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SPECIFICATIONS FOR COMPUTER-AIDED  
AND ON-LINE GROUP CONFERENCING

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13. ABSTRACT

This report proposes a set of features for a future computer conferencing system that would employ the computer and network characteristics currently available, or at the planning stage, on the ARPA network.

It addresses the problem of on-line group conferencing from the point of view of user language structure, differentiating between conference participants and activity organizers. The system outlined here is assumed to be planned for implementation in assembly language, its program size not exceeding the size of the existing FORUM system.

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II

SPECIFICATIONS FOR COMPUTER-AIDED  
AND ON-LINE GROUP CONFERENCING

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SPECIFICATIONS FOR COMPUTER-AIDED  
AND ON-LINE GROUP CONFERENCING

A. INTRODUCTION

The program we specify in this document constitutes a means of organizing, storing, distributing, and retrieving textual and numerical inputs (referred to in this document as entries) such that a user may, for example, communicate with others both in real time and asynchronously (store and forward), extract information from others in questionnaire fashion, or create small data bases for private use. It identifies each user by first and last names and a personal password, which is set or changed by the user himself.

The operational unit will be known as an activity. The activity consists of an agenda, a specification of the participants who may use the activity, and subdivisions within the activity known as parts. Each part is a distinct "message area" in which entries are made and viewed by the users designated in the user specification list. The parts of an activity allow entries to be made by straightforward typing or by the submission of a text file prepared and stored elsewhere in the host computer.

The organizer of an activity is that user who creates an activity, designates how many parts it shall have, designates the topics which are to be discussed or actions to be taken in the parts, and designates who shall be allowed to attend the activity. Any user may create an activity, of which he immediately becomes the organizer.

The participant of an activity is a user specified by the organizer of that activity who may view the entries in the various parts as well as enter new entries into these message areas.

The editor of an activity is a user designated by the organizer who has access to all of the commands and functions of the participant role as well as the ability to edit entries that have been submitted in a part--rearrange, copy, or delete entries. The only distinction between the roles of editor and organizer is that the organizer has the ability to revise the parts of an activity, revise the list of users, and change the roles designated to users.

The observer role allows a user to participate in an activity only in a passive manner. The observer may view the entries made but may not make any new entries.

In addition to the activities to which a user has access, there is a private message mode in which the user may send a message to any other user of the program. A personal "file" of private messages sent and received is kept. Only the user has access to these private messages and he may delete, rearrange, or move messages from his private file. Thus, a user need not enter an activity to use the system as a "mailbox". It should be noted that although the private message mode is provided as separate from activities, a user may also send and receive private messages while in an activity.

It should also be noted that a user may leave an activity at any time to either join another activity or go into the private message mode. Similarly, the user may leave the private message mode at any time and join any activity in which he is a valid participant.

#### B. USE OF THE PROGRAM

The program is designed to be operated from terminals of various kinds. They include hard-copy terminals that print on paper and display screen terminals (CRTs--or cathode ray tube terminals). The program will ask the user for the type of terminal he is operating.

After starting the program, you will first be asked to type your last name, followed by a carriage return [CR]. If you have not used it before, the program will ask you to type your first name (followed by a carriage return [CR]), and you will then be asked to select and type a personal password. Passwords must be alphabetic or numeric characters.

If you have registered previously, you will be asked to give your last name and password. The system will then ask you to enter information about the type of terminal equipment you are using.

Having given your name, password, and terminal type, the program will then print the list of activities which you may attend. You may elect to join an activity at this point by typing the number associated with the chosen activity followed by a carriage return [CR]. It is important to note

that the numbers associated with the various activities are relative to your own list of valid activities. Thus, the same activity may be referenced using different numbers for different users. If you do not select an activity (i.e., you do not type a number, but rather only a carriage return [CR]), you will be placed in the private message mode.

After selecting an activity (or when placed in private message mode), you will receive all of the private messages that you have not yet seen. If you have selected an activity, you will then be placed in that activity. If you have selected private message mode, you will remain in that mode.

