

SC22/WG20 meeting - Tel Aviv, October 18-22, 1998 Minutes
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October 22, 1998

TIME: 9:00 a.m. to 5:00 p.m., Sunday through Wednesday
9:00 a.m. to 1:00 p.m. on Thursday

LOCATION: SII - The Standards Institution of Israel
Standardisation Division
42, Chaim Levanon St.
69977 Tel-Aviv

AGENDA ITEMS:**1 Introduction and announcements by Convenor**

TR 10176 published September 3, 1998 (Keith Brannon).

2 Introduction of national delegations, liaisons, and cooperation partners

Canada	Alain LaBonté	Secrétariat du Conseil du trésor du Québec
Denmark	Keld Simonsen	RAP
Israel	Stefan Fuchs	BEZEQ
Israel	Jonathan Rosenne	A.J. Humanising Ltd. (part time)
Israel	Moran Ben Herzel	Microsoft (Sunday only)
Japan	Masayuki Takata	Edogawa University
Sweden	Kent Karlsson	Industri Matematik International
UK	John Clews	Sesame
USA	Ken Whistler	Sybase
Convenor	Arnold F. Winkler	Unisys

3 Appointment of chairperson, secretary, and drafting committee

Chair: Winkler
Secretary: Winkler
Drafting: Takata, Simonsen, Whistler

4 Approval of prior meeting's minutes

563	Minutes - Dublin, June 15-19, 1998	Winkler SC22 N2768	98-07-20	admin
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Ken: Iceland is misspelled.

Rewording on page 11: spelling and hyphenation will not be included. (Japanese comments)

Japan: member of the editing committee was Takata, not Fujimura. Tom is Tom Garland from Sun.
N563 is approved with these changes as N563R.**5 Future Meeting Schedule and Plans**

#16	May 3-7, 1999	Malvern	USA
#18	November 8-12, 1999	Copenhagen	Denmark
#19	May 22-26, 2000	Quebec	Canada
#20	Al-Arnold check with Borka		Slovenia

6 Recognition of new documents and assignment to agenda items

604	Report on offline meetings at the SC22 plenary regarding TR 10176, Annex A	Keld Simonsen	98-09-28	22.13
605	Greek ordering	Mark Küster	98-09-28	22.30.02.02
606	Report of the JTC1 planning meeting on CLAU1 and agenda for the ad hoc meeting in Paris (98/12/2-4)	Tom Frost, JTC1 N5555, N5556	98-10-02	admin
607	Liaison statement from SC22/WG14	WG14 N857	98-10-08	admin
608	Disposition of comments to FCD 14652	Keld Simonsen	98-10-12	22.30.02.03
609	Proposed defect report for TR 10176	Whistler, Moore	98-10-13	22.13
610	Final Text for IS 15897 - Registry for cultural elements	Keld Simonsen	98-09-06	22.15897
611	Working draft for IS 14652 - Specification method for cultural conventions	Keld Simonsen	98-10-14	22.30.02.03
612	Working draft #2 for IS 15435 - Internationalization APIs	Keld Simonsen	98-10-14	22.15435
613	Relation between IS 14652 and IS 15435	Keld Simonsen	98-10-14	22.15435
614	Coverletter from Unicode to WG20 regarding defect report for TR 10176 (identifiers)	Unicode	98-10-15	22.13
615	Unicode Normalization Forms	Unicode TR #15	98-08-20	22.30.02.02
616	Requirements for string identity matching and string indexing	W3C WD-charreq	98-08-07	22.30.02.02
617	Towards a Model of Character Encoding	Ken Whistler	98-07-28	22.30.02.02
618	Amendment #1 for TR 10176 to correct the list of identifiers in Annex A	SC22/WG20	98-10-19	22.13
619	Text for 2nd FCD ballot for IS 14651 - ordering	Alain LaBonté	98-10-20	22.30.02.02
620	Hebrew in computing - submission to WG20	Jony Rosenne	98-10-20	22.30.02
621	Statement of WG20 regarding the Y2k	Winkler, WG20	98-10-21	admin
622	Response to SC22 resolution 98-3 on electronic commerce (comments to JTC1 N5296)	Keld Simonsen, WG20	98-10-21	admin

7 Approval of Agenda

New item for IS 15897 as #15

New item for Electronic business as #17.1

New item for CLAU1 as #17.3

Addition: Tuesday morning an overview of Hebrew issues - make BIDI a ISO standard

Addition: discussion of transliteration and roadmap (Clews). [17.4]

Approved with above additions.

