

COMMENT ON: (FEB73,7a) More Blap and garbage by Kirk Kelley

This is all a bunch of bullshit.

1

15383 Distribution

Cmntfile, Cmmt , Fikes, Richard E. ,

KIRK 29-MAR-73 14:41 15383

COMMENT ON: (FEB73,7a) More Blap and garbage by Kirk Kelley

(J15383) 29-MAR-73 14:41; Title: Author(s): Kelley, Kirk E. /KIRK
; Distribution: /COMMENT ; Sub-Collections: SRI-ARC COMMENT; Clerk:
KIRK ;

COMMENT ON: (FEB73,7) More Blap and garbage by Kirk Kelley

This is a sample to see how Deans place COMMENT link works.

1

15384 Distribution

Comtfile, Cmmt , Fikes, Richard E. ,

KIRK 29-MAR-73 14:42 15384

COMMENT ON: (FEB73,7) More Blap and garbage by Kirk Kelley

(J15384) 29-MAR-73 14:42; Title: Author(s): Kelley, Kirk E. /KIRK
; Distribution: /COMMENT ; Sub-Collections: SRI-ARC COMMENT; Clerk:
KIRK ;

Resource Notebook Transmittal Letter #9

I checked on transmittal letter #9 and found that it was sent to only 25 people who had never received any of our functional documentation before. It is virtually identical to #10 (it transmits the same updates) -- the only difference is in the instructions on the bottom of the sheet; #9's instructions were for people who did not already have resource notebooks, 10's for people who did. A confusing situation --so sorry to have caused the misunderstanding. Anyway, you don't have to worry about missing #9's updates because they were transmitted with transmittal letter #10.

1

15385 Distribution
Stevenson, Schuyler ,

Resource Notebook Transmittal Letter #9

(J15385) 29-MAR-73 14:33; Title: Author(s): Keeney, Marcia Lynn
/MLK; Distribution: /SS; Sub-Collections: SRI-ARC; Clerk: MLK;

Name and address change for EDUCOM, List B on main RFC mailing list.

John Legates has left EDUCOM. Henry Chauncey is new point of contact. His address is as follows:

Mr. Henry Chauncey
P.O. Box 364
Rosedale Road
Princeton, New Jersey 01540

1

PJK 29-MAR-73 8:07 15386

Name and address change for EDUCOM, List B on main RFC mailing
List.

(J15386) 29-MAR-73 8:07; Title: Author(s): Cutler, Pam J. Klotz
/PJK; Distribution: /JBN; Sub-Collections: NIC; Clerk: PJK;

Re 15312 -- New TNLS VIEWCHANGE Printing Parameters Command

I would like to suggest that instead of defining new and confusing terms for TNLS printing parameters -- Offset, Columns, Lines per Page -- that the existing Output Processor terms -- Left Margin, Right Margin, Bottom Margin -- be used (with the addition of Top Margin to the set). The term "columns" would be particularly confusing in this context, since the Output Processor uses this term to specify multi-column output (as in a newspaper or dictionary). Does anyone disagree??? -- Walt

1

WLB 29-MAR-73 11:09 15387

Re 15312 -- New TNLS VIEWCHANGE Printing Parameters Command

(J15387) 29-MAR-73 11:09; Title: Author(s): Bass, Walt /WLB;
Distribution: /sri-arc ; Sub-Collections: SRI-ARC; Clerk: WLB;

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

BACKGROUND:

The manager at RADC has a number of resources at his disposal to accomplish his organization's mission. The primary ones are dollars for contractual efforts, equipment/facilities, and manpower. The majority of MIS systems (implemented both internally and outside ISI) have been aimed at accounting for and attempting to control dollars spent on contracts. Equipment accountability is handled well by Base personnel. Manpower accounting is accomplished via the form 2, but little emphasis is placed on actually using this data for daily management within ISI. One of the reasons for this is that there is no effective means for a manager to determine where his manpower resources are actually going. In fact more of the total dollar resources available to RADC are consumed by salaries than are consumed by contracts.

RATIONALE:

A meaningful manpower accounting system is needed which accurately reflects the way in which manpower is being used. As a first step toward realizing this goal the AKW group should start keeping track of their time on a daily basis in the format outlined below. EJK should collect time sheets at the end of the day or at the latest, the first thing the next morning. We need to start this activity now if we expect to have a decent system ready for the controlled evaluation in FY-74. Reasons for introducing daily time cards include:

--verifying one of the hypothesized effects of AKW, ie that it will significantly reduce the time spent in trivial administrative tasks. We have no way of verifying this unless we keep track of time "before and after" the introduction of AKW technology. Jim will be measuring time on specific tasks but an additional "long-term" measure of time spent in non productive tasks could provide supportive evidence to Jim's experiments.

--making planning exercises more realistic. Currently all fiscal planning efforts assume that the full time of technical employees is available for work on technical efforts. Everyone knows that this is untrue, but no one knows just how bad it really is. A properly designed time card would reflect the % of time spent in overhead categories; which are more meaningful to engineers and managers alike.

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

--giving workers a chance to record their total work time. A great deal of emphasis is placed on having the RADC employees within the confines of their respective buildings for 8 hours a day. Management often fails to recognize the extra time an employee puts in on the job outside the base or after normal duty hours. This includes time spent on legitimate work as well as time spent on job oriented education. A properly designed time card would allow the recording of this time (even though one could not expect to be paid for it).

--simplifying time accounting exercises. If the time card is adopted, one need only record his time once. Payroll information and form 2 information would be generated from the time card data.

--giving ISI a better management tool. The form 2 means of recording time is of little practical benefit to ISI and lower management. It does not match up with what an engineer actually does and therefore the data is a gross approximation at best, misleading at worse. This is partially due to the inappropriate data items on the form (for branch/section management) and partially due to the frequency of collection--once a month.

MODEL:

The time card will be based on the same principle as the tracking of technical effort, ie, there is a heirarchy of documents describing the activities of the branch--the effort writeup, the tech area writeup, and the TPO writeup. As long as the outside world continues to view R&D from the project, task, and work unit approach a mapping to that format will have to be made. In the beginning it will be made by DLS, later on by administrators, still later on by a program in NLS (hopefully). The same numbering system will be used to describe time expenditures as is used to identify technical efforts. A TPO number, followed by a tech area letter, followed by a unique serial effort number.

The AKW activity is covered by TPO-14, Tech Area B; as is the Data Management Activity. The AKW acitivity will use a series of numbers from 100 to 199 to designate the efforts, the DM activity can use numbers from 200 to 299. There are currently 8 "approved" efforts under AKW. The OTHER category simply allows the insertion of a approved project number when an AKW individual works on a project outside the AKW domain, ex--TIPI project. The efforts can be assigned the following numbers; with a suggested mapping into official AFSC recognized projects

SHORT TITLE	EFF#	PROJ#
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PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

AKW	B100	5550	
EVALUATION		B101	5550
TERMINALS	B102	5550	
TRAINING	B103	5550	
BMS/DEV	B104	5550	
FT/SUPT	B105	5581	
AIRSTF/SUPT		B106	9339
ARPA/SRI	B107	0967	
ARPANET	B008	5581	
OTHER			

There are two general categories of overhead for manpower expenditure--LEAVE and "NONPRODUCTIVE". The leave category is well understood and documented in regs governing payroll. Types of leave are indicated below with mappings to MASIS categories.

LEAVE			
ANNUAL	020	99954000	
SICK	021	99955000	
HOLIDAY	022	99956000	
ADMIN	023	99956000	
COMP	024	99956000	
OTHER			

The "nonproductive" category is meant to reflect time spent on the job (whether at RADC or on TDY), which does not directly further the technical goals of approved efforts, but which is necessary for the survival of the individual or the organization. Suggested categories with mappings to MASIS categories are listed below.

NONPRODUCTIVE			
MANAGE	001	9991	
PLAN/PROG	002	9991	
STAFF/MEET		003	9991
SALES	004	9991	
PROPOSAL	005	9991	
ADMIN	006	9992	
SECRETARY	007	9992	
CONSULT	008	9993	
EDUCATION	009	9994	
CONF/SEM/NAR		010	9994
TRAVEL	011	????	
OTHER			

Definitions for nonproductive categories of manpower expenditure are listed below. This is a suggested list only and open for debate/comment.

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

MANAG--Primarily for managers. For engineers; when you fill in for the chief and actually do the kind of job expected of him, not just answering his phone or keeping his chair warm.

PLAN/PROG--Exercises aimed at long range planning and programming for the branch, division, or center. ie, TPO, Program Call, roles and goals, etc.

STAFF/MEET--Time spent in meetings with higher level management, which are primarily of a nontechnical nature, ie confessions, section meetings, staff meetings at section and branch level, PAR briefings, etc.

SALES--Includes the time spent in preparing for and giving briefings, demos, pitches, etc to promote or obtain support for your efforts.

PROPOSAL--The time spent in creating, writing and otherwise getting together documentation describing a new effort, whether at the request of management, or on your own. Can also include Discretionary Fund proposals, brief blurbs to management explaining proposed work in more detail, etc.

ADMIN--Those jobs which require no great amount of creative effort but which are required by directive, management request, or regulation; ie filling out forms for procurement, various management information systems, technical report publication, etc.

SECRETARY--The typing or transcribing onto paper or into a computer system from a handwritten or typed draft. The reorganization and/or the purging of your files.

CONSULT--The dispensing of advice, information, words of wisdom, etc to individuals or groups on an informal basis. Does not include formal briefings (covered by SALES above) or Engineering Support Projects, which are documented as an effort.

EDUCATION--short term, under graduate, and graduate courses; should also include time spent in reading literature of any kind to keep abreast of the state-of-the-art in your field.

CONF/SEMINAR--Includes those internal seminars held at RADC and attendance at those conferences occasionally approved by the center.

TRAVEL--The time required to transport your body during TDY. Does NOT include work time while on TDY--this is denoted by a T next to the number of hours.

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

OTHER--Any overhead item not covered by the above categories.
(What categorization is complete without a "misc"?) Includes time
spent in discussing golf courses and scores, comparative anatomy
(Bobby vs Carm), stock market, politics or sex.

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

EXAMPLE TIME CARD

DLS WEEK OF 16 JUL 72

SHORT TITLE	EFF#	PROJ#	SUN	MON	TUE	WED	THU	FRI	SAT
AKW	B100	5550							
EVALUATION	B101	5550			1T		3T		
TERMINALS	B102	5550	2T		4T		4T		
TRAINING	B103	5550				2T		3T	
BMS/DEV	B104	5550	4T		3T	5T	1T	5T	
FT/SUPT	B105	5581							
AI RSTF/SUPT	B106	9339							
ARPA/SRI	B107	0967	3T			1T			
OTHER									
LEAVE									
ANNUAL	020	99954000							
SICK	021	99955000							
HOLIDAY	022	99956000							
ADMIN	023	99956000							
COMP	024	99956000							
OTHER									
NONPRODUCTIVE:									
MANAGE	001	9991							
PROG/PLAN	002	9991							
STAFF/MEET	003	9991							
SALES	004	9991							
PROPOSAL	005	9991							
ADMIN	006	9992							
SECRETARY	007	9992							
CONSULT	008	9993							
EDUCATION	009	9994							
CONF/SEMINAR	010	9994							
TRAVEL	011	????							7T
OTHER									

This week I was on TDY to SRI and spent 7 hours getting home. No time was spent in the nonproductive category, except the 7 hours it took to get home--for which I was not paid

PROPOSAL FOR MANPOWER ACCOUNTING IN ISI

(J15388) 30-MAR-73 6:57; Title: Author(s): Stone, Duane L. /DLS;
Sub-Collections: RADC; Clerk: DLS;
Origin: <STONE>TIMEACC.NLS;2, 22-MAR-73 13:14 DLS ;

TELNET Option Index

NUMBER	NAME	RFC	NIC
0	Binary Transmission	...	15389
1	Echo	...	15390
2	Reconnection	...	15391
3	Suppress Go Ahead	...	15392
4	Approximate Message Size Negotiation	...	15393
5	Status	651	31154
6	Timing Mark	...	16238
7	Remote Controlled Transmission and Echoing	726	39237
8	Output Line Width	...	20196
9	Output Page Size	...	20197
10	Output Carriage-Return Disposition	652	31155
11	Output Horizontal Tabstops	653	31156
12	Output Horizontal Tab Disposition	654	31157
13	Output Formfeed Disposition	655	31158
14	Output Vertical Tabstops	656	31159
15	Output Vertical Tab Disposition	657	31160
16	Output Linefeed Disposition	658	31161
17	Extended ASCII	698	32964
18	Logout	727	40025
19	Byte Macro	735	42083
20	Data Entry Terminal	732	41762
21	SUPDUP	736	42213
21	SUPDUP Protocol	734	41953
255	Extended-Options-List	...	16239

TELNET BINARY TRANSMISSION OPTION

1. Command name and code.

TRANSMIT-BINARY 0

2. Command meanings.

IAC WILL TRANSMIT-BINARY

The sender of this command REQUESTS permission to begin transmitting, or confirms that it will now begin transmitting characters which are to be interpreted as 8 bits of binary data by the receiver of the data.