### C. USER AIDS

#### Getting Help

If you are not sure what to do at any time during an activity, strike the question mark key [?] as your first character of input.

#### To Leave

To end your participation, simply hang up your telephone. If you want to remain on the network in other work, use the "QUIT" command. You will then be placed into the TENEX executive.

#### Moving from One Activity to Another

To leave one discussion part and go to another in the same activity, you may either:

1. send a private message to the system and use the commands "GO (to part) N" (where N is a number), "NEXT (part)", or "PREVIOUS (part)";  
or
2. type a CONTROL-F and, after receiving a prompt [-], use the same commands listed above.

#### Editing Entries

Simple editing of your entries (or commands) may be done before submitting or finishing the text by using the following:

To delete the character you typed

Strike the back arrow key [←] or type a CONTROL-A. If you strike the back arrow or CONTROL-A several times, the corresponding number of characters will be erased. Blank spaces between words are considered characters.

To erase an entire entry

Strike the DEL (delete) or RUBOUT key twice prior to submitting an entry with the two final carriage returns [CR]; or type a CONTROL-X.

For users acquainted with TENEX conventions, the control character operations for program control and editing are accepted. For more powerful editing of entries, the user may use TECO text-editor commands such that the current entry may be altered. The procedure for accessing TECO commands is as follows.

1. Before completing an entry with the final two carriage returns [CR], strike the ESC (escape) or ALTMODE key. The program will respond with:

Text editor:

2. At this point, the user must specify the editor commands he wishes to use by typing:

TECO [CR]

3. The cursor is automatically placed at the last character of the entry being corrected.
4. The standard TECO commands with the exception of the file storing and submission are available.
5. To leave the text editor and resume typing the entry normally, one must respond to the TECO command prompt [\*] as follows:

\*;MH\$ (\$ indicates ESC or ALTMODE key)

Stopping Output

You may stop output to your terminal by striking the DEL (delete) or RUBOUT key twice. The program will stop printing the current block of text and continue with the next operation.



#### D. JOINING AN ACTIVITY

Having selected an activity, the title of the activity and information on its structure and participants will be printed. Since all of the parts in a conference are discussions, the following sections concern themselves with the typical operations in this process. Other processes (e.g., eliciting a number of a probability estimate) are self-explanatory and require no background other than that obtained by typing a question mark [?] when you are prompted for special information and are not sure what to do.

#### Making an Entry in a Discussion

While in a discussion you may make an entry at any time--simply start typing. To end an entry, strike the carriage return [CR] twice.

#### Making an Anonymous Entry in a Discussion

Begin your message by striking the exclamation point key [!]. (Note that ! must be the first character typed.) Type your message as you would for a standard entry, ending it with two carriage returns [CR].

#### Sending a Private Message

Begin your message by typing a left parenthesis [()]. (Note that ( must be the first character typed.) The system will automatically print the word "to". You should then enter the name of the recipient of your message, followed by one carriage return [CR]. The program will then prompt you for your message with a hyphen [-]. You may then begin typing the message. End your message with two carriage returns [CR].

#### Answering Special Questions

During the course of a discussion, a user may "ask" a question which will be printed to your terminal like a standard entry and will then prompt you for a specific type of information. If it is not clear to you what is required by the question, type a question mark [?], followed by a carriage return [CR].

## Commands

Two means of accessing commands are available in the system.

1. While participating in a discussion activity, you may send a private message to the program itself rather than to another user. This allows you to access commands without leaving the discussion. Once the command action is taken by the program, you are returned to the ongoing discussion, having never really left the activity.
2. At any point in the program, you may go to command mode by typing a CONTROL-F. This command mode removes you from any conference part you are participating in and prints a prompt to your terminal.

You may then type in the command text. After the command action is completed, you are either returned to the command mode (indicated by another prompt), or to a part at which the command given will explicitly place you.