8 Liaison Reports

8.1 Additions/deletions/changes to liaisons

Unicode addition needs "statement of mutual benefits". Was not discussed in SC22 plenary in spite of request in convenor's report. See N599 for mutual benefits.

New "informal" cooperation agreement with W3C. See N601.

PCTE has been dissolved, liaison is terminated.

8.2 SC22/WG4, COBOL

No report. Keld reports that Ann Wallace initiated a discussion on TR 10176 - see N604. We can expect a paper from Ann on these issues. Needs naming method for tables.

8.3 SC22/WG15

No report. IEEE, WG15 and OpenGroup will make a common POSIX standard, based on OG's paper.

WG15 is making a TR on how to write locales ISO TR 14766: Profiles and Locales. (Keld editor).

8.4 SC2/WG2

No written report, Ken reports about WG2 in London. Large number of amendments were progressed, about 600 new characters, especially also Mongolian, Burmese = Myanmar (FPDAM), addition of 66 characters in a bucket, additions to Tibetan [PDAM, replacing amendment 7]. Roadmaps without code assignments.

8.5 WG14

607	Liaison statement from SC22/WG14	WG14 N857	98-10-08	admin
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Keld: revising C-standard, FCD ballot currently. WG14 is interested in the C-binding of the API standard. Would use the API standard. Jonathan remarks that character properties should not be variable - beta is always Greek character. Characters should not be locale dependent.

Alain: look at APL, compiles anywhere in the world the same way, not locale dependent. Ken: same is true for Java.

People who work with character properties, do not use the C or C++ APIs, because of their locale dependence. Look at TR 10176 for identifiers and character properties.

8.6 WG21

No formal report. Keld reports about the C++ and C combined meeting. Talk about bindings to API standard of WG20. Experts will write a C++ binding. C++ has just been approved as a new standard.

8.7 WG5

Alain reports that Fortran seems not to be interested in I18N.

AI for Winkler: ask Miles Ellis for status of I18N in WG5

8.8 GUIDE/SHARE Europe

No report.

8.9 JTC1 WG5 - now SC35

Alain expects work on keyboards and user interfaces - seen from the user. Currently, the secretariat is with Richard Hodgkinson. France will be the secretariat.

8.10 CEN TC 304

Add name of Thorgeir Sigurdsson to mailinglist.

Sort is out for TC enquiry, ending October 1998. Next meeting November 23-27, 1998 in Brussels.

Clews: more on sorting:

Changes to sorting standard will be needed to match 14651.

ISO 999 standard for sorting in TC46.

ISO 12199 in TC37.

8.11 TC37

ISO 12199 intends to harmonize with 14651. NISO standard failed.

Language codes and country codes are in TC46 and TC37. Clews would like to see that in JTC1. Part 2 of ISO 639 failed. Ken: discuss with electronic commerce - 17.1

8.12 ITU-T

Stefan is not participating in ITU-T any more, no report.

8.13 Unicode

599	Liaison with Unicode - statement of mutual benefits	Aliprand/Winkler	98-09-15	admin
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Ken reports continued interest in WG20 work:

Continuation of sort specifications.

Involvement in identifier specifications.

TR on normalization.

TR on regular expressions.

N555 was updated with benefits and responsibilities as N599R. Resolution to approve the document and AI for Arnold to send to SC22 for further action.

AI for Winkler: distribute completed TRs to WG20 automatically.

read JTC1 directives on C liaisons

8.14 W3C

601	Information about W3C I18N activity related to SC22/WG20	Akio Kido	98-09-17	admin
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Kido has suggested to be an informal liaison between WG20 and W3C. Kido's first report [N601] contains various subjects that are of interest of WG20 - string comparison and matching, for example.

Arnold: read document and discuss after that.

9 Review of prior meetings action items

SD-5	Action item list	Winkler	98-07-22	admin
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List updated, mostly done.

AI for Winkler to remind Everson of open A9806-13.

10 Results from SC22 plenary in Denmark

591	Resolutions from SC22 plenary in Denmark, August 24-27, 1998	SC22 N2806	98-09-01	admin
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Electronic commerce - comments (17.1)

Change in title of 14652 was approved

We inherited IS 15897, see there (15.)

Request for immediate update of TR 10176 - see N604 in 11.