IAC WON'T TRANSMIT-BINARY

If the connection is already being operated in binary transmission mode,* the sender of this command DEMANDS to begin transmitting data characters which are to be interpreted as standard NVT ASCII characters by the receiver of the data. If the connection is not already being operated in binary transmission mode, the sender of this command REFUSES to begin transmitting characters which are to be interpreted as binary characters by the receiver of the data (i.e., the sender of the data demands to continue transmitting characters in its present mode).

IAC DO TRANSMIT-BINARY

The sender of this command REQUESTS that the sender of the data start transmitting, or confirms that the sender of data is expected to transmit, characters which are to be interpreted as 8 bits of binary data (i.e., by the party sending this command.)

IAC DON'T TRANSMIT-BINARY

If the connection is already being operated in binary transmission mode,* the sender of this command DEMANDS that the sender of the data start transmitting characters which are to be interpreted as standard NVT ASCII characters by the receiver of the data (i.e., the party sending this command). If the connection is not already being operated in binary transmission mode, the sender of this command DEMANDS that the sender of data continue transmitting characters which are to be interpreted in the present mode.

*A connection is being operated in binary transmission mode only when one party has requested it and the other has acknowledged it.

TELNET BINARY TRANSMISSION OPTION
NIC 15389 (Aug. 1973)

3. Default

WON'T TRANSMIT-BINARY

DON'T TRANSMIT-BINARY

i.e., won't switch to binary mode (if not already in it) or switching back to NVT ASCII mode (if presently in binary mode).

4. Motivation for the option.

It is sometimes useful to have available a binary transmission path within TELNET without having to utilize one of the more efficient, higher level protocols providing binary transmission (such as the File Transfer Protocol). The use of the IAC prefix within the basic TELNET protocol provides the option of binary transmission in a natural way, requiring only the addition of a mechanism by which the parties involved can agree to INTERPRET the characters transmitted over a TELNET connection as binary data.

5. Description of the option.

With the binary transmission option in effect, the receiver should interpret characters received from the transmitter which are not preceded with IAC as 8 bit binary data, with the exception of IAC followed by IAC which stands for the 8 bit binary data with the decimal value 255. IAC followed by an effective TELNET command (plus any additional characters required to complete the command) is still the command even with the binary transmission option in effect. IAC followed by a character which is not a defined TELNET command has the same meaning as IAC followed by NOP, although an IAC followed by an undefined command should not normally be sent in this mode.

6. Implementation suggestions.

It is foreseen that implementations of the binary transmission option will choose to refuse some other options (such as the EBCDIC transmission option) while the binary transmission option is in effect. However, if a pair of Hosts can understand being in binary transmission mode simultaneous with being in, for example, echo mode, then it is all right if they negotiate that combination. Some options in combination with the binary transmission option look very useful, such as negotiate line length (i.e., buffer length).

It should be mentioned that the meanings of WON'T and DON'T are dependent upon whether the connection is presently being operated in binary mode or not. Consider a connection operating in, say, EBCDIC

mode which involves a system which has chosen not to implement any knowledge of the binary command. If this system were to receive a DO TRANSMIT-BINARY, it would not recognize the TRANSMIT-BINARY option and therefore would return a WON'T TRANSMIT-BINARY. If the default for the WON'T TRANSMIT-BINARY were always NVT ASCII, the sender of the DO TRANSMIT-BINARY would expect the recipient to have switched to NVT ASCII, whereas the receiver of the DO TRANSMIT-BINARY would not make this interpretation.

Thus, we have the rule that when a connection is not presently operating in binary mode, the default (i.e., the interpretation of WON'T and DON'T) is to continue operating in the current mode, whether that is NVT ASCII, EBCDIC, or some other mode. This rule, however, is not applied once a connection is operating in a binary mode (as agreed to by both ends); this would require each end of the connection to maintain a stack, containing all of the encoding-method transitions which had previously occurred on the connection, in order to properly interpret a WON'T or DON'T. Thus, a WON'T or DON'T received after the connection is operating in binary mode causes the encoding method to revert to NVT ASCII.

It should be remembered that a TELNET connection is normally a PAIR of connections, one going each way; operating in binary transmission mode must be negotiated separately for each of the pair of connections, if that is desired.

Implementation of the binary transmission option, as is the case with implementations of all other TELNET options, must follow the loop preventing rules given in the General Considerations section of the TELNET Protocol Specification.

Consider now some issues of binary transmission both to and from both a process and a terminal:

a. Binary transmission from a terminal.

The implementer of the binary transmission option should consider how (or whether) a terminal transmitting over a TELNET connection with binary transmission in effect is allowed to generate all eight bit characters, ignoring parity considerations, etc., on input from the terminal.

TELNET BINARY TRANSMISSION OPTION
NIC 15389 (Aug. 1973)

b. Binary transmission to a process.

The implementer of the binary transmission option should consider how (or whether) all characters are passed to a process receiving over a connection with binary transmission in effect. As an example of the possible problem, TENEX intercepts certain characters (e.g., ETX, the Teletype control-C) at monitor level and does not pass them to the process.

c. Binary transmission from a process.

The implementer of the binary transmission option should consider how (or whether) a process transmitting over a connection with binary transmission in effect is allowed to send all eight bit characters with no characters intercepted by the monitor and changed to other characters. An example of such a conversion may be found in the TENEX system where certain non-printing characters are normally converted to a Circumflex (up-arrow) followed by a printing character.

d. Binary transmission to a terminal.

The implementer of the binary transmission option should consider how (or whether) all characters received over a connection with binary transmission in effect are sent to a local terminal. At issue may be the addition of timing characters normally inserted locally, parity calculations, and any normal code conversion.

TELNET ECHO OPTION

1. Command name and code.

ECHO 1

2. Command meanings.

IAC WILL ECHO

The sender of this command REQUESTS to begin, or confirms that it will now begin, echoing data characters it receives over the TELNET connection back to the sender of the data characters.

IAC WON'T ECHO

The sender of this command DEMANDS to stop, or refuses to start, echoing the data characters it receives over the TELNET connection back to the sender of the data characters.

IAC DO ECHO

The sender of this command REQUESTS that the receiver of this command begin echoing, or confirms the receiver of this command is expected to echo, data characters it receives over the TELNET connection back to the sender.

IAC DON'T ECHO

The sender of this command DEMANDS the receiver of this command stop, or not start, echoing data characters it receives over the TELNET connection.

3. Default.

WON'T ECHO

DON'T ECHO

i.e., no echoing (which may or may not imply local echoing).

4. Motivation for the option.

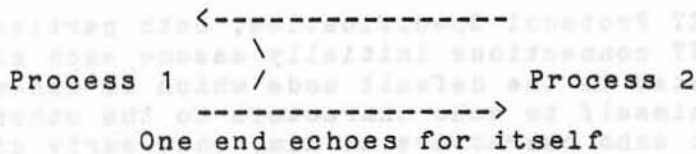
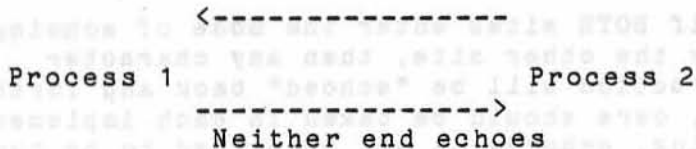
The NVT has a printer and a keyboard which are nominally interconnected so that "echoes" need never traverse the network; that is to say, the NVT nominally operates in a mode where characters

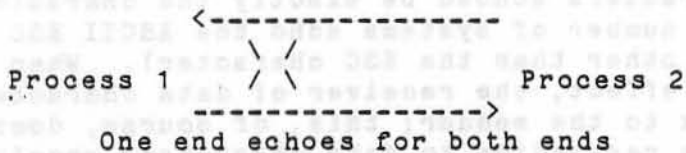
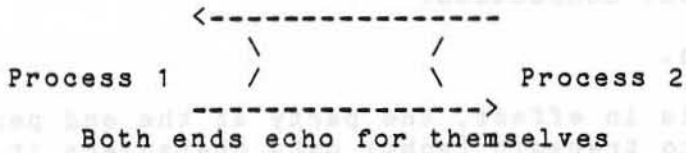
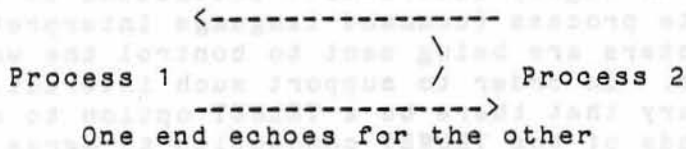
typed on the keyboard are (by some means) locally turned around and printed on the printer. In highly interactive situations it is appropriate for the remote process (command language interpreter, etc.) to which the characters are being sent to control the way they are echoed on the printer. In order to support such interactive situations, it is necessary that there be a TELNET option to allow the parties at the two ends of the TELNET connection to agree that characters typed on an NVT keyboard are to be echoed by the party at the other end of the TELNET connection.

5. Description of the option.

When the echoing option is in effect, the party at the end performing the echoing is expected to transmit (echo) data characters it receives back to the sender of the data characters. The option does not require that the characters echoed be exactly the characters received (for example, a number of systems echo the ASCII ESC character with something other than the ESC character). When the echoing option is not in effect, the receiver of data characters should not echo them back to the sender; this, of course, does not prevent the receiver from responding to data characters received.

The normal TELNET connection uses two coupled, simplex connections, one in each direction; and neither, either, or both of these simplex connections may be operating simultaneously in echo mode. There are five reasonable modes of operation for echoing on a connection pair:





This option provides the capability to decide on whether or not either end will echo for the other. It does not, however, provide any control over whether or not an end echoes for itself; this decision must be left to the sole discretion of the systems at each end (although they may use information regarding the state of "remote" echoing negotiations in making this decision).

It should be noted that if BOTH sites enter the mode of echoing characters transmitted by the other site, then any character transmitted in either direction will be "echoed" back and forth indefinitely. Therefore, care should be taken in each implementation that if one site is echoing, echoing is not permitted to be turned on at the other.

As discussed in the TELNET Protocol Specification, both parties to a full-duplex pair of TELNET connections initially assume each simplex connection is being operated in the default mode which is non-echo. If either party desires himself to echo characters to the other party or for the other party to echo characters to him, that party gives the appropriate command (WILL ECHO or DO ECHO) and waits (and hopes) for acceptance of the option. If the request to operate the connection in echo mode is refused, then the connection continues to operate in non-echo mode. If the request to operate the connection in echo mode is accepted, the connection is operated in echo mode.

TELNET ECHO OPTION
NIC 15390 (Aug. 1973)

After a connection has been changed to echo mode, either party may demand that it revert to non-echo mode by giving the appropriate DON'T ECHO or WON'T ECHO command (which the other party must confirm thereby allowing the connection to operate in non-echo mode). Just as each of the pair of simplex TELNET connections may be put in remote echoing mode independently, each of the pair of simplex TELNET connections must be removed from remote echoing mode separately.

Implementations of the echo option, as implementations of all other TELNET options, must follow the loop preventing rules given in the General Considerations section of the TELNET Protocol Specification. Also, so switches between echo and non-echo mode can be made with minimal confusion (momentary double echoing, etc.), switches in mode of operation should be made at times precisely coordinated with the reception and transmission of echo requests and demands. For instance, if one party responds to a DO ECHO with a WILL ECHO, all data characters received after the DO ECHO should be echoed and the WILL ECHO should immediately precede the first of the echoed characters.

The echoing option alone will normally not be sufficient to effect what is commonly understood to be remote computer echoing of characters typed on a terminal keyboard--the SUPPRESS-GO AHEAD option will normally have to be invoked in conjunction with the ECHO option to effect character-at-a-time remote echoing.

6. A Sample Implementation of the Option.

It may be useful to present a sample implementation--the TIP development group suggests the following:

For each user terminal the TIP would keep three state bits: whether the terminal echoes for itself (no ECHO always) or not (ECHO mode possible), whether the (human) user prefers to operate in ECHO mode or in non-ECHO mode, and whether the connection from this terminal to the server is in ECHO or non-ECHO mode. We call these three bits P(hysical), D(esired), and A(ctual).