## E. COMMANDS AVAILABLE TO A PARTICIPANT

### Information Commands

#### DESCRIBE

Explains the use of the other commands available to a user. For example, "DESCRIBE REVIEW" will give a description of the "REVIEW" command and instructions on its use. To get a description of all commands available one may use "DESCRIBE ALL".

#### INFORMATION (on)

Will give summarized information on any of the following.

1. "ACTIVITY #", by giving the title of the activity specified and the contents or description of the parts making up the activity. Where the title of a part is preceded by an asterisk [\*], the user will find new entries which he has not seen.
2. "PART #", by giving a description of the part designated. This command assumes that the part specified is contained in the user's current activity.
3. "ALL ACTIVITIES", by listing all of the activities which you may attend and placing an asterisk [\*] before each activity which contains information that you have not seen. Note that to locate the part in which new entries have been made, you should use the "INFORMATION (on) ACTIVITY #" command.

STATUS

Allows the user to do any of the following.

1. Get the "STATUS (of) ACTIVITY #", which gives the title, contents, and the names of participants currently active in the activity.
2. Get the "STATUS (of) PARTICIPANTS", which gives the list of users eligible for a specified activity (e.g., "STATUS (of) PARTICIPANTS (in) ACTIVITY #") and whether they are currently logged in, the entire list of users and their status. If you wish only to find out who is currently using the program, insert "NOW" before specifying an activity.
3. Get the status of "ALL ACTIVITIES", which gives a list of all the activities you may attend and a list of the current users of those activities.

SET

Allows the user to personally change his password (e.g., "SET PASSWORD (to be) -") or to change the first name listed in the master participant directory (e.g., "SET FIRSTNAME (to be) -").

Commands for Moving with the System Structures

CONTINUE

Returns you to the part in which you were participating prior to entering the command mode or private message mode.

GO (to part) #

Puts you into the part of an activity which you specify. This command assumes that you are already in the activity and simply wish to go to another section.

JOIN (activity)

Allows you to move from one activity or from the private message mode to another activity. If you would like a list of activities available to you, follow the "JOIN (activity)" request with a question mark [?].

NEXT (part)

Puts you into the next sequential part on the agenda.

PREVIOUS (part)

Returns you to the part preceding your current one.

QUIT

Will cause the program to stop, but you will remain logged into the host computer. You will be placed in the TENEX executive. To leave the program and simultaneously log out of the computer, simply hang up your telephone. Do not use the "QUIT" command and then hang up the telephone.

START (activity)

Puts you at the beginning of the activity you are currently using and lets you begin your participation as if you had issued a "JOIN (activity) #" command.

LEAVE

Will cause you to "leave" your current activity (i.e., the program will know that you are not currently active in any activity) and place you into the private message mode.

When asking a question of the users of a discussion one may suppress recording of the author (thus giving anonymity to the authors) by using "ASK (the following question) SECRET IN PART #".

DELETE (entries)

Will delete from the user's personal file of private messages any entries which he designates (e.g., "DELETE (entries) PRIVATE"). Once deleted, these entries are not recoverable. If the user has organizer or editor status, he may delete entries in parts of the activity in which he has those roles.

COPY (entries)

Allows the user to make a copy of the entries designated in another part or to copy entries to be placed at another location within the same part. The options for this commands are:

1. "COPY (entries) [ENTRY #] TO [ENTRY #]"
2. "COPY (entries) [ENTRY #] TO [CR]"

In the latter case, the entries are copied to the end of the part. If the user specifies an entry number and that entry number is already used, the user may insert the entries by subdividing entry numbers. Thus, if the user wishes to copy entries 10 through 25 (16 entries in all) to reside between entry 45 and 46, he may type "COPY (entries) 10-25 TO 45.01[CR]". The sixteen entries will be numbered 45.01 through 45.16. If any of the entry numbers in this range are filled, the program will not insert the entries and will inform you why. You may then further subdivide by inserting the entries to 45.001; thus the entries will be numbered 45.001 through 45.016.

