the committee operated that way, and would do so again.

Meredith stated that he had had exactly the same reaction as Crowl in San Francisco. He said he understood there had been a risk that people would not agree with them. He felt they had been given immensely fair representation, thought they were heard, and stated they would have to accept the feeling of the room. He explained that this was not the result he desired, but could accept it. He concluded stating that, if BSI chose to, they could suggest removal of auto, but that that would now be a new issue.

LWG Motions

Straw poll – LWG Motion 1

Straw poll – Motion 1 – apply issue resolutions to working paper:

> **In favor**: Lots
>
> **Opposed**: None

Straw poll – LWG Motion 2

There was some discussion about the complexity of equality comparison on unordered multi containers.

Sutter asked if anything was being done about set and map comparison in this paper.

Halpern answered that this was not the case. He went on to say that the authors had considered some clarifications, but took them out based on feedback.

Brown asked if this was also the paper which had one algorithm, is_permutation.

Hinnant responded positively. He added that this was because the equals operator called is_permutation for each equal range in the containers. He noted that is_permutation was specified in such a way that if the two sequences were in order, one would get linear time behavior.

P.J. Plauger stated he was obliged to announce he would vote against this because this is a late addition, not in response to a ballot comment.

Vandevoorde second Plauger's sentiment.

Tana Plauger asked if the paper had anything Core would needs to address.

Hinnant responded that it did not.

Straw poll – Motion 2 – apply N2986 "Equality Comparison for Unordered Containers" to working paper:

> **In favor**: 20.

> **Opposed**: 11.

Hedquist stated that this was not a two thirds majority.

Plauger stated that the motion should therefore be pulled.

Hinnant stated that he would not renumber the motions, just strike this one out.

Straw poll – LWG Motion 3

Straw poll – Motion 3 – apply N2994 "constexpr in the library: take 2" to working paper:

> **In favor**: 25

> **Opposed**: 1

Straw poll – LWG Motion 4

Maurer stated that he object to the paper on the grounds that it contained wording that violated lifetime rules.

Hinnant clarified that this issue was discussed in LWG earlier that day, and that the troublesome wording had been removed.

Vandevoorde asked if this proposal had been implemented?

Halpern explained that, yes, it had been implemented.

Halpern further explained that the particular issue was something that the language did not say was legal, but every implementation allows. He stated that there were a few places in the library where the first and second members of pair must be initialized separately, and that this could be done.

Vandevoorde noted that the last time the committee had tried to play games with subtlety was in the definition of auto_ptr. He stated that he would vote against this proposal on these grounds.

Hinnant stated that he personally saw no connection between those issues.

Abrahams responded that the connection that this had to auto_ptr was that very late in the process, Vandevoorde had stood up in full committee and stated "if you standardize this you will regret it", and that he had been right.

Nelson asked if this proposal was in response to an NB comment?

Halpern answered that it was, and the NB comment was listed in the paper.

Hinnant wished to point out that the consequence of not accepting Motion 4 would be to have a pair with nine constructors, which would be large and universally hated.

Halpern stated that he would like to have some core wording that blessed the special requirements. However, he felt that the group was left with voting this in at the current meeting, and fixing that issue in next meeting, or waiting for the next meeting. He stated that he would prefer to vote it in now and get the core proposal later.

Becker stated that the one criterion for putting things into the standard library was that one could implement them without compiler support. He said that it was unfortunate that pair would require something like this, but felt it was OK.

Hinnant stated that this was also the case for type traits.

Meredith pointed out that it was not really pair that required this, but more specifically map and multimap.

Gregor asked whether this violated strict aliasing rules. He stated that he was concerned compilers doing type-based alias analysis would do the wrong thing.

Hinnant said the group was talking about having map and multimap do what a pair constructor would have done anyways.

Gregor elaborated. He stated that the proposal was claiming that memory had type pair<T, U>, but would address something as type T. He stated that therefore this might require more compiler magic than thought.

Hinnant said that no-one in the LWG was opposed to core work in the area.

Vandevoorde wished to point out that the aliasing issue implied current compilers would break in the most subtle way imaginable at high optimization levels.

Stroustrup stated that the issue extended not just to pair. He said it would be nice to have a solution that also worked for tuple or any other collection of values that would be constructed.