When a terminal dials up the TIP the P-bit is set appropriately, the D-bit is set equal to it, and the A-bit is set to non-ECHO. The P- and A-bits may be manually reset by direct commands if the user so desires; for instance, a user in Hawaii on a 'full-duplex' terminal might know that whatever the preference of a mainland server, because of satellite delay his terminal had better not operate in ECHO mode - he would direct the TIP to change his D-bit from ECHO to non-ECHO.

When a connection is opened from the TIP terminal to a server, the TIP would send the server a DO ECHO command if the MIN (with non-ECHO less than ECHO) of the P- and D-bits is different from the A-bit. If a WON'T ECHO or WILL ECHO arrives from the server, the TIP will set the A-bit to the MIN of the received request, the P-bit, and the D-bit. If this changes the state of the A-bit, the TIP will send off the appropriate acknowledgment; if it does not, then the TIP will send off the appropriate refusal if not changing meant that it had to deny the request (i.e., the MIN of the P-and D-bits was less than the received A-request). If while a connection is open, the TIP terminal user changes either the P- or D-bit, the TIP will repeat the above tests and send off a DO ECHO or DON'T ECHO, if necessary. When the connection is closed, the TIP would reset the A-bit to indicate no remote echoing.

While the TIP's implementation would not involve DO ECHO or DON'T ECHO commands being sent to the server except when the connection is opened or the user explicitly changes his echoing mode, bigger Hosts might invoke such mode switches quite frequently. For instance, if JOSS, a line-at-a-time system, were running, the server might attempt to put the user in local echo mode by sending the WON'T ECHO command to the user; but while DDT was running, the server might attempt to invoke remote echoing for the user by sending the WILL ECHO command to the user. Furthermore, while the TIP will never send a WILL ECHO command and will only send a WON'T ECHO to refuse a server sent DO ECHO command, a server Host will often send the WILL and WON'T ECHO commands.

TELNET Reconnection Option

1. Command name and code

RCP 2 (prepare to reconnect)

2. Command meanings.

IAC DO RCP

The sender of this command requests the receiver of the command to be prepared to break the TELNET connection with the sender of the command and to re-establish the TELNET connection with some other party (to be specified later).

IAC WILL RCP

The receiver of this command agrees to break its TELNET connection to the sender of the DO RCP command and to re-establish the connection with the party to be specified by the sender of the DO RCP command.

IAC WON'T RCP

The receiver of this command refuses to take part in a reconnection.

IAC DON'T RCP

The sender of this command demands the cancellation of its previous DO RCP command.

IAC SB RCP RCS <host> <socket>

The sender of this command instructs the receiver of the command to transfer this TELNET connection to the place specified by <host> <socket>. The code for RCS is 0.

IAC SB RCP RCW <host> <socket>

The sender of this command instructs the receiver of the command to break the TELNET connection and to await a new TELNET connection from the place specified by <host> <socket>. The code for RCW is 1.

TELNET Reconnection Option
NIC 15391 (Aug. 1973)

3. Default.

WON'T RCP

i.e., no reconnection is allowed.

4. Motivation for the option.

There are situations in which it is desirable to move one or both ends of a communication path from one Host to another.

A. Consider the case of an executive program which TIP users could use to get network status information, send messages, link to other users, etc. Due to the TIP's limited resources the executive program would probably not run on the TIP itself but rather would run on one or more larger Hosts who would be willing to share some of their resources with the TIP (see Figure 1).

The TIP user could access the executive by typing a command such as "@EXEC"; the TIP should then ICP to Host1's executive port. After obtaining the latest network news and perhaps sending a few messages, the user would be ready to log into Host2 (in general not the same as Host1) and do some work. At that point he would like to tell the executive program that he is ready to use Host2 and have the executive hand him off to Host2. To do this the executive program would first interact with Host2, telling it to expect a call from the TIP, and then would instruct the TIP to reconnect to Host2. When the user logs off Host2 he could be passed back to the executive at Host1 preparatory to doing more elsewhere. The reconnection activity would be invisible to the TIP user.

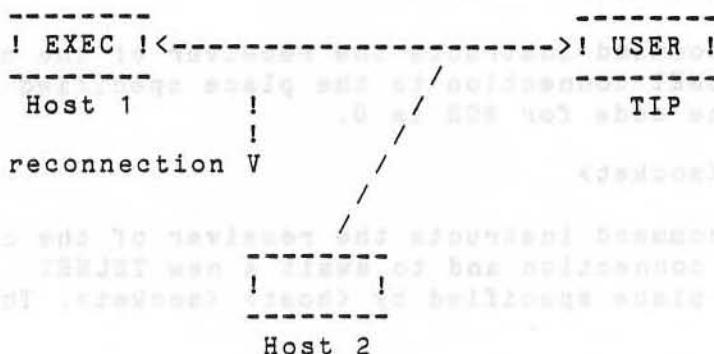


FIGURE 1

B. Imagine a scenario in which a user could use the same name and password (and perhaps account) to log into any server on the network. For reasons of security and economy it would be undesirable to have every name and password stored at every site. A user wanting to use a Host that doesn't have his name or password locally would connect to it and attempt to log in as usual (see Figure 2). The Host, discovering that it doesn't know the user, would hand him off to a network authentication service which can determine whether the user is who he claims to be. If the user passes the authentication test he can be handed back to the Host which can then provide him service.

If the user doesn't trust the Host and is afraid that it might read his password rather than pass him off to the Authenticator he could connect directly to the authentication service. After authentication, the Authenticator can pass him off to the Host.

The idea is that the shuffling of the user back and forth between Host and Authenticator should be invisible to the user.

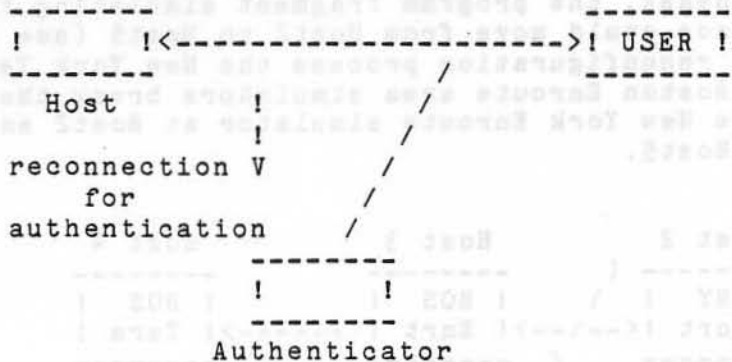


FIGURE 2a

TELNET Reconnection Option
 NIC 15391 (Aug. 1973)

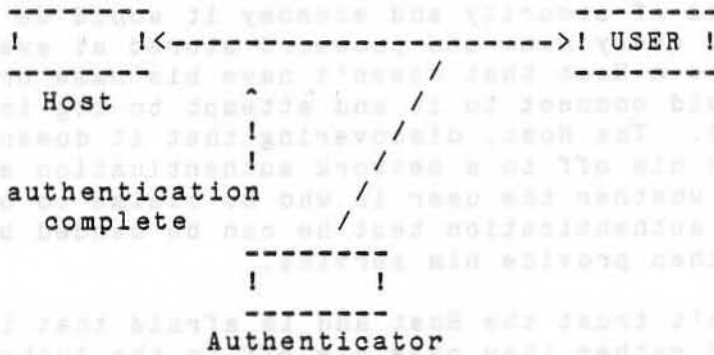


FIGURE 2b

C. The McROSS air traffic simulation system (see 1972 SJCC paper by Thomas) already supports reconnection. It permits an on-going simulation to reconfigure itself by allowing parts to move from computer to computer. For example, in a simulation of air traffic in the Northeast, the program fragment simulating the New York Enroute air space could move from Host2 to Host5 (see figure 3). As part of the reconfiguration process the New York Terminal area simulator and Boston Enroute area simulators break their connections with the New York Enroute simulator at Host2 and reconnect to it at Host5.

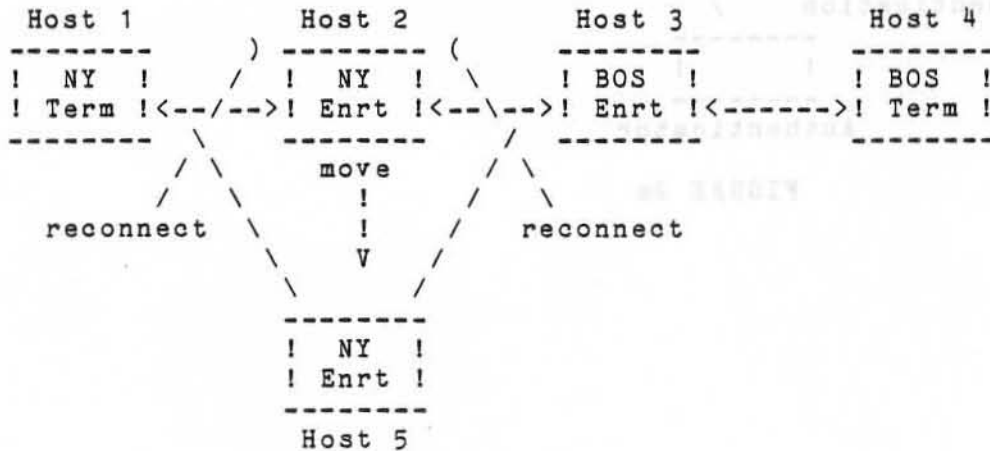


FIGURE 3

d. H1 breaks paths A-C.

H2 breaks path C-A and initiates path C-D.

In order for the reconnection to succeed H1 must, of course, have arranged for H3's cooperation. One way H1 could do this would be to establish the path B-D and then proceed through the reconnection protocol exchange with H3 concurrently with its exchange with H2 (See Figure 5):

```
H1->H3: RRQ (path B-D)
H3->H1: ROK (path D-B)
H1->H3: RDO (path B-D) (Host H2, Port C)
```

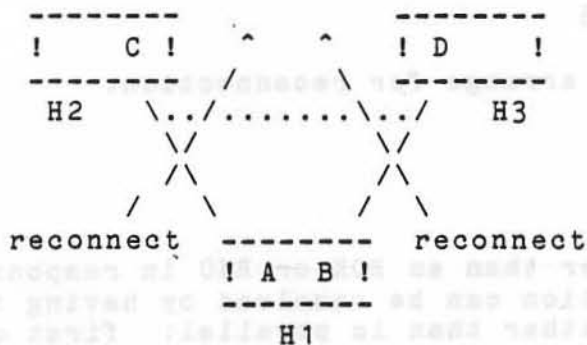


FIGURE 5

Either of the parties may use the RNO command to refuse or abort reconnection. H2 could respond to H1's RRQ with RNO; H1 can abort the reconnection by responding to ROK with RNO rather than RDO.

It is easy to insure that messages in transit are not lost during the reconnection. Receipt of the ROK message by H1 is taken to mean that no further messages are coming from H2; similarly receipt of RDO from H1 by H2 is taken to mean that no further messages are coming from H1.

To complete the specification of the reconnection mechanism consider the situation in which two "adjacent" entities initiate reconnections:



FIGURE 6

H2 and H3 "simultaneously" try to arrange for reconnection:

- H2->H3: RRQ (path B-D)
- H3->H2: RRQ (path D-B)

Thus, H2 sees an RRQ from H3 rather than an ROK or RNO in response to its RRQ to H3. This "race" situation can be resolved by having the reconnections proceed in series rather than in parallel: first one entity (say H2) performs its reconnect and then the other (H3) performs its reconnect. There are several means that could be used to decide which gets to go first. Perhaps the simplest is to base the decision on sockets and site addresses: the entity for which the 40 bit number formed by concatenating the 32 bit socket number with the 8 bit site address is largest gets to go first. Using this mechanism the rule is the following:

- If H2 receives an RRQ from H3 in response to an RRQ of its own:
 - (let NH2, NH3 = the 40 bit numbers corresponding to H2 and H3)
 - a. if NH2 > NH3 then both H2 and H3 interpret H3's RRQ as an ROK in response to H2's RRQ.
 - b. if NH2 < NH3 then both interpret H3's RRQ as an RNO in response to H2's RRQ. This would be the only case in which it makes sense to "ignore" the refusal and try again - of course, waiting until completion of the first reconnect before doing so.

DON'T RCP ;for responses to WILL RCP

;i.e. used to cancel an RCP.