MOVE (entries)

Operates exactly as does the "COPY" command, except that the entries moved are deleted from their original location after being placed in the new locations.

REVIEW (entries)

Retrieves and displays the entries you specify. You may use any of the following options, alone or in combination.

1. "BY" and a list of participant names (or the word "ALL"). For example:

REVIEW (entries) BY SMITH[CR]

or

REVIEW (entries) BY SMITH AND LEE[CR]

2. "IN" and a list of entry numbers (or the word "ALL"). For example:

REVIEW (entries) IN 2,5-9,11[CR]

3. "LAST N" entries (to see only the previous entry, simply type "LAST"). For example:

REVIEW (entries) LAST 3[CR]

4. "BEFORE", "ON", or "AFTER" a date. For example:

REVIEW (entries) BEFORE 17-APR-73[CR]

or

REVIEW (entries) ON 4/17/73[CR]

5. "RE" and a text string in quotation marks [ " " ]. For example:

REVIEW (entries) RE "ENERGY"[CR]

The program will retrieve all entries in the current discussion activity containing that text string.

If you do not wish to review the complete heading (author's name, date, and time stamp) and text of the entries you have specified, you may use any of the following restrictions, alone or in combination.

1. "BY FIRST LINE" or "BY FIRST N LINES"
2. "NO HEADING"
3. "NO TEXT"

F. COMMANDS AVAILABLE TO AN ORGANIZER

Any participant may create an activity, of which he automatically becomes the organizer, with all the capabilities of that role. It should be noted that an organizer of one activity does not necessarily have the role of organizer in another unless he has created it or has been assigned that role by an organizer.

CREATE (activity)

Is the command used to get up the structure and designate the participants of an activity. This command will cause the following series of questions to be asked of the organizer:

1. Title

Please enter a descriptive title for this activity.

-

(The title may be longer than one line, but only the first line will be displayed on the list of available conferences. End the title with two carriage returns [CR].)

2. Privacy

Do you wish the activity to be private?

-

(Answer yes or no followed by a carriage return [CR]. If you answer no, any user will be allowed to join the activity, even if his name is not specified on the participant list. If you answer yes, only those users specified by the organizer will be allowed to participate.)

3. Participants

Please enter the names of the other participants.

# 1 (org) : Last name, First name  
# Name :

(The organizer's name is placed in the list automatically. Thereafter, the organizer will be prompted for each participant's name. If no more participants are to be added, simply strike the carriage return [CR].)

#### 4. Parts

Please type in the subdivisions for the activity, beginning each one with the word "PART". Type "END" when you are finished.

- PART 1 [CR]

Please enter descriptive title for Part 1.

- Title  
- Title [CR]  
- [CR]

Note: only the first line of the title will be displayed with the contents.

-- PART 2 [CR]

Please...

-  
-

- END

This will create an activity with two parts, both of which cue open discussions.

While creating an activity, one may insert more structure into the parts with the following creation commands:

1. "INSERT (entry)", will place an entry attributed to the organizer at the first available entry number.
2. "ASK (the following question)", will insert a "question entry" at the first available entry.
3. "FEEDBACK (results from entry) [ENTRY #]", will display the aggregate results from a question entry to all the participants.
4. "PROCEED (to part) [PART #]", will cause the part under which this command is used to be effectively "closed". That is, after entries are made or questions asked by the organizer, he may use this command to prevent participants from making any other entries in the part. This command is most useful in structuring questionnaire-type activities or parts.

ASSIGN

Will allow the organizer to assign a role to a user. The default setting during the creation sequence is "participant", but after setup is complete, the organizer may assign the role of observer, editor, participant, or even organizer to any user of the activity. It should be noted that there is no restriction as to the number of users who may have editor roles.

REVISE

Will allow an organizer to change any section of the creation sequence after the activity is set up.

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