11 Revision of TR 10176

604	Report on offline meetings at the SC22 plenary regarding TR 10176, Annex A	Keld Simonsen	98-09-28	22.30.02.02
609	Defect report for TR 10176	Whistler, Moore	98-10-13	22.13
614	Coverletter from Unicode to WG20 regarding defect report for TR 10176 (identifiers)	Unicode	98-10-15	22.13
618	Amendment #1 for TR 10176 to correct the list of identifiers in Annex A	Ken Whistler SC22/WG20	98-10-21	22.13

Discussion: should it be a open list or a closed list ? Alain: open, also Uma wants that for new stuff.

Ken: open list is a bad idea, since linking between various compiled objects can run into problems, if one of them does not support "new" characters. Exclusive list of inclusive list ???

Alain wants to open up the list - this would create implementations non-conformant to 10646.

N604 requires a stable list of characters for identifiers for their implementation for the next few years.

Keld: C++ is implementing a earlier version of Annex A of 10176.

Ken explains the proposed defect report (might have to be an amendment according to JTC1 procedures): This is only the list of characters that are in the published 10176 and are NOT suited as identifiers in programming languages. If these characters are taken out, the WG20 list would be a subset of the Unicode identifier characters. Whistler volunteers to write the proposed amendment text as N618.

Kent asks specific questions about "numbers", Ken explains why numbers are excluded, but not digits.

Keld: wants to add "clarifications" for parts of the TR that have been misunderstood.

Decision: Ken will write a draft amendment (N621) which we will see, discuss, and decide to forward to SC22 for processing.

Wednesday: We discussed N618, the text for the draft amendment. Level 2 combining characters will be allowed, as will be any extension to the list by individual programming languages (example: Java with level 3). The combining characters will be listed by script and separated by combining or not combining.

12 International string ordering ISO/IEC CD 14651

568R	Disposition of comments to FCD 14651 ballot	Alain LaBonté	98-08-17	22.30.02.02
578R	Suggested BNF (Backaus-Noir Format) syntax for template tables for ISO 14651	Ken Whistler	98-08-27	22.30.02.02
602	IS 14651 - draft for 2 nd FCD (will not be distributed, see N619)	Alain LaBonté	98-09-24	22.30.02.02
619	Text for 2nd FCD ballot for IS 14651 - ordering	Alain LaBonté	98-10-20	22.30.02.02

Alain goes through the document N602 and explains the changes and corrections applied together with Ken Whistler.

Special discussions:

Only one conformance left after changes on page 8.

Normative reference of other standards - put into "bibliography"

Should tailored tables have a prescribed name ? Keld: perhaps after registration according to IS 15897.

Change table name to ISO14651-1999-TABLE1. Registration can only be requested by SC22 or by a National Body. (I would like to see this registration proposed by SC22).
 Question: when to register the name of the table ? Keld: right now might be a good time. Table is very large, symbolic form about 120 pages.
 Proposal for practical purposes: distribute text, and examples of tables, point to URL for complete tables. The printed tables will only be checked for final publication in the FDIS.
 Examples: remove exception for OE in the French benchmark.
 Make an example for specifying the delta from the default table (on page 20, Annex C).

All of these changes will be reflected in the new document N602R that will be in the official distribution after the meeting.

Keld: BNF standard is different than what we use here - can we change it or declare conformance to the standard with exception of the underline. Ken: the compliance to the standard would not improve the readability of 14651. Mark Küster used the existing BNF in 14651 and had no problems.

Keld: impact of BNF on the table - readability, compliance with 14652. Alain and Ken point to the "look" of the table, which is compatible with 14652. Keld: reorder after following another reorder after - how is it done? Ken: defined in the well-formedness definitions (change WF-8 to add the possibility to have more than one re-order after entry).

Keld: in table, use Uxxxx instead of @xxxx ? Presently, the @xxxx is a literal. Reason is the order of the specials that can not be derived from the character code (arbitrary Canadian/IBM order).

Ken agrees to create the tables with "re-order after" to create the desired result. The application for the re-order might have to be done manually or with a program (Keld has one). Comma, semicolon, etc... need to come after the last of the Unicode spaces.

AI for Whistler: create new tables according to the discussion (Canadian, IBM).