RDO <host> <socket> => SB RCP RCS <host> <socket>

A fifth command is also introduced

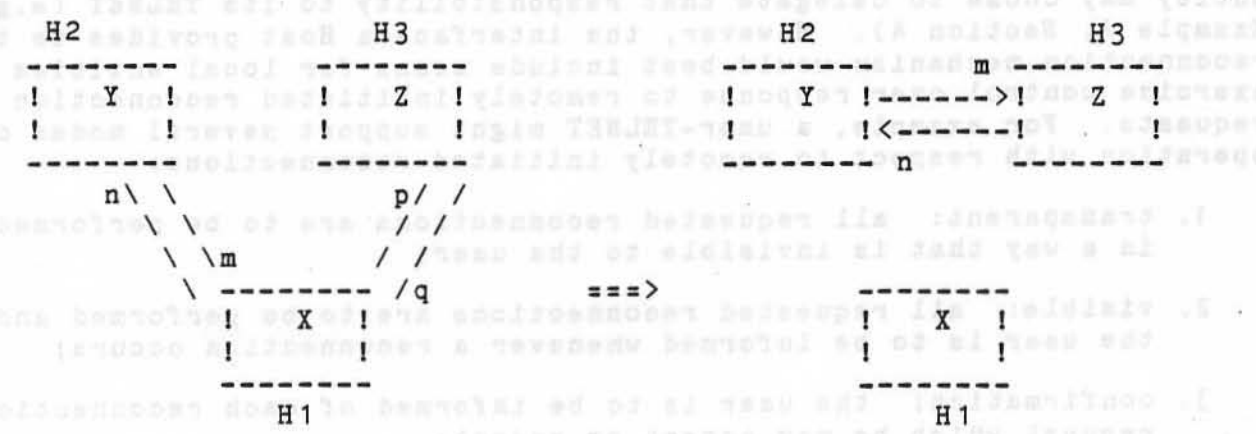
RWT <host> <socket> => SB RCP RCW <host> <socket>

The first three commands require no parameters since they refer to the connections they are received on. For RDO and RWT, <host> is an 8 bit (= 1 TELNET character) Host address and <socket> is a 32 bit (= 4 TELNET characters) number that specifies a TELNET receive socket at the specified Host (the associated transmit socket is always one higher than the receive socket.

A pending reconnection can be activated with either RDO or RWT. The response to either is to first break the TELNET connection with the sender and then reopen the TELNET connection to the Host and sockets specified. For RDO, the connection is to be reopened by sending two RFC's; for RWT, by waiting for two RFC's.

The RWT command is introduced to avoid requiring Hosts to queue RFC's.

As an example, the reconnection



could be accomplished as follows:

X->Y: RRQ (=IAC DO RCP)
 X->Z: RRQ (=IAC DO RCP)

TELNET Reconnection Option
NIC 15391 (Aug. 1973)

Y->X: ROK (=IAC WILL RCP)
Z->X: ROK (=IAC WILL RCP)
X->Y: RWT H3 P (=IAC SB RCP RCW H3 P)
X closes connections to Y
Y closes connections to X
Y waits for STR and RTS from H3
X->Z: RDO H2 N (=IAC SB RCP RCS H2 N)
X closes connections to Z
Z closes connections to X
Z sends STR and RTS to H2 which Y answers with matching RTS and STR to complete reconnection

The RCS and RCW sub-commands should never be sent until a DO RCP has been acknowledged by a WILL RCP. Thus a Host not choosing to implement the reconnection option does not have to know what RCP means--all the Host need do in response to DO RCP is to transmit WON'T RCP. The WILL RCP and WON'T RCP commands should never be volunteered. If an unsolicited WILL RCP is ever received, a DON'T RCP should be fired back, which should be answered by a WON'T RCP command. If an unsolicited WON'T RCP command is received, it should be treated as a No-operation.

7. A word about security.

It should be clear that the decision to accept or reject a particular reconnection request is the responsibility of the entity (person at the terminal or process) using the connection. In many cases the entity may chose to delegate that responsibility to its TELNET (e.g., Example A, Section 4). However, the interface a Host provides to the reconnection mechanism would best include means for local entities to exercise control over response to remotely intitiated reconnection requests. For example, a user-TELNET might support several modes of operation with respect to remotely initiated reconnections:

1. transparent: all requested reconnections are to be performed in a way that is invisible to the user;
2. visible: all requested reconnections are to be performed and the user is to be informed whenever a reconnection occurs;
3. confirmation: the user is to be informed of each reconnection request which he may accept or reject;
4. rejection: all requested reconnects are to be rejected.

TELNET SUPPRESS GO AHEAD OPTION

1. Command name and code.

SUPPRESS-GO-AHEAD 3

2. Command meanings.

IAC WILL SUPPRESS-GO-AHEAD

The sender of this command requests permission to begin suppressing transmission of the TELNET GO AHEAD (GA) character when transmitting data characters, or the sender of this command confirms it will now begin suppressing transmission of GAs with transmitted data characters.

IAC WON'T SUPPRESS-GO-AHEAD

The sender of this command demands to begin transmitting, or to continue transmitting, the GA character when transmitting data characters.

IAC DO SUPPRESS-GO-AHEAD

The sender of this command requests that the sender of data start suppressing GA when transmitting data, or the sender of this command confirms that the sender of data is expected to suppress transmission of GAs.

IAC DON'T SUPPRESS-GO-AHEAD

The sender of this command demands that the receiver of the command start or continue transmitting GAs when transmitting data.

3. Default.

WON'T SUPPRESS-GO-AHEAD

DON'T SUPPRESS-GO-AHEAD

i.e., transmit GAs.

4. Motivation for the option.

While the NVT nominally follows a half duplex protocol complete with a GO AHEAD signal, there is no reason why a full duplex connection between a full duplex terminal and a Host optimized to handle full

duplex terminals should be burdened with the GO AHEAD signal. Therefore, it is desirable to have a TELNET option with which parties involved can agree that one or the other or both should suppress transmission of GO AHEADS.

5. Description of the option.

When the SUPPRESS-GO-AHEAD option is in effect on the connection between a sender of data and the receiver of the data, the sender need not transmit GAs.

It seems probable that the parties to the TELNET connection will suppress GO AHEAD in both directions of the TELNET connection if GO AHEAD is suppressed at all; but, nonetheless, it must be suppressed in both directions independently.

With the SUPPRESS-GO-AHEAD option in effect, the IAC GA command should be treated as a NOP if received, although IAC GA should not normally be sent in this mode.

6. Implementation considerations.

As the SUPPRESS-GO-AHEAD option is sort of the opposite of a line at a time mode, the sender of data which is suppressing GO AHEADS should attempt to actually transmit characters as soon as possible (i.e., with minimal buffering) consistent with any other agreements which are in effect (e.g., approximate transmit message size agreements).

In many TELNET implementations it will be desirable to couple the SUPPRESS-GO-AHEAD option to the echo option so that when the echo option is in effect, the SUPPRESS-GO-AHEAD option is in effect simultaneously: both of these options will normally have to be in effect simultaneously to effect what is commonly understood to be character at a time echoing by the remote computer.

TELNET Approximate Message Size Negotiation Option
NIC 15393 (Aug. 1973)

TELNET Approximate Message Size Negotiation Option

1. Command name and code.

NAMS 4

(Negotiate Approximate Message Size)

2. Command meanings.

IAC WILL NAMS

The sender of this command requests, or agrees, to negotiate the approximate size for messages of data characters it sends.

IAC WON'T NAMS

The sender of this command refuses to negotiate the approximate size for messages of data characters it sends.

IAC DO NAMS

The sender of this command requests the receiver of this command to negotiate the approximate size for messages of data characters transmitted by the command receiver.

IAC DON'T NAMS

The sender of this command refuses to negotiate the approximate size for messages of data characters transmitted by the command receiver.

IAC SB NAMS DR <16 bit value>

The sender of this command requests the receiver of this command to set its approximate message size for data the command receiver transmits to the value specified in the 16 bit parameter, a data character count. The code for DR (Data Receiver) is 0.

IAC SB NAMS DS <16 bit value>

The sender of this command requests or agrees to set its approximate message size for data it transmits to the value specified in the 16 bit parameter, a data character count. The code for DS (Data Sender) is 1.

TELNET Approximate Message Size Negotiation Option
NIC 15393 (Aug. 1973)

3. Default

WON'T NAMS

DON'T NAMS

i.e., no attempt will be made to agree on a message size.

4. Motivation for the option.

The TELNET protocol does not specify how many characters the transmitter of data should attempt to pack into messages it sends. However, 1) some receivers may prefer received messages to generally have some minimum size, for example, to lessen the burden of processing input interrupts; 2) some receivers may prefer received data messages to generally have some maximum size, for example, because the maximum data message size could be used in conjunction with the Host/Host protocol message and bit allocates to more efficiently utilize input buffer space; 3) some transmitters may have maximum sizes for transmitted data messages, information which could be used in conjunction with the Host/Host protocol message and bit allocates to more efficiently utilize the receiver's input buffer space; and 4) some transmitters may desire to transmit some minimum size message, for example, to lessen the burden of processing output interrupts.

Therefore, it is desirable to have some mechanism whereby the parties involved can attempt to agree on the approximate size of messages transmitted over the connection. (It might be even more powerful to be able to negotiate approximate or even exact upper and lower bounds on message size. However, fixed bounds would sometimes be hard to manage and sometimes even in conflict with Host/Host protocol allocates; and specifying both upper and lower bounds, even approximately, seems overly complicated considering the expected payoff.)

5. Description of the option.

With the option which specifies the approximate size of messages transmitted over the connection, the transmitter attempts to send messages of the specified size unless some other constraint (for instance, an end of line) requires the message to be sent sooner, or characters for transmission arrive so fast that the message has to be bigger than the specified size. The option is to be used strictly to improve the STATISTICS (e.g., timing and buffering) of message reception and transmission -- the option does NOT specify any absolutes.

TELNET Approximate Message Size Negotiation Option
NIC 15393 (Aug. 1973)

With this option not in effect, message size is completely (even statistically) undefined as per the NVT specification.

Once the data transmitter and receiver have agreed to negotiate the approximate message size, they must actually do this negotiation. This is done using the DS and DR SB commands. The transmitter of data messages may give the SB NAMS DS command and the receiver may give the SB NAMS DR command. The rules for negotiation of the actual approximate message size are as follows:

- a) Either party may at any time send a SB command specifying a value less than any previously sent or received and immediately assume that that value has been agreed upon.
- b) If either party receives a SB command, the party should assume the value specified in the received command is in effect if the party has not previously sent a SB command specifying a lower value.
- c) Before any SB command is sent, the approximate message size is undefined.
- d) At any time either party may quit the whole thing by sending a DON'T or WON'T NAMS command which must be acknowledged and the approximate message length becomes undefined.
- e) An approximate message size value may not be less than one.

As the receiver and transmitter may have conflicting requirements for the approximate message size, neither should be cavalier about requesting a specified approximate message size, each "bending over backward" to let the other party (who should be presumed to have a greater need) specify the approximate message size.

Host/Host protocol allocate considerations, of course, always dominate negotiated message size considerations.

David Crocker (UC Irvine)
RFC 651, NIC 31154 (Oct. 25, 1974)
Online file: [ISI]<DCROCKER>STATUS-OPTION-REVISION.RNO

Revised TELNET Status Option

1. Command name and code

STATUS 5

2. Command meanings

As described in the NAOL and NAOP option specifications, this option applies to a simplex connection.

IAC DO STATUS

Sender of DO wishes to be able to send requests for status-of-options information, or confirms that he is willing to send such requests.

IAC WILL STATUS

Sender of WILL wishes or agrees to send status information, spontaneously or in response to future requests.

IAC DON'T STATUS

Sender refuses to carry on any further discussion of the current status of options.

IAC WON'T STATUS

Sender refuses to carry on any further discussion of the current status of options.

IAC SB STATUS SEND IAC SE

Sender requests receiver to transmit his (the receiver's) perception of the current status of Telnet options. The code for SEND is 1. (See below.)

AAM 30-MAR-73 8:23 15394

Regarding a fourth Host interface at UCLA

Sent to ARI, DCW3, BAD, and MBY (for Lt Col Schelonka)

Regarding a fourth Host interface at UCLA

Dear Ari Ollikainen,

Your note to me yesterday was the first that any of us at BBN heard of a fourth Host interface at UCLA. (I don't mean "heard officially", I specifically include even rumors.) It was my understanding that the ANTS system was to go in IN PLACE OF your Sigma-7, not in addition to it. It used to be true that questions of this kind could be settled by Col. Dolan at ARPA, but with RML involved (see first issue of "ARPANET News" I no longer know who settles these things or gives me directions. In addition, as you may have heard, there are serious contractually problems between RML and BBN which have already caused some IMP/TIP deliveries to be slipped and will undoubtedly have effects on future plans. Thus, I no longer feel confident in telling sites that deliveries of new interfaces can happen within 3 months of approval of ARPA

I suggest that you contact either Bruce or Lt. Col. Schelonka at RML and discuss this problem with one of them; in the meantime I feel that the new rules do not permit me to change the listings for your Hosts in either 1822 or in the TIP User's Guide.