Crowl wished to point out that type-based alias analysis was becoming increasingly important for modern applications. He stated that he would be against anything that would require Google to turn off type-based aliasing analysis.

Merrill pointed out there was wording in the standard that cause this to be OK for aggregates.

Gregor responded that the type T in question might not be an aggregate.

Maurer asked where do the instances of the text "OUTERMOST" in the document came from?

Halpern stated that this was a bug, and the word "OUTERMOST" should not be there at all.

Becker stated that if need be, the group could just say that as part of the motion.

Nelson stated that he would really like to know more about the type based alias analysis issues, but no time before tomorrow. Therefore he concluded his preference would be to delay this.

Hinnant asked if Nelson was asking to not even take the poll?

Nelson did not respond.

Plauger stated that he really liked this proposal, and thought it would solve a lot of problems. He stated he had had to fix several issues like this, and those were difficult issues. Therefore, he said that this talk of aliasing made him nervous.

Hinnant stated that his preference was to take a poll. He suggested that a no-vote could be interpreted as "not now, but interesting for Pittsburgh."

Plauger reiterated that he really wanted this to work.

Gregor agreed, stating he also really wanted this to work, but that he was concerned about type aliasing issues.

Sutter stated he wished to ensure this was captured in the minutes.

Brown stated he wished to ask a procedural question. Brown asked whether there was precedent for this "back and forth nonsense." He states that every meeting he remembered involved only final polls, not about whether the group wished to bring something back later.

Tana Plauger stated that she remembered motions being declined and the group bringing them back later.

Brown responded by thanking her, and stating that that addressed his concern.

Maurer pointed out that the same thing happened with scoped allocators.

Hedquist suggested asking if there was any objection to withdrawing this now.

Hinnant stated his preference for taking a vote.

Straw poll – Motion 4 – apply N2981 "Proposal to Simplify pair (rev 2)" to working paper, with the word OUTERMOST removed where it appears:

> **In favor**: 11

> **Opposed**: 22

No consensus to apply in this meeting.

Vandevoorde encouraged the proposers to work with Core on this.

Straw poll – would the group be OK with seeing this in Pittsburgh again:

> In favor: Lots

> Opposed: 1

Straw poll – LWG Motion 5

Abrahams asked whether, after his concern about not having a programming model, whether any progress had been made on that.

Hinnant stated that the paper included wording on teachability.

Abrahams indicated that he knew what the paper contained, and asked whether anything else happened?

Hinnant responded that, no, nothing else had happened.

Straw poll – Motion 5 – apply N2951 "forward" to working paper:

> **In favor**: 32

> **Opposed**: None.

Straw poll – LWG Motion 6

Hinnant pointed out that N2988 was not in the pre-meeting mailing, but contained nothing but wording provided for an issue that was intended to be fixed after Frankfurt.

Hinnant stated that the paper addressed an NB comment by being part of the issues included in the blanket active issue NB comments.

Straw poll – Motion 6 – apply N2988 "LWG Issue 897 and other small changes to forward_list" to working paper:

> **In favor**: Lots.

> **Opposed**: None.

Interjection – Comments regarding motion 2

Hinnant gave the floor to Meredith to make a clarification regarding motion 2.

Meredith stated that motion 2 did address an issue on the issues list that is covered by an NB comment, but also included a number of other things. He stated that BSI would likely raise an NB comment on this issue for CD2.

Sutter stated that this would change his vote.

Plauger object to this.

Hedquist stated someone would have to entertain a motion to retake the poll.

Nelson asked whether, in the second round of a CD, it was reasonable for an NB to bring up issues that they did not raise in the first round, if those issues already previously applied.

Hedquist responded that the short answer was "yes."

Plauger stated that his concern with retaking the poll was procedural.

Sutter clarified that he did not intend to imply that the group should retake the poll.

Meredith asked if there would be objections if BSI brought this back at the next meeting.

Hedquist stated he would object on procedural grounds.

Meredith asked for a show of hands of those who would object on procedural grounds. After a show of hands, Meredith concluded that there would be sufficient objection to indicate that BSI should wait.

Straw poll – LWG Motion 7

Hinnant stated that this motion directly addressed an NB comment.