Progression of 14651:

October 20, 1998	New draft for committee review	Alain LaBonté
November 4, 1998	End of comment period	all WG20
November 12, 1998	Submission to FCD ballot by SC22	Winkler

13 Specification methods for cultural convention - ISO/IEC 14652

608	Disposition of comments to FCD 14652	Keld Simonsen	98-10-12	22.30.02.03
611	Working draft for IS 14652 - Specification method for cultural conventions	Keld Simonsen	98-10-14	22.30.02.03

DoC is completed (N608), no new draft yet available. BIDI is removed. Keld has about 40% of the document to edit, before we can progress it.

Ken asked, if the DoC are submitted to SC22. Answer is YES, with the awareness of the implications of this mode of operations (more significant comments on the next draft). Keld has not been able to submit a new draft document due to overload and computer break down.

Ken has concerns about inconsistencies - removal has priorities over proposed changes.

Progression:

November 3, 1998	New draft for committee review on web	Keld Simonsen
November 9, 1998	Comments to the new draft	WG20
November 12, 1998	Deliver updated document to convener	Keld Simonsen
November 12, 1998	Send to SC22 for FCD ballot	Winkler

14 Internationalization API standard

612	Working draft #2 for IS 15435 - Internationalization APIs	Keld Simonsen	98-10-14	22.15435
613	Relation between IS 14652 and IS 15435	Keld Simonsen	98-10-14	22.15435

Keld explains the draft, Ken, Kent, and Keld have extensive discussions about API concepts and technical details, especially in view of Java, that has developed their own APIs.

The API standard need explanation of the character model to make sure, that the API functionality is understood.

Issues list has been created (Keld) that will lead him through the next editing of the document.

The document N613 (relation between 14652 and 15435) is being considered as an Annex to the API standard IS 15435.

Discussion with C and C++ is needed, Keld will do that at the next meetings. What kind of object is a string? text element APIs?,

Progression:

End of 1998

New draft for committee review on web

Keld Simonsen

Feb and Mar 1999

discussion with C and C++

Keld Simonsen

15 Procedure for registration of cultural elements - ISO/IEC 15897

485	DIS 15897 - Procedure for European registration of cultural elements	EN 12005	97-10-02	admin
577	Table of replies and comments to Fast Track ballot on ISO/IEC DIS 15897 (EN 12005)	SC22 N2717	98-05-14	22.15897
592	Disposition of comments to fast track ballot for ISO/IEC DIS 15897 - Procedure for registration of cultural elements	SC22 N2812	98-09-02	22.15897
594	Questionnaire for populating the European cultural registry for information Technology	CEN TC304 N842	98-08-06	22.15897
610	Final Text for IS 15897 - Registry for cultural elements	Keld Simonsen	98-09-06	22.15897

Keld: working towards the goal that only one standard exists, not EN 12005 and ISO/IEC 15897.

Registration authority (DKUUG) has been approved by ISO council, in the works at IEC.

Ken: expresses his displeasure about the process with which this standard has been approved. Major comments from NBS that care are not addressed in the disposition of the comments. Ken and Clews are missing any quality control mechanism applied for such Fast Track processed standards.

What is expected from WG20 ??? - Maintenance (revision) of IS 15897, taking into account the ballot comments and the disposition of them. Keld: 15897 should allow that data elements can be registered that conform to 14652 (in addition to POSIX). We also have to resolve the unresolved comments from the fast track ballot.

- Make sure that we can register FDDC sets, new forms charmaps
- Resolve unresolved comments
- Make it universally usable - register items from electronic commerce, e.g.
- Open up for registration (not before we know, what the structure of the data will be)

How do we get the POSIX locale registration into the online form of an updateable, versioned, easily accessible register, where "customers" can find what they need.

CEN wants to update/revise their standard EN 12005. WHY ??? after being fast tracked ???
Clews promises to fight for withdrawal of the CEN standard at the next meeting of CEN in Brussels, November 1998. We need to avoid duplicate standards for the same subject.

16 ISO/IEC 10646 Issues

Discussion about having character properties in SC2/WG2. WG2 has until now refused to say anything about character properties. Keld thinks, that this work should be in WG20, not in WG2.

Kent and Clews support WG2, so do I, and even Alain to a degree. Alain says: the properties of one character can be different in different cultural environments. The properties are NOT responsible for sorting. Ken: W3C has decided to use the WG2 character identifiers in WWW work. WG2 regularly updates 10646 Annex B for combining properties.