Regretfully,
Alex McKenzie

15394 Distribution

Dolan, Bruce A. , Walden, David C. , Ollikainen, Ari A. J. , Young,
Michael B. ,

AAM 30-MAR-73 8:23 15394

Regarding a fourth Host interface at UCLA

(J15394) 30-MAR-73 8:23; Title: Author(s): McKenzie, Alex A. /AAM;
Distribution: /BAD DCW3 ARI MBY; Sub-Collections: NIC; Clerk: AAM;

Sending messages to the NCC

Ari,

Dave Walden and/or I will get notes regarding "Network Operaton"
quickly if you address them (in TENEX sendmessage) to user NCC at
EBN.

Alex

1

15395 Distribution
Ollikainen, Ari A. J. ,

AAM 30-MAR-73 8:30 15395

Sending messages to the NCC

(J15395) 30-MAR-73 8:30; Title: Author(s): McKenzie, Alex A. /AAM;
Distribution: /ARI; Sub-Collections: NIC; Clerk: AAM;

MAR 18-24, 1973, A Week In Review

Due to Paul's suggestion, I have changed the format somewhat of the analysis file to give a more detailed grouping of (mostly ARC) users. These classifications were primarily of his choosing. Any discrepancies found please see me...thanks...bah

MAR 18-24, 1973, A Week In Review

WEEKLY ANALYSIS REPORT:

1

WEEK: MAR 18-24, 1973 (24 HOURS/DAY)

2
3

TOTAL SYSTEM CPU: 36.449 HOURS

4
5

(ARC)

6
6a

IDENT	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU
-------	---------	---------	---------	-------	---------

6a1

(STAFF)

6a2
6a3

(MFA)	1.016	22.393	.045	2.8	22:1
-------	-------	--------	------	-----	------

6a3a

(DCE)	.671	22.341	.030	1.8	33:1
-------	------	--------	------	-----	------

6a3b

(BAH)	.081	4.141	.020	.2	50:1
-------	------	-------	------	----	------

6a3c

(SRL)	.374	13.167	.028	1.0	36:1
-------	------	--------	------	-----	------

6a3d

(JCN)	1.480	32.671	.045	4.1	22:1
-------	-------	--------	------	-----	------

6a3e

(DVN)	.463	15.075	.031	1.3	33:1
-------	------	--------	------	-----	------

6a3f

(PR)	.221	9.276	.024	.6	42:1
------	------	-------	------	----	------

6a3g

(RWW)	.009	.116	.078	0.0	13:1
-------	------	------	------	-----	------

6a3h

-----	-----	-----	-----	-----	-----
-------	-------	-------	-------	-------	-------

6a3i

(TOTAL)	4.315	119.180		11.8	
---------	-------	---------	--	------	--

6a3j

(PSO)

6a3k
6a4

(KFB)	.076	9.670	.008	.2	125:1
-------	------	-------	------	----	-------

6a4a

(MEJ)	.258	14.632	.018	.7	56:1
-------	------	--------	------	----	------

6a4b

MAR 18-24, 1973, A Week In Review

(KIRK)	2.030	48.396	.042	5.6	24:1	6a4c
(LLL)	.174	18.726	.009	.5	111:1	6a4d
(NDM)	.495	13.366	.037	1.4	27:1	6a4e
	-----	-----		-----		6a4f
(TOTAL)	3.033	104.790		8.4		6a4g
						6a4h
(NIC)						6a5
(EJF)	.233	10.833	.022	.6	45:1	6a5a
(MLK)	.152	7.069	.022	.4	45:1	6a5b
(MDK)	.862	34.899	.025	2.4	40:1	6a5c
(JBN)	.246	16.166	.015	.7	67:1	6a5d
	-----	-----		-----		6a5e
(TOTAL)	1.493	68.967		4.1		6a5f
						6a5g
(HARDWARE)						6a6
(MEH)	.769	20.034	.038	2.1	26:1	6a6a
(JR)	.001	.031	.032	0.0	31:1	6a6b
(EKV)	.018	8.402	.002	0.0	500:1	6a6c
	-----	-----		-----		6a6d
(TOTAL)	.788	28.467		2.1		6a6e
						6a6f
(TENEX)						6a7
(DIA)	.509	16.358	.031	1.4	32:1	6a7a
(WRF)	.093	2.020	.046	.3	22:1	6a7b

MAR 18-24, 1973, A Week In Review

(KEV)	1.614	23.041	.070	4.4	14:1	6a7c
(DCW)	.978	20.583	.048	2.7	21:1	6a7d
	-----	-----		-----		6a7e
(TOTAL)	3.194	62.002		8.8		6a7f
(NLS)						6a7g 6a8
(WLB)	.052	3.061	.017	.1	59:1	6a8a
(CFD)	.706	24.303	.029	1.9	34:1	6a8b
(JDH)	.207	20.966	.010	.6	100:1	6a8c
(CHI)	1.304	27.146	.048	3.6	21:1	6a8d
(DSK)	1.031	23.389	.044	2.8	23:1	6a8e
(HGL)	.692	16.415	.042	1.9	24:1	6a8f
(EKM)	.201	5.595	.036	.6	28:1	6a8g
(JFV)	.445	9.399	.047	1.2	21:1	6a8h
(JEW)	.338	17.021	.030	.9	50:1	6a8i
	-----	-----		-----		6a8j
(TOTAL)	4.976	147.295		13.6		6a8k
						6a8l
						6a9
HIGHEST CPU:	KIRK	2.030 hrs	LOWEST CPU:	JR		6a10
0.000 hrs						
HIGHEST CON:	KIRK	48.396 hrs	LOWEST CON:	JR		6a11
0.000 hrs						
HIGHEST CPU/CON:	RWW	.078	HIGHEST CON/CPU:	EKV		6a12
500:1						
						6a13

MAR 18-24, 1973, A Week In Review

(RADC)

NAME DIR	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU	
						6b
						6b1
						6b2
(JHB)BAIR 254	.749	31.196	.024	2.1	42:1	6b3
						6b4
(DFB)BERGSTRM 33	.074	3.776	.020	.2	50:1	6b5
						6b6
(WPB)BETHKE 14	.034	2.052	.017	.1	59:1	6b6
						6b7
(JPC)CAVANO 67	.065	5.154	.013	.2	77:1	6b7
						6b8
(RFI)IUORNO 28	.063	4.570	.014	.2	71:1	6b8
						6b9
(EJK)KENNEDY 31	.135	12.278	.011	.4	91:1	6b9
						6b10
(FSL)LAMONICA 91	.061	4.572	.013	.2	77:1	6b10
						6b11
(TFL)LAWRENCE 119	.207	9.445	.022	.6	45:1	6b11
						6b12
(JLM)MCNAMARA 108	.142	11.630	.012	.4	83:1	6b12
						6b13
(RBP)PANARA 77	.003	.182	.016	0.0	62:1	6b13
						6b14
(MDP)PETELL -	-	-	-	-	-	6b14
						6b15
(RADC)RADC 64	.036	6.293	.006	.1	167:1	6b15
						6b16
(WER)RZEPKA 96	.374	21.172	.018	1.0	56:1	6b16

MAR 18-24, 1973, A Week In Review

(FPS)SLIWA 35	.053	3.226	.016	.1	62:1	6b17
(JRS)STELLATO -	-	-	-	-	-	6b18
(DLS)STONE 198	.686	27.520	.025	1.9	40:1	6b19
---	-----	-----		-----		6b20
(TOTAL) 1215	2.682	143.066		7.5		6b21
(PER CENT TOTAL DISK CAPACITY) 2.5%						6b22

(XEROX)

NAME	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU	6c1 6c2
(DDC)COWAN	-	-	-	-	-	6c3 6c4
(LPD)DEUTSCH	.050	1.271	.039	.1	26:1	6c5
(CMG)GESCHKE	.003	.233	.013	0.0	77:1	6c6
(EMM)MC-CRGHT	-	-	-	-	-	6c7
(RMM)METCALFE	.005	.573	.009	0.0	111:1	6c8
(JGM)MITCHELL	-	-	-	-	-	6c9
(WHP)	-	-	-	-	-	6c10
(EHS)SAT-WTE	.283	11.047	.026	.8	38:1	6c11
(RES)SWEET	1.072	33.916	.032	2.9	31:1	6c12
	-----	-----		-----		6c13

MAR 18-24, 1973, A Week In Review

(TOTAL) 1.413 47.040 3.8 6c14

6c15
6d

(NETUSERS) TOP FIVE

NAME	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU	6d1 6d2
MITRE-TIP	1.219	44.746	.027	3.3	37:1	6d3 6d4
BBN-TENEX	.631	6.796	.093	1.7	11:1	6d5
UCSB	.593	16.208	.037	1.6	27:1	6d6
GUEST	.470	36.102	.013	1.3	77:1	6d7
UCLA-NMC	.419	23.726	.018	1.1	56:1	6d8
REST OF NET	2.459	93.900		6.7		6d9
	-----	-----		-----		6d10
(TOTAL)	5.791	221.478		15.7		6d11

6d12
6e

(OVERHEAD)

NAME	CPU HRS	CON HRS	CPU/CON	% SYS	CON/CPU	6e1 6e2
(JCP)	1.908	39.413	.048	5.2	21:1	6e3
BACKGROUND	.001	.817	.001	0.0	1000:1	6e4
CAT	5.468	26.581	.206	15.0	5:1	6e5
DOCB	.004	.169	.024	0.0	42:1	6e6
DOCUMENTATION	1.125	3.502	.321	3.1	3:1	6e7
GILBERT	.033	1.389	.024	.1	42:1	6e8

MAR 18-24, 1973, A Week In Review

NETINFO	.014	.374	.037	0.0	27:1	6e9
NIC-WORK	.020	1.100	.018	.1	56:1	6e10
OPERATOR	.195	5.394	.036	.5	28:1	6e11
PRINTER	-	-	-	-	-	6e12
SYSTEM	-	-	-	-	-	6e13
	-----	-----		-----		6e14
(TOTAL)	8.767	77.922		24.0		6e15
						6e16

BAH 29-MAR-73 23:03 15396

MAR 18-24, 1973, A Week In Review

(J15396) 29-MAR-73 23:03; Title: Author(s): Hardeman, Beauregard A.
/BAH ; Distribution: /SRI-ARC DLS TFL JHB LPD JGM ;
Sub-Collections: SRI-ARC RADC ; Clerk: BAH ;

15397 Distribution

Norton, James C. , Watson, Richard W. , Lehtman, Harvey G. , Victor,
Kenneth E. (Ken) , Stone, Duane L. , Cox, Bonnar , Brown, David R. ,
Dornbush, Charles F. , Irby, Charles H. ,

DCE 30-MAR-73 17:40 15397

Visit Log: 30 Mar 73, Graphics Group from LRL

See (15250,) for background.

Visit Log: 30 Mar 73, Graphics Group from LRL

See (15250,) for background. Visitors were: Bob Lee (Group head), Steve Levine, P.R. Kelley, D.L. Vickers, K.S. Booth, Nancy A. Storch, and M.J.Arculeth.

1

Gave them the following literature: Tree Meta Reports (14045,), (14046,), L10 documentation (7052,), IMOL listing in Tree-Meta, Tree-Meta in Tree-Meta and Meta library. (14724,), (13537,), (12427,), (12445,), (14851,), ASIS69 movie (copy 10), OSR62, RADC70, NASA68, plus other assorted old reports.

2

HGL and CHI gave them a demo and explained some of our future projects. They were also shown our hardware system. They each described their work, and gave us a picture of their Octopus system (4 CDC 7600's in a Net, with PDP10's, Sigma 7, PDP-8s, PDP-11s, printers, terminals, etc.)

3

Lee and Levine spent an extra hour alone with DCE; thoroughly pursued the rudiments of dialogue, DPCS, Workshop, etc. toward encouraging them about the relevance of considering applying such within LRL. They left in a mood to consider evaluating such.

4

They would have to get their own facility in order to serve any clientele within their secure area, since that area can't be penetrated by any data lines to the outside world; so their becoming a user and possible collaborator has special problems. But, LRL has so much computer investment and activity that the cost of a TENEX wouldn't seem percentage-wise to be all that great; plus the payoff if there could be any appreciable gain in productivity could be very large -- many expensive people using a hugely expensive system -- small percentage increase in effectiveness would be worth a great deal.