Straw poll – Motion 7 – accept the proposed resolution in NB comment UK-300 to working paper:

> **In favor**: Lots.
>
> **Opposed**: None.

Straw poll – LWG Motion 8

Vandevoorde stated he was disappointed by the complexity of this paper, in that the paper was adding another future class. He noted that this paper did not remove "is_ready()".

Vollmann clarified that the next motion would address removing "is_ready()."

Straw poll – Motion 8 – apply N2997 "Issues on Futures (Rev. 1)" to working paper:

In favor: 21

Opposed: 6

Straw poll – LWG Motion 9

Hinnant stated that this motion addressed an NB comment.

Straw poll – Motion 9 – apply N2996 "A Simple Asynchronous Call" to working paper:

In favor: 23

Opposed: 2

Straw poll – LWG Motion 10

Hinnant stated that the paper lists the NB comments addressed by it.

Straw poll – Motion 10 – apply N2992 "More collected Issues with Atomics" to working paper:

In favor: 27

Opposed: None.

Straw poll – LWG Motion 11

Hinnant stated that he believed this paper addressed an NB comment.

Meredith agreed, stating that this was the case in addition to addressing issues indirectly included by NB comments.

Vandevoorde asked whether this paper required core changes.

Hinnant responded that it did.

Straw poll – Motion 11 – apply N2984 "Additional Type Traits for C++0x (Revision 1)" to working paper:

In favor: 32

Opposed: None

Straw poll – LWG Motion 12

Hinnant stated that this paper addressed several NB comments.

Crowl pointed out that putting "Removal" in a title might not be the best wording.

Hinnant said he would take that as advisement for future papers.

Straw poll – Motion 12 – apply N2982 "Allocators post Removal of C++ Concepts" to working paper:

In favor: 29

Opposed: 1

Summary

Hinnant stated that motions 2 and 4 would be struck from the next day's voting.

9. WG sessions continue
10. WG sessions continue
11. Review of the meeting

51 members were present.

11.1 Motions.

Clamage pointed out that there would be a requirement for each motion to have a mover and a seconder, because the meaning of subgroups differed between INCITS rules and WG21's meaning.

CWG Motions

Vote – CWG Motion 1

Move we apply the resolutions of the following issues from N2962 to the C++0X Working Paper:

257 481 527 587 589 601 604 608 612 618 626 630 656 657 672 693 695 699 703 704 705 713 715 717 719 721 726 730 731 735 737 776 785 786 790 792 801 803 804 806 809 831 832 833 834 835 840 842 850 854 855 862 865 874 876 877 879 882883 884 888 896 908 921 926 928 929 930 933 934 936 940

This is all issues marked "ready" or "tentatively ready," with the exception of issues 799, 812, 861, 919, and 920, for a total of 50 issues in ready status and 22 in tentatively ready status.

Mover:	Adamczyk
Seconder:	Miller
Unanimous consent.	

Vote – CWG Motion 2

Move we apply N2998 "Reaching Scope of Lambda Expressions" to the C++0X Working Paper.

Mover:	Adamczyk
Seconder:	Crowl
Unanimous consent.	

Not Moved – CWG Motion 3

The following motion was not moved: apply N2989 "Unified Function Syntax" to the C++0X Working Paper.

LWG Motions

Vote – LWG Motion 1

Move we apply the resolutions to the following issues from N2948 to the C++0X Working Paper:

149, 419, 430, 498, 564, 565, 630, 659, 696, 711, 716, 723, 788, 822, 838, 847, 857, 859, 876, 881, 883, 886, 934, 1004, 1012, 1019, 1178

Mover:	Hinnant
Seconder:	Brown
Unanimous consent.	

Not Moved – LWG Motion 2

The following motion was not moved: apply N2986 "Equality Comparison for Unordered Containers" to the C++0X Working Paper.

Vote – LWG Motion 3

Move we apply N2994 "constexpr in the library: take 2" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
Unanimous consent	

Not Moved – LWG Motion 4

The following motion was not moved: apply N2981 "Proposal to Simplify pair (rev 2)" to the C++0X Working Paper.