17 Other business

Sunday: Winkler asked the group about the usefulness of the electronic document distribution on the WG20 web site. Comments were: use pdf or original formats for formatted documents, restrict html for simple stuff with links. Announce new documents via e-mail. Electronic distribution will be continued in addition to paper distribution, taking into account the comments during this meeting.

17.1 Electronic Commerce Business Team Report - request for comments

589	Request for comments to JTC1 N5296 - Electronic Commerce Business Team Report	SC22 N2736	98-06-22	22.30.01
590	Report to JTC 1: Work on Electronic Commerce Standardization to be Initiated	JTC1 N5296	98-06-02	22.30.01
622	Response to SC22 resolution 98-3 on electronic commerce	WG20	98-10-21	admin

Clews: many things in chapter 6 are of interest to WG20, but outside of JTC1 (TC46, TC37, etc...). Also of interest is the IT enablement.

Ken: out of 12.3 - language codes, country codes, etc.. we agree that this is a mess. ISO 639, language codes, is flawed. All that can be done now is to add more codes for new languages. There are many more languages that registered, there is no provision for dialects, transitional languages, special languages, etc.. It also does not declare a multi-lingual environment. Dealing with multi-lingual issues is a requirement of electronic commerce.

Localization issues should be separated from multi-lingualism issues.

12.3.4 - commodity codes need to be re-considered. Must be extended by trading by catalogue descriptions, not only by standardized numbers for specific products. Commodity codes are useful for business to business and administration to business commerce. There are many items that will have arbitrary numbers.

Country codes are not sufficient to decide the behavior towards a customer in this country. The cultural registry is not good enough and can not be "filled" fast enough for current implementations.

For many products we have translated descriptions into various languages. For many other items, we do NOT have such translations and might have to involve translation engines from various vendors.

Keld and Alain - give them TR 11017.

Ken discussion with Keld:

Barriers should be addressed through coordinated efforts of standards bodies to collect and make available relevant information, including the cultural registry of WG20. The modification of ISO 639 is part of the effort to make international standards more adapt to the use as identifier of languages.

Access to formats (dates, etc...) must be provided via "locale" and/or "date", as desired by the user. Database of cultural conventions must be re-designed to be independent of the NBs and other organizations that control the data in the DB. Data must be dynamic, improvable, available in a high throughput database on the web.

Al Whistler: write a draft for a paper, what this committee should be doing to make a useful cultural registry.

We need to violently agree in our comments to their requirements for IT enablement (6.2) and make out registry to comply to them.

AI Keld: write draft comment, based on provided subjects and ideas by November 6, 1998. Incorporate recommended changes from the WG20 participants, submit to Bob Follett before due date (Dec. 5, 1998). Document is N622.

Languages, countries, currencies.

Character set and encoding identification.

Use of UTF-8 and/or UTF-16.

Appropriate protocols for data interchange.

TR 11017

IS 14651 and IS 14652 and IS 15897 for IT enablement.

Prepared to participate in activities whoever JTC1 nominates to do so.

Wednesday: Keld presents his paper N622 for comments and discussion.

Paper N622 is approved and AI for Arnold to send to chairman of SC22.

17.2 Request to check our standards for Y2k compliance by October 23, 1998

603	Request to check standards for Y2k compliance	JTC1 secretariat	98-09-23	admin
621	Statement of WG20 regarding the Y2k	Winkler, WG20	98-10-21	admin

TR 11017 and TR 10176 have no date related processing requirements.

14651: the informative annex of this standard includes information about Y2k compliant comparisons.

14652 and 15897: These standards have no provisions to prevent people from being Y2k compliant.

15435: API for string to time conversion specification will include guidance for Y2k compliance.

Arnold prepared document N621. The document was discussed, slightly changed, and approved for being sent to JTC1 and SC22. (via Alain, due to time pressure). Kent requested, not to use Y2k but Year 2000.

17.3 Cultural and Linguistic Adaptability and User Interfaces

606	Report of the JTC1 planning meeting on CLAU and agenda for the ad hoc meeting in Paris (98/12/2-4)	Tom Frost, JTC1 N5555, N5556	98-10-02	admin
623	Suggestions for the WG20 delegation in Paris	Clews	98-10-21	admin

AI for Winkler: inform Tom Frost about potential WG20 participants: Alain LaBonté, Keld Simonsen, John Clews (also TC46).

WG20 should make sure, that the NBs speak and vote in accordance to our views of I18N.