4a

Visit Log: 30 Mar 73, Graphics Group from LRL

ARC Journal References

- (12427,) Douglas C. Engelbart. Notes About a Community of Knowledge Workshop Architects. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 31-OCT-72. 5a
- (12445,) Douglas C. Engelbart. COORDINATED INFORMATION SERVICES for a DISCIPLINE- OR MISSION-ORIENTED COMMUNITY. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 12-DEC-72. 5b
- (13537,) Douglas C. Engelbart. SRI-ARC Summary for IPT Contractor-Meeting. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 11-JAN-73. 5c
- (14045,) No Author. Tree Meta Report -- Preliminary Draft. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 23-JAN-73. 5d
- (14046,) No Author. Tree Meta Report -- Preliminary Report, Formal Description. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 23-JAN-73. 5e
- (14724,) Douglas C. Engelbart, Richard W. Watson, James C. Norton. The Augmented Knowledge Workshop. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 1-MAR-73. 5f
- (15250,) Douglas C. Engelbart. Forthcoming visit by computer-graphics group from Lawrence Radiation Labs in Livermore, and background notes. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 22-MAR-73. 5g
- (7052,) William H. Paxton. L10 Documentation. Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025. 29-MAY-71. 5h

DCE 30-MAR-73 17:40 15397

Visit Log: 30 Mar 73, Graphics Group from LRL

(J15397) 30-MAR-73 17:40; Title: Author(s): Engelbart, Douglas C.
/DCE ; Distribution: /jcn rww hgl kev dls bc drb cfd chi ;
Sub-Collections: SRI-ARC; Clerk: DCE ;

Inviting RADC AHI guys to participate in community-development dialogue

Duane: I have begun a campaign of search and promotion toward building our participative communities. I am trying to document as much of the activity as I can -- partly as a challenge toward "living the way we advocate," and partly to see if the evolution of ideas and plans can be carried out in a dialogue mode among all of the parties that have serious interest in Knowledge Workshop development via community collaboration. In this latter regard, I have begun to add your IDENT to what seems like relevant records, taking you to be the representative of our first "external community node."

1

1) Feel free to comment or otherwise contribute to the dialogue.

2

2) Let me know if I should use someone else there as a target. Is it relatively easy for you to share with John M or Jim B, or anyone else that is interested?

3

3) I expect to add more people to the dialogue group, and to set up a group ident for the purpose when it seems that indeed we have a dialogue GROUP -- so bear in mind that your contributions might begin to be seen by others.

4

For instance, I'd like to get at least one key person in each organization that is seriously considering participating in the community (whether industrial or government buyer, or a pure sponsor), to agree to become part of such a group. So far I haven't put much energy into the idea. Adding your IDENT didn't take much energy; this note is the next big step; but I intend to lean on the idea.

4a

I guess you guys realize that you have become seasoned participants in our minds, and that your contributions to any of our dialogue will be both welcomed and taken seriously.

5

Best regards to you all at RADC, Doug.

6

15398 Distribution

Norton, James C. , Watson, Richard W. , Van Nouhuys, Dirk H. , Stone,
Duane L. , McNamara, John L. , Bair, James H. , Cox, Bonnar , Brown,
David R. ,

Summary of review team for getting DNLS out into the world
meeting 3/28/73

The design review team for "getting DNLS out into the world" met on 3/28/73 and discussed what we should/will do about experimenting with cheap display terminals.

1

Breifly, there are very few terminals that meet our requirements, even when we ignore the pointing-at-the-screen problem.

1a

We decided to persue adapting DNLS to run on one of the "cheap" (about \$3K) dsisplay terminals, without any selection device at all. This means TNLS type addressing, and/or Doug's line/character selection scheme. We hope to be able to run NLS (sort of half-DNLS) on a class of such terminals, not a particular brand.

1b

Terminals with "cursor interrogate" features would allow local positioning of the cursor to select a character on the screen. We hope to get a terminal with this feature and work out the associated problems of making selections this way. The same half-DNLS could be used with terminals of this type.

1c

Martin Hardy is looking at some terminals and will come up with a scheme for attaching a mouse and keyset. We will build a prototype attachment/modification to do this, and perhaps try to convince somebody to manufacture and support it.

1d

We are going to lease (with option to buy) a Hazeltine 2000 display terminal with upper/lower case option. We will get a upper case only model while they fill our order for the upper/lower case thing, which they don't have in stock (about 60-90 day delay).

1e

If Martin likes it, we will also lease (option to buy) a Delta Data terminal. This is a little more expensive but has the interrogate cursor feature, and may be easier to put a mouse on.

1f

15399 Distribution

Van De Riet, Edwin K. , Van Nouhuys, Dirk H. , Victor, Kenneth E.
(Ken) , Wallace, Donald C. (Smokey) , Watson, Richard W. , Andrews,
Don I. ,
Keeney, Marcia Lynn , Hoffman, Carol B. , Lee, Susan R. , Michael,
Elizabeth K. , Dornbush, Charles F. , ARC, Guest O. , Feinler,
Elizabeth J. (Jake) , Handbook, Augmentation Research , Kelley, Kirk
E. , Meyer, N. Dean , Byrd, Kay F. , Prather, Ralph , White, James E.
(Jim) , Vallee, Jacques F. , Kaye, Diane S. , Rech, Paul , Kudlick,
Michael D. , Ferguson, Ferg R. , Lane, Linda L. , Auerbach, Marilyn
F. , Bass, Walt , Engelbart, Douglas C. , Hardeman, Beauregard A. ,
Hardy, Martin E. , Hopper, J. D. , Irby, Charles H. , Jernigan, Mil
E. , Lehtman, Harvey G. , North, Jeanne B. , Norton, James C. ,
Paxton, William H. , Peters, Jeffrey C. , Ratliff, Jake

DLS 30-MAR-73 13:40 15400

Minutes of meeting on time accounting in ISI

Would like to meet asap to get response to this

Minutes of meeting on time accounting in ISI

TIME ACCOUNTING 27MAR73

1

PURPOSE:

1a

To review proposal for time accounting (,15388,)--also see (,12799,) for earlier proposal made in JUL 72.

1a1

ATTENDEES:

1b

EJK DLS

1b1

DISCUSSION:

1c

The discussion centered around the question of whether or not it was reasonable to expect to gather the proposed data. Among the things which would limit detailed collection of time data are:

1c1

the inability of people to understand (consistently interpret) the meaning of the categories --particularly in the "nonproductive" category

1c1a

even if there were a common and unambiguous understanding of the detailed categories, there is a problem for an individual in remembering--even over the course of a day-- which activity he was engaged in.

1c1b

the feeling of some people that this would be a further intrusion into private affairs--others will view it as another meaningless exercise.

1c1c

work expands to fill the time available; ie. people will report at least 40 hours a week regardless of their "real" work time.

1c1d

the basic inconsistency in AF policy and AF practice. Salaried workers are freed from the time clock--in theory only. The secretary keeps track of time expended, but since she can't be trusted the section chief has to verify her entries. The basic problem which the AF refuses to face up to is: are you buying a person's time or his knowledge/brain.

1c1e

The general conclusion was that it is probably next to impossible to collect "accurate" data at the level of detail proposed. We may have to give up the notion of providing a useful tool to ISI and lower management.

1c2

Minutes of meeting on time accounting in ISI

One of the goals of this proposal--to determine if there is any reduction in "nonproductive" time through the use of NLS, might be better realized by collecting data in two general categories only--leave and nonproductive as defined in (,15388,). It would be assumed that the rest was in the productive category.

1c3

Ed suggested that I find about 4 volunteers for a two week period who would be willing to record their time in either a general or specific level. The volunteers would be randomly divided into two groups (detailed and general) and we could see what happened at the end of a couple of weeks before going any farther with this idea.

1c3a

UNRESOLVED ITEMS:

1d

Are managers, at least those in ISI, at all interested in where their manpower is going? If so for what reasons? I would guess that the salaries of people in ISI total some where between \$800,000 and a \$1,000,000 per year--double or tripple this if overhead is included. We spend 1 meg plus for equipment and have 1-2 megs for contracts. The point is that manpower represents a significant portion of the total resources available to ISI managers.

1d1

ACTION ITEMS:

1e

DLS--meet with JHB and JLM and if approved then find three more volunteers, and get on with the pilot data collection activity.

1e1

COMMENTS:

1f

Date: 30-MAR-73 1124

1f1

From: KENNEDY

1f2

Re: meeting - time accounting

1f3

1c1e is not germane to 1c1. The statement can be included if you wish but it is not a thing which would limit ...Suggest that in 1c3 you carefully define the terms leave and non-productive. 1c3a Maybe I did but at this time I suggest that we(?) designate 4 people. NB As written jmb and jlm will have plenty to find fault with. Suggest you couch your action item in terms of 'go' or have a meeting with jmb and jlm present and then 'go'.

1f3a

15400 Distribution

McNamara, John L. , Bair, James H. , Lawrence, Thomas F. , Kennedy,
Edmund J. ,

Minutes of meeting on time accounting in ISI

(J15400) 30-MAR-73 13:40; Title: Author(s): Stone, Duane L. /DLS;
Distribution: /jlm jhb tfl ejk ; Sub-Collections: RADC; Clerk: DLS;

Expanded Use of the ARPANET

This is my personal opinion. It has not been coordinated with anyone. I hope it will stimulate some debate on the subject.

Expanded Use of the ARPANET

"..By the mid-1950's more than half the population of the United States was not making things to eat or use, but was gainfully employed doing something for other people. Thus, the United States became a service economy and the first post-industrial nation. Today, more than 63% of the United States labor force is employed in the service industry. By 1980, statisticians believe that two out of three members of the labor force will be part of the service sector."

1

"..The technologies that are integral with a service economy or a post-industrial society and those which are essential to achieve its goals include COMMUNICATIONS TECHNOLOGY, COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY. These are best linked to users, services, and products by means of computer networking."

1a

"..We must stop treating computer networks as tinker toys of technology and recognize that they have become technological partners to management, to services, and to government."

2

"..Computer networks perform two essential tasks in developing increased computer power. THEY AGGREGATE THE MARKET FOR COMPUTING POWER AND THEY SUPPLY THE SOLE MEANS FOR COST-SHARING EXPENSIVE DEVELOPMENT AMONG CUSTOMERS."

3

The above statements were made by Ruth Davis in a recent keynote address for a West coast computer conference (caps are mine). If they have any truth in them at all, then don't you think we should open up the ARPANET to the rest of RADC? We are sitting on a vast resource, which should be shared with the rest of the Center. This activity should begin now. This fall we will have our own computer on the network and the spare time on it could be effectively used to barter for time at other sites.

4

What would be required to inform, educate and help others in the Center to learn about and use resources on the ARPANET?

5

A publicity campaign

5a

A person knowledgeable of NIC services

5b

A terminal dedicated to the ARPANET/NIC

5c

A reliable TIP

5d

Let me discuss each of these in a little more detail.

6

Expanded Use of the ARPANET

A publicity campaign:

6a

We could use existing communication media for this. Admin Services bulletin, PAR briefings, bulletin boards, main and branch libraries, etc. Suggested theme--"Did you know there was someone else working on the same problem as you, who has a computer at his fingertips and is willing to share it with you?"

6a1

A person knowledgeable of NIC services

6b

To be of any real service to anyone, the Station Agent should be familiar with the operational principles of the ARPANET, its protocols, and its status. He should have an understanding of the TNLS version of NLS and know how to access the principle services of NIC. Among these are:

6b1

ARPANET NEWS

6b1a

RESOURCE NOTEBOOK

6b1b

NIC JOURNAL INDEX

6b1c

NIC JOURNAL

6b1d

NIC FUNCTIONAL DOCUMENTS

6b1e

NIC ANNOUNCEMENT BULLETIN

6b1f

RFC's

6b1g

These services are accessible via a simplified query language, but the Station Agent should sooner or later learn how to access them directly via TNLS.

6b1g1

Bob Doane is our Station Agent now, but he has not had the time to learn about any of the above services. He took a TNLS course at SRI last year, but has not (to my knowledge) ever followed up on it. Van Dresser catalogues the hardcopy coming from the NIC, but I'm sure he has no idea why it is coming to him or how.

6b1g2

Bob Walker would make a good candidate for Station Agent, if he was willing. He seems to have a natural interest in what's going on in the world and often acts as a promoter/switch board for information services.