Vote – LWG Motion 5

Move we apply N2951 "forward" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
Unanimous consent	

Vote – LWG Motion 6

Move we apply N2988 "LWG Issue 897 and other small changes to forward_list" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
Unanimous consent	

Vote – LWG Motion 7

Move we accept the proposed resolution in NB comment UK-300. (This moves swap from the <algorithm> header to <utility>.)

Mover:	Hinnant
Seconder:	Brown
Unanimous consent	

Vote – LWG Motion 8

Move we apply N2997 "Issues on Futures (Rev. 1)" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
In favor:	20
Opposed:	4
Abstain:	8

Motion is carried.

Vote – LWG Motion 9

Move we apply N2996 "A Simple Asynchronous Call" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
In favor:	17
Opposed:	4
Abstain:	10

Motion is carried.

Vote – LWG Motion 10

Move we apply N2992 "More Collected Issues with Atomics" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown

Unanimous consent.

Vote – LWG Motion 11

Move we apply N2984 "Additional Type Traits for C++0x (Revision 1)" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
In favor:	25
Opposed:	1
Abstain:	8

Motion is carried.

Vote – LWG Motion 12

Move we apply N2982 "Allocators post Removal of C++ Concepts" to the C++0X Working Paper.

Mover:	Hinnant
Seconder:	Brown
In favor:	22
Opposed:	3
Abstain:	7

Motion is carried.

Additional Motions

Hinnant moved to thank the Secretary, especially for the notes in the LWG. Applause followed the motion.

Hinnant moved to thank the Host. Applause followed the motion.

Clark moved to express the group's thanks to the outgoing Convener. Applause followed the motion.

11.2   Review of action items, decisions made, and documents adopted by the committee

None.

11.3 Issues delayed until Saturday

None.

12. Plans for the future

12.1 Next and following meetings

Plauger reviewed the upcoming meetings. The following meetings were:

- Mar 8-13, 2010 Pittsburgh, PA, USA: CERT
- Jul 12-17, 2010 Rapperswil, Switzerland: HSR Hochschule für Technik
- Nov 8-13, 2010 Batavia, IL, USA: Fermilab

Plauger noted there had been an invitation from Spain to host in the Spring of 2011. He went on to state that an invitation had been extended for the Summer 2011 meeting in Indiana. Finally, he stated that Intel had also offered to host the Fall 2011 meeting in Portland.

12.2 Mailings

Nelson reported the following mailing deadlines:

| post-meeting mailing | 2009-11-06 |
| pre-Rapperswil mailing | 2010-02-12 |

Nelson noted that mailing dates would be posted as a news item on the WG21 web page going forward.

Nelson asked the committee for their opinion on whether a mid-term mailing should be held. Adamczyk noted that the Core Working Group does not particularly require a mid-term meeting. Meredith noted that as a likely paper author for papers for CD2, it would bring value to have a mailing as a deadline. Crowl noted that these deadlines affect him and he is personally in favor of a mid-term mailing.

Plum noted that the PL22.16 group will at some point next year transition to a new information system. He explained that the system was referred to as the ICMS system. Plum noted that it appeared that the members of a group would have the ability to post documents at any time. Thus, he stated that he believed that a gathering of documents in the form of mailings might become obsolete. He noted that the group might

nonetheless prefer to have a date by which to have documents gathered together. He also noted that both groups still prefer a two-week deadline before each meeting by which documents should be submitted. Plum went on to note that this might further require some changes to the coordination between the PL22.16 and JTC1/SC22/WG21 groups.

Nelson noted that in any case the mid-term date was fairly arbitrary. He further noted that it seemed to him that those wishing to exchange documents for the purposes of feedback had a number of avenues such as wikis and reflectors for doing so.

Meredith noted that BSI currently schedules their meetings around pre-meeting and post-meeting deadlines, and therefore would prefer to continue to have dates known for these mailings.

Hedquist suggested simply changing the terminology to call these dates "posting dates" rather than "mailing dates".

Plum noted that removal of midterm mailing would require less work for Nelson, and stated that, therefore, it seemed worthy considering removing these.

Miller noted that mid-term mailings also created additional work for him, and would thus prefer to discontinue having them, while noting the importance of the pre-meeting and post-meeting mailings.