Are there hidden agendas ? Keep the 3 SCs (SC2, SC22, SC35) ? Co-locate meetings ? How to get 10646 as a MUST character set for all programming languages ? Liaisons ?

John Clews has volunteered to write a paper with the most important goals of the meeting in Paris.

17.4 Transliteration and roadmap (Clews)

Model of transliteration will be in 15435 - APIs. Much more work is needed, and resources, to properly address this subject. Only demonstrated need for standards should be fulfilled by WG20. US and Unicode and Ken do not see a need for transliteration.

Roadmap: SC2/WG2 has a roadmap for new scripts as part of the policy and procedure document. Unless there is a strong need, we should not do anything specific in WG20.

18 Review of Priorities and Target Dates

Reviewed.

19 Review of Actions Items from this meeting

Reviewed in 9821-SD5

20 Approval of Resolutions

Resolutions in N598 were discussed and approved by WG20.

21 Adjournment

Meeting is adjourned on October 21, 1998 at 16:45.

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Special meeting on Tuesday morning about cultural specialties by Israel Gidali (IBM):

Participants: from WG20 Alain, Keld, Ken, John, Kent, Masayuki, Stefan, Arnold.

Dina Ben-Elissar	IBM Israel
Jonathan Rosenne	SII
Yair Shmuel	Microsoft
Mati Allouche	Softel
Eli Marmor	EI-Mar Software

Bi-directional script support (Israel Gidali, IBM)

Languages: Arabic, Urdu, Farsi, Hebrew, Yiddish

Bidi: text from right to left, numbers from left to right

Letters:

Hebrew letters are square, not connected. Only consonants, vowels out of context, sometimes with marks that help the pronunciation (the word diacritic is often used).

Arabic: cursive, connected, often ligatures. Only one space between words, letters can be stretched for justification. Shaping is important: initial, middle, or final to allow connections to next letters. also isolated forms.

Numbers:

Arabic digits in Hebrew, Hindi digits and Arabic digits in Arabic script. Always from left to right.

Directionality:

Pages, books, GUIs from right to left. Period is a indication for mixed text (Ltr and Rtl).

Keyboard: shift from ltr and rtl is needed, also an API to set the keyboard to rtl or ltr. Implementation dependent according to character property, or also hotkey switch. Push-mode, input method support, etc...

Bidi attributes:

Global orientation - where do I start to read. Physical (presentation) and logical sequence (storage, input). Sort depends on logical order in storage.

Type of text:

Logical (implicit) - implicit directionality, e.g. Latin letter are strongly Ltr, Hebrew is Rtl. Symbols are neutral, numbers are weakly Ltr. (I LIVE AT 23 ts leztreh) . Implicit algorithms exist, the Unicode algorithm is widely accepted. Global orientation is important.

Explicit conversion: uses imbedded control characters. Unicode has markers for specifying directionality, has no presentation space.

Symmetric swapping: needed to maintain correct relationships (<,>,arrows, etc...)

Shaping: not for Hebrew but for Arabic. Can be stored in fully shaped forms, if no processing is needed.

BIDI processing aspects:

Transformation of layouts. (Also X/Open specification of complex shaping APIs. Will be implemented in Motif.) Visual to logical, logical to visual, shaped to non shaped, etc...

Bidi support: (in Windows)

some discussion about the new system that supports "full" Hebrew (Start button on the right. e.g.)

OS/2 has very strong support for Hebrew

Motif is supporting Hebrew (Marmor has done many implementations)

Little support in mainframes.

Jonathan Rosenne: Hebrew requirements

Submitted paper, specifying some requirements for culturally correct processing of Hebrew (N620).

Hebrew has 5 final forms, they should be sorted like the base character. Ignore the RtL and LtR characters in sorting.

Tables need to be changed to handle the final forms correctly.

Hebrew letters are alphabetic. Combining marks together with letters are alphabetic in identifiers, they are not to be allowed freestanding. Israel will discuss the special character that signifies abbreviations or acronyms in identifiers and make a submission to WG20.

Bidi: character properties and algorithm go together, one without the other are meaningless for implementations.

Dates: normally 2 dates - Gregorian and Hebrew, sometimes also Muslim. Needed in IS 14652.

Objects: Global direction is needed for any object that contains text.

Israel would like to see the X/Open APIs for layout services of complex text as an ISO standard. X/Open is a PAS submitter, it could submit their document for standardization in ISO.