6b1g3

Eventually I would like to see a mini station agent in each operating division. This function could be filled nicely by

Expanded Use of the ARPANET

the RADC library and its branches (if the manpower was available). I'm sure Fred Dyer would like the position of Station Agent for the Center, if it was properly presented to him. It would fit well with his corresponding roles for DDC and CIRC. 6b1g4

The Station Agent should also have the responsibility of supplying information to the NIC about the interests, capabilities, hardware and software at RADC. 6b1g5

A terminal dedicated to the ARPANET/NIC 6c

This would be a TI or Execuport type terminal. Eventually we would want one in each Division. Perhaps we could buy them for the Divisions in return for their taking over some of the Station Agent work load. 6c1

A reliable TIP 6d

The TIP itself has become quite reliable. It still requires care and feeding, however. I have had to restart it twice in the last month myself by keying in octal info on the console while talking to the NCC at BBN. It seems that the facility has not yet seriously accepted their role for TIP maintenance--at least I don't know who to see when it goes down. The point is that I should not have to see anyone. There should be some way in which the TIP is constantly monitored. If it goes down someone should immediately contact the NCC and send messages to the terminals connected to it about the problem and when it is expected to come back up again. 6d1

15401 Distribution

Bethke, William P. , McNamara, John L. , Kennedy, Edmund J. ,
Lawrence, Thomas F. , Bair, James H. ,

Expanded Use of the ARPANET

(J15401) 30-MAR-73 6:50; Title: Author(s): Stone, Duane L. /DLS;
Distribution: /WPB JLM EJK TFL JHE ; Sub-Collections: RADC; Clerk:
DLS;
Origin: <STONE>ARPANET.NLS;3, 30-MAR-73 6:44 DLS ;

SECOND DRAFT:ARC Training Plan

Let's meet and talk this over soon so we can get to the next stage of review.

SECOND DRAFT:ARC Training Plan

This document responds to (14164,) and supercedes (14840,)	1
SOME PRELIMINARY QUESTIONS WE CONSIDERED:	2
Whom are we training?	2a
Outside ARC:	2a1
Anyone on the Net who is interested?	2a1a
Only important people who will become regular users of NLS?	2a1b
Work organizations (RADC or the ARPA office for instance) who will become users of NLS?	2a1c
Inside ARC	2a2
Everybody to the limit of his ability and interest?	2a2a
Certain classes of people to certain skills?	2a2b
Dex for typists?	2a2b1
Dex for Doug?	2a2b2
Displays for professionals only?	2a2b3
User programs output processor, L-10, etc. for all?	2a2b4
What is the Subject We are Teaching?	2b
To people outside ARC:	2b1
ARC Culture?	2b1a
NIC Procedures?	2b1b
T/DNLS?	2b1c
How to send messages?	2b1d
User programming?	2b1e
How to use the journal?	2b1f
NLS/L-10 Programming?	2b1g

SECOND DRAFT:ARC Training Plan

SEAS?	2b1h
DPCS?	2b1i
To People Here:	2b2
T/DNLS?	2b2a
NIC Procedures?	2b2b
NLS/L-10 Programming?	2b2c
Various subsystems?	2b2d
DPCS?	2b2e
Catalog system	2b2f
Etc.?	2b2g
Who is doing the teaching? ARC or NIC?	2c
For any and all of these subjects are we trying to teach people how to do something or introduce them to it in such a way that they are equipped to learn skills themselves?	2d
A lot of debate is possible about these questions (journal, 14709,) For background considerations see (journal,14724,;["rain"];k). For the purpose of this plan, we make the following assumptions:	2e
The NIC is obliged as part of its service to the Network to train people to send and read journal items and draw on our files that offer information for the net.	2e1
That means they should know:	2e1a
how to use Locator,	2e1a1
how to use Query,	2e1a2
and the subjectmatter of the primer (JJournal,14891,3):	2e1a3
get help	2e1a3a
log in and out of TENEX and nls	2e1a3b

SECOND DRAFT:ARC Training Plan

create an NLS file	2e1a3c
no structure	2e1a3c1
edit an nls file	2e1a3d
by statement, character, word, text manipulation)	2e1a3d1
address/move around in a file	2e1a3e
by statement numbers, SIDs, content search, ">", "<", predecessor, successor, "LF", "f", and by using viewspecs mn, ts, IJ	2e1a3e1
format for printing (local)	2e1a3f
viewspecs, execute viewchange print commands	2e1a3f1
print	2e1a3g
stop printing	2e1a3h
maintain his directory	2e1a3i
submit Journal items	2e1a3j
deferred numbers only and using interrogate	2e1a3j1
find IDENTs of other users	2e1a3k
.lastname in Journal	2e1a3k1
read Journal items send to him	2e1a3l
query NIC resources online	2e1a3m
query language	2e1a3m1
link to other users online	2e1a3n
send messages to other users	2e1a3o

The NIC is also interested in training Station Agents and
Technical Liaison men to perform their role. 2e2

ARC beyond the NIC is interested: 2e3

SECOND DRAFT:ARC Training Plan

in training certain important users to the point that they feel comfortable in NLS doing their own work and can train themselves further ad lib. 2e3a

and in training certain organizations as a whole to the point they can use NLS comfortably in their daily work, expand their knowledge of NLS as needed, and train their own people. 2e3b

That implies training trainers. 2e3b1

Within ARC 2e4

We want to train people to the limit of their ability and interests within the resources available to us. 2e4a

In some cases we want to train people beyond their (immediate, apparent) interest to do many things like use links and structure more. 2e4b

Some subjects will always be specialists' skills, e.g., running the catalog programs, keeping up the property notebooks, and the full range of output processor directives. 2e4c

WHAT WE ARE DOING NOW 3

Hardcopy Training Aids 3a

We provide TNLS, Dex, L-10, and Journal "User Guides" (NIC, locator, 0276) 3a1

We provide a set of flip charts of NLS commands and allied subjects for the TNLS course. 3a2

The charts take something like half a day of the course leader's time and one day of Carol Guilbault's time in maintenance per course cycle, mostly because of changes in the language. 3a2a

We provide 8 x 11 multi-colored reproductions of the most important of these charts to students and all stations and on request. 3a2b

We provide small series of of workbooks (like Sullivan Readers) 3a3

XParcop (KJournal, 11263,) 3a3a

SECOND DRAFT:ARC Training Plan

XView (Kjournal, 11262,)	3a3b
XPrint (Kjournal, 11264,)	3a3c
XEd (Kjournal, 11311,) which is out of date and Linda Lane is updating	3a3d
We provide NLS Folklore which is reprinted and sent out to supplement the User Guide from time to time (Jjournal, 14890, 1a).	3a4
We provide adlib journal items,	3a5
on the occasion of someone disseminating a new subsystem command or (journal, 14720,) (journal, 10752,) etc.	3a5a
on the occasion of someone asking a question. (journal 14423,) (journal, 13665,) etc.	3a5b
We provide a little card of the view specs and mouse and keyset codes (Meyer, viewcard,)	3a6
We provide, as of next week, a pocket command card	3a7
Some documents describing the envelop of proceeedures around NLS exist. For example, (journal,14724,1) is thoughtful. (journal,13041,1:xb) is general, whereas (journal,14567,3) and (journal,13037,1) deal with daily details. These and related documents are sources for training organizations.	3a8
Online Training Aids.	3b
Help built into the system:	3b1
If a user types a question mark in a TNLS command it will give her tacit information about what you need to do at that point.	3b1a
This service is not available in display.	3b1a1
All of the hard copy items listed above are available on line except the flip charts and the command card	3b2
People on the net, frequently former students, link to us and we describe or demonstrate how to perform some processes that puzzle them.	3b3
We have had a series of seminars in NLS (Continuing NLS	

SECOND DRAFT:ARC Training Plan

Education) based on on-line demonstration with some linking and shared images with people at RADC (journal, 13783,). 3b4

Face to Face Teaching 3c

Over the past two years we have taught a series of courses in TNLS to people from the Net and to new employees (journal, 13755,) etc. 3c1

Recently the courses have grown from 2 to 3 days (journal, 14709,). 3c1a

In addition to TNLS they have touched upon ARC history and organization, Tenex, and NIC procedures. 3c1b

We have taught the TNLS course once in Boston under conditions which limited it to being a cursory introduction and we have formally taught the use of display once here and once in Rome (journal, 12894,). 3c1c

Currently MFA, DvN, and MDK do the course; RWW and BAH have participated in the past. BAH would like to find a suitable role again. 3c1d

Before and after these courses and during lunch, students have a chance to chat with ARC people, especially with Jeanne North, Jim White, and who ever was the current Station Agent. These conversations are the closest approach we make to anything like training Station Agents or Technical Liaisons. Perhaps 20 Station Agents have been here, maybe 12 of them are still Station Agents. 3c1e

There has been a series of training sessions (PSO seminars) to disseminate skills to the PSO people. 3c2

Local Question Answering: 3c3

Everyone at ARC spends a good part of her or his time answering one another's questions, 10-20% in most cases is my guess. This dialog is an important part of NLS training. 3c3a

SECOND DRAFT:ARC Training Plan

L-10/NLS Programming:

3c4

L-10 does not seem to be difficult for programmers to learn but there are a lot of tricks to it, and it's complex give-and-take with the NLS system that already exists. In the main, new programmers are taught these tricks by whoever is the expert in the part of the system they begin to work in. One result is that now few (1?) NLS/L-10 programmers are competent in the whole system.

3c4a

People who are not programmers who have had occasion to learn some L-10 have normally had some (often slight) programming experience. They have learned by asking questions as people used to learn the command language. Harvy has been most important in this effort, with help from Beau and others.

3c4b

This learning by laying on of hands, is tolerable locally, but if/when SEAS becomes active we will have to deal with it in a more organized way.

3c4c

SOME NOTABLE HOPES AND POSSIBILITIES

4

Hardcopy Training Aids:

4a

The User Guide is worse than useless except for experienced people. Marilyn plans a modular series of primers of corresponding user guides and allied documentation (jjournal, 14891,).

4a1

Video Tapes:

4b

We have made one video tape about ARC.

4b1

I have restricted its circulation because of technical imperfections people people who have seen it have commented that it is a good medium to learn about ARC.

4b1a

We have almost finished a second about sending a journal message.

4b1b

At the moment almost no work is going on in video tapes because of lack of manpower, I hope we can come back to it. See (hjournal, 14708, 3d)

4b2

Kirk Kelley has expressed interest in this work (journal, 14860,).

4b2a

SECOND DRAFT:ARC Training Plan

Online Training Aids:

4c

CHI has proposed that a terminal or a user name be set aside as always open to questions by link or telephone during regular working hours and publicized.

4c1

Help Built into the System:

4c2

The novice mode planning committee is checking over several good ideas to make more built-in help available (journal, 14881,).

4c2a

In order to avoid extreme revision of the code in general, their plans now revolve around use of †S to go to documentation that is appropriate for the users current state.

4c2b

The catch in this plan is that the documentation presently available is largely the User Guide which is not written for this purpose and writing new documentation, if complete, would be an effort on the order of 6 man-months.

4c2b1

Maybe the primers (journal, 14891,) can serve.

4c2b2

Computer Aided Instruction:

4c3

Some of the proposals of the novice user group border on computer aided instructions.

4c3a

Sylvia Meyer, who works on CAI in the Boston area, has put out feelers to the ARPA community to perform a project of computer aided instruction in NLS. Curiously, as far as I know she has never spoken to anyone at ARC about it.

4c3b

Control Files

4d

Control files will soon be available in TNLS

4d1

It would take little manpower to create a control file that exercised, for example, a TNLS editing command.

4d1a

It is not clear to me how much a novice would learn from passive observation of commands in effect. Further research is necessary.

4d1b

Experts exist in teaching computer and allied systems.

4d2

SECOND DRAFT:ARC Training Plan

We might be able to find a useful consultant. 4d2a

Face to Face Teaching 4e

We should travel to cites more, to offer courses; to review what people are doing; and to learn their needs (15074,) (14973,) (15008,)and 4e1

We have released an RFC suggesting on-site courses to the Net (LJOURNAL, 15266, 1:w). 4e1a

At some point we need to plan and start running regularly a DNLS course. 4e2

The only regular use of DNLS over the Net now is at RADC, and they have the basic training already (journal, 12894,). 4e2a

How soon we will need to train more display users depends on the number of properly equipped and loaded Imlacs around the Net. Maybe some reader can supply an estimate. 4e2b

Alternatively, Net display NLS may come through nongraphic terminals, which would change training (14245,). 4e2b1

At some point we need to plan and start running regularly a course in Dex II and Dex I.5 (I.V? I.5?) (journal, 14710,). 4e3

We should try the course out here, but Rome will want such training I'm sure. Training awaits someone (Kirk?) learning it well enough to teach. 4e3a

SECOND DRAFT:ARC Training Plan

Quick Simple NLS Teaching: 4f

It seems as if, for the sake of the users, as well as ourselves, we should be able to teach people to use the journal and read the NIC data bases without anyone travelling 2000 miles. 4f1

In the case of display, I'm sure a student could come to that point in something like the 3-4 one-hour sessions with shared images and a phone link, with a teacher and 2-3 students. 4f1a

TNLS, as always, is more difficult. But I am sure a course could be put together using, say the primer, a video tape (mostly of screen), workbooks, and concluding with live Tenex and phone linked sessions. 4f1b

Tests and a level of confidence: 4g

Several people, particularly at RADC have suggested some sort of standardized tests, allowing people to be rated numerically in their progress learning NLS or parts thereof. 4g1

Must we imagine a TNLS brownbelt or a licenced content analyzer? 4g1a

The trend of pedagogy is away from tests and grades, but I think we should be prepared to cooperate with people who want them. Rate-of use of NLS seems measureable: say the number of clock or CPU minutes on number of commands used to create an NLS file from a hardcopy source. Reading comprehension tests or material viewed online are also conceivable. 4g1b

Some results might be surprising. 4g1b1

See (journal,14724,3c) for some background considerations 4g1b2

RECOMMENDATIONS;

WITH SOME NOTES ON SCHEDULE AND WORKLOAD 5

Hardcopy Training Aids: 5a

I recommend we let the pocket TNLS guide replace the reduced version of the flip charts. 5a1

SECOND DRAFT:ARC Training Plan

I recommend we maintain the exercise books for the present including updating XEd. In say three months, we may be able to see the examples in the Primer clearly enough to judge if we can drop the exercise books.