Meredith noted that BSI had scheduled a meeting around the mid-term mailing.

Nelson noted that an issue with mid-term mailings as a deadline is that there was no consequence to the author for missing such a deadline.

Meredith noted that it did serve some value to outside parties wishing to organize their meetings around.

Tana Plauger asked whether it was possible to use an existing forum such as the wiki to collect such papers.

Meredith stated that this would be sufficient if there was an informal suggestion of authors posting papers by a date similar to the suggested mid-term mailing date.

Nelson stated that given the preceding discussion, there would be no mid-term mailing.

13. Adjournment

Motion to adjourn

Mover: Hedquist
Seconder: Wong

Unanimous consent.

Attendance

Company/Organization	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Apple Computer	Howard E. Hinnant	V	V	V	V	V	V
Apple Computer	Doug Gregor	A	A	A	A	A	A
Bloomberg	John Lakos	V	V	V	V	V	
Bloomberg	Alisdair Meredith	A	A	A	A	A	A
BoostPro Computing	David Abrahams	V	V	V	V	V	V
Cisco Systems	Martin Sebor	A	A	A			
CodeGear/Embarcadero	Dawn Perchik	V	V	V	V	V	V
CodeGear/Embarcadero	David Deon					A	
Dinkumware	P. J. Plauger	V	V	V	V	V	V
Dinkumware	Tana Plauger	A	A	A	A	A	A
Edison Design Group	J. Stephen Adamczyk	V	V		V	V	V
Edison Design Group	Jens Maurer	A	A	A	A	A	A
Edison Design Group	William M. Miller	A	A	A	A	A	A
Edison Design Group	John H. Spicer	A	A	A	A	A	A
Edison Design Group	Daveed Vandevoorde	A	A	A	A	A	A
Fermi Nat. Accelerator Lab	Walter E. Brown	V	V	V	V	V	V
Gimpel Software	James Widman	V	V	V	V	V	V
Google	Matthew Austern	V	V	V	V		
Google	Lawrence Crowl	A	A	A	A	A	V
Google	Bill Gibbons	A	A	A	A	A	
Google	Nick Lewycky			A			
Hewlett-Packard	Hans Boehm	V	V	V	V	V	V
IBM	Paul E. McKenney	A	A	A	A	A	A
IBM	Michael Wong	V	V	V	V	V	V
Indiana University	Jeremiah Willcock	V	V	V	V	V	
Indiana University	Marcin Zalewski	A	A	A	A	A	V

Company/Organization	Representative	Mon	Tue	Wed	Thu	Fri	Sat
Intel	Clark Nelson	V	V	V	V	V	V
Intel	Pablo Halpern	A	A	A	A	A	
Intel	Stefanus Du Toit	A	A	A	A	A	A
Microsoft	Jonathan Caves	V	V	V	V	V	V
Microsoft	Herb Sutter			A	A	A	
Oracle	Paolo Carlini	V	V	V	V		V
Perennial	Barry Hedquist	V	V	V	V	V	V
Plum Hall	Thomas Plum	V	V	V	V	V	V
Red Hat	Jason Merrill	V	V	V	V	V	V
Red Hat	Benjamin Kosnik	A	A	A	A	A	A
Roundhouse Consulting	Pete Becker	V	V	V	V	V	V
Seymour	Bill Seymour	V	V			V	V
Sun Microsystems	Stephen D. Clamage	V	V	V	V	V	V
Symantec	Mike Spertus	V	V	V			
Texas A&M	Bjarne Stroustrup	V	V	V	V	V	V
USENIX	Nick Stoughton	V	V	V	V	V	V
Zephyr Associates	Thomas Witt		V	V	V	V	V
HSR	Peter Sommerlad	N	N	N	N	N	N
Ixonos Plc.	Ville Voutilainen	N	N	N	N	N	N
University Carlos III	J. Daniel Garcia	N	N	N	N	N	N
Vollmann Engineering	Detlef Vollmann	N	N	N	N	N	N
	Takatoshi Kondo	N	N				
Blue Pilot Consulting	John Benito	N					
Amazon.com	Gary Powell	N	N	N	N	N	
CMU/SEI/CERT	David Svoboda	N	N	N	N	N	N