5a2

Updating XEd should take Linda about 2 days work and me half a day to check out.

5a2a

The mouse and keyset card should continue to be kept up to date for local use. Dean Meyer is now preparing a COM version (Meyer, viewcard,) which will include viewspec E,F,I,and J.

5a3

I recommend we follow Marilyn's plan (jjournal, 14891,),(LJOURNAL, 14977, 1:w),and (LJOURNAL, 14976, 1:w) to replace the User Guide and folklore. With help to be hired for the Utility (jjournal, 13694, 2a4) and less the drain on Marilyn's time of doing training (ijournal, 14708, 3a) and other overhead, the project may well take a year.

5a4

Online Training Aids:

5b

Ad lib answers to questions from the Net, by phone, linking, TENEX SND MSG of journal should keep about the same except as noted in (ijournal, 14708, 3b).

5b1

Computer Aided Instruction

5b2

I intend to get in touch with Sylvia Meyer and invite her to a TNLS course.

5b2a

Help built into the system:

5b3

People involved in training (ijournal, 14184, 7b3) will keep in close touch with the novice group (ijournal, 14164, 7b11) and the language group (ijournal, 14164, 7b9).

5b3a

It's not appropriate now to allocate time or people to write help to be called by †S .

5b3b

Face to Face Teaching

5c

Courses

5c1

I recommend that we hold back on further formal planning for formal training in DNLS either face to face or over the net until we know of more display terminals on the

SECOND DRAFT:ARC Training Plan

Net and whether they use the mouse (are graphic or not). My guess is real planning won't start until July. I recommend that we wait planning a Dex course until we see Dex II and I.5.

5c1a

Kirk is involved in developing Dex II (ijournal, 14164, 6a2l) and interested in teaching (journal, 14860). I suggest he plan and teach the course. My guess is creating the course would take a man-week and each row would take 1.5 man-days.

5c1b

I suggest we send out an RFC specifying in detail a Station Agent or Technical Liaison course and see if anyone on the net is interested.

5c1c

JCN, DVN, and SRL could write a Station Agent Course RFC.

5c1c1

JEW, DVN, RWW could write the liason men's RFC.

5c1c2

I suggest we hold planning a quick, over-the-net course in TNLS until we have a trainer.

5c1d

The present TNLS cours is by comparison unwieldy and inefficient and a drain, but it has great advantages in human contact at this stage of the net.

5c1d1

TNLS Course

5c1e

It should extend to three days as in the two most recent courses.

5c1e1

Marilyn should be in charge of the course as discussed in (ijournal, 14708, 3a).

5c1e2

Each course takes 9/4's person-days for the teachers; one day for the course leader to arrange; one of Carol's days for chart maintenance; another day of the time of Mil, Jeff, etc.

5c1e3

Internal Question Answering

5c2

I think the present system works well, but maybe that's because of where I sit. I would appreciate comments to the contrary.

5c2a

Circuit Riding

5c3

SECOND DRAFT:ARC Training Plan

If the separate contract to support RADC's NLS activities is renewed pretty much as proposed (14567,) people from ARC will need to visit one or more times to discuss how they use what they know and learn the rest of the world's problems. About 3 man-days each for one or more people.

5c3a

Before July we should ask Mitre Tip and any other site (15008,) that Beau's statistics show to be using the system heavily if they want a visit of about 2 man-days each for one or two people.

5c3b

Circuit riding trips can combine with teaching and other trips of course.

5c3c

Internal Seminars

5c4

Some occasion should revive them. They cost about half a man-day of the teacher's time including all arrangements.

5c4a

SEAS Planning should include NLS-L-10 training.

5d

Consultation

5e

It's my responsibility to look into training consultants. I'll do so in the next month.

5e1

Control Files

5f

We need to play around a little to see how useful they are. MFA might devote one person-week to this before July.

5f1

Important dates that depend on other activities

5g

Creation of two jobs, one in training and the other in documentation, in anticipation of the Utility.

5g1

Changes in NLS Command language.

5g2

The next planning cycle should begin when the new trainer is aboard.

5g3

We vaguely intend to hire someone specialized as a trainer in anticipation of the Utility.

5g3a

Initial integration seems straight forward. The new trainer takes a TNLS course, then takes one of the

SECOND DRAFT:ARC Training Plan

teaching parts. Following that the trainer can presumably take over as course leader. Replanning would then pass into the hands of the trainer. 5g3a1

Important dates that are fixed here 5h

A TNLS Course in Boston and Washington by July 5h1

Work Load 5i

This plan in conjunction with (i)journal, 14708,) would mean that in the foreseeable future 25% of my time, 25% of MFA's time, 10% of Mike's, 10% of Kirk's time plus a couple of person-days per month in other support would be spent in training in the foreseeable future, not counting local and over-the-net question answering. 5i1

15402 Distribution

Kudlick, Michael D. , Norton, James C. ,

Consistent Names for Printing Foremat: Support for 15387

Walt is right

1

15403 Distribution

Irby, Charles H. , Auerbach, Marilyn F. , Bass, Walt , Meyer, N. Dean
, Watson, Richard W. ,

DVN 30-MAR-73 8:29 15404

The Network Needs Operator Support from 5:00 to 8:00

This item is addressed to Jim Norton, but copies go to various others for information and to alert the constituency.

The Network Needs Operator Support from 5:00 to 8:00

This documents our conversation of the other morning.

1

Tuesday when I logged in about 7:45 I did a sysat and noticed in passing a number of users from RADC on the system. About 8:15 Tom Lawrence called from RADC to complain that no one at Rome could get on to our system. When they tried, they got the message "time out". I deduced that our network support was in some funny state and asked Jef Peters to do what he could. He "recycled the net" and everythign worked fine after that.

2

However the people at Rome, who are trying to do their daily work on our system, had lost their morning, the time when we allow them more than four users. Presumably the same thing happened to the rest of the net.

3

Tom had called the computer room earlier and no one answered. If we are to deliver to Rome the service they need, we should have some one here from 5-8 who can do atleast the first-cut fixes that Jef cn do.

4

15404, Distribution

Lawrence, Thomas F. , Stone, Duane L. , Norton, James C. , Kudlick,
Michael D. , White, James E. (Jim) , Peters, Jeffrey C. , Neigus,
Nancy J. , Forman, Ernest H. , Crocker, David H. ,

Test to BMW

Mike -- This is a test of the Journal sending messages to your
initial file. -- Jeanne

1

15405 Distribution
Wilber, B. Michael ,

Comments on Present and Possible ARC Catalog Procedures

Here are some comments relating to MDK's memo (15366,) and MEJ's memo (15370,) on ARC's practices in recording the existence and contents of documents which are sent to ARC people or which fall into ARC hands by other means.

1

1. There are distinct differences in the purposes of and disclosure allowable in: notes in a personal file, notes in a departmental file, and notes in a file or document widely distributed or available to the ARPANET or to the general public.

2

Our online files serve all these purposes, and the game includes making rules for each which give the optimum protection for the information consistent with its disclosure.

2a

2. There are distinct differences in the disclosure given in: noting the existence of a document (logging or cataloging), noting its contents (abstracting), and reproducing its contents (printing or Xeroxing).

3

Our online files contain information in each of these categories, and the game includes making rules for each which give the optimum information transfer consistent with any necessary protection.

3a

3. There are distinct differences in the treatment appropriate to recording: personal correspondence, organizational correspondence, unpublished text of a proprietary nature, published material prepared under government contract, published material prepared with private (nongovernment) funds.

4

All of the materials which are likely to come under cataloging processes may be categorized. Without getting into fine legal distinctions which are in litigation and which probably are not important to us at this time, here is a start:

4a

Pers Corr. -- Personal correspondence: Letters addressed to an individual, even at an organizational address.

4a1

Org Corr. -- Organizational correspondence: Letters addressed to an organization, even though to the attention of an individual. Would include employment applications, patentable item submissions from outsiders.

4a2

Unpub Prop Text. -- Unpublished text of a proprietary nature: Unmailed letters, technical papers not yet accepted by the government or a professional or commercial publisher. Informal files of notes.

4a3

Comments on Present and Possible ARC Catalog Procedures

Publ Gov Mat. -- Published material prepared under government contract. Includes technical reports, journal articles, meeting papers, and even books prepared by individuals as part of work on a government-funded project. 4a4

Publ Priv Mat. -- Published material prepared with private funds. Includes commercially published books and journal articles prepared without government funding. 4a5

I agree that it is accurate to say we are not now using rules which fit these distinctions, and I agree that we should be. 5

Here is an attempt at a matrix which could be used to categorize materials in question and to indicate proper procedures for their handling in our cataloging processes. 6

```

.....
.....
:           :: PersFile : DeptFile : NetDist :
PubDist :
:           ::           :           :           :
: Pers Corr  :: C A R   : C       :           :
:
:           ::           :           :           :
: Org Corr   :: C A R   : C A R   :           :
:
:           ::           :           :           :
: Unpubl Prop Text:: C A R   : C A     : C A     : C A
:
:           ::           :           :           :
: Publ Gov Mat  :: C A R   : C A R   : C A R   : C A R
:
:           ::           :           :           :
: Publ Priv Mat  :: C A R   : C A R   : C A R   : C A
:
:           ::           :           :           :
.....
.....

```

C = Cataloged A = Abstracted R = Reproduced 8

Some obvious implications of accepting the above are that: 9

1. We need to begin to distinguish among the types of files,

Comments on Present and Possible ARC Catalog Procedures

entering into each only the items proper for the file, and only the information about any item which is proper for the file.

9a

2. We need to begin to distinguish the materials to be noted in the files, entering each only in the proper files and entering the information about each which is proper for the

**file.

9b

3. We need to set up procedures by which the status of an item may be changed. E. g., the release of a personal letter for abstracting in a public file, or the reproduction for public distribution of a proprietary item.

9c

4. We need to act on a concept already in ARC catalog design, the theory of sets. We need provision for a full entry of information including an abstract of an item to be entered into one file while only a notation entry is sent to another. This would allow abstracts of personal letters to go into a personal file while only a log-type catalog entry would go into the public files.

9d

15406 Distribution

Kudlick, Michael D. , Jernigan, Mil E. , Watson, Richard W. , \
Engelbart, Douglas C. , Norton, James C. ,

We are in the process of planning the Journal's development for about the next six months. Please send me any changes or new features you would like considered for this period by Monday evening 4/2. Things under consideration range from changes to the citation format in people's initial files to the development of a multi-site journal.

1

(J15407) 31-MAR-73 0:02; Author(s): Hopper, J. D. /JDH;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JDH;

SMFS Info

The Dash problem in SMFS has been fixed (see NEWS command) with a newly-released version of the SMFS subsystem -- Version 1.2.0
26-MAR-73.

1

You caught me in the middle of my bug fixing when you booted that copy of SMFS: I had patched the code to allow dash, but hadn't changed the version number.

2

About referencing the same file from two different TENEXs:

3

I tried that again and it works ok. I can, for example, do a LOCATE from BBN (and get 'Archived at UCSB') on a file stored from the NIC.

3a

If I did the store from SRI-ARC while connected to directory WHITE, I probably typed, for example, just 'TEST.TXT;1', knowing that host and directory will be defaulted.

3b

But when I do the LOCATE from BBN, the defaults for both of these fields will be wrong, hence I must type 'SRI-ARC:<WHITE>TEST.TXT;1'.

3c

However, I notice (never before, I guess, having run SMFS on TENEX 1.31) that files get clobbered either during storage or retrieval when SMFS is run from 1.31.

4

Even the NEWS command returns a clobbered file. Every fifth character gets zapped.

4a

I don't understand how you EVER made use of SMFS from a TENEX running 1.31. If you did, that my new version has introduced a new bug. I would be interested to hear from you on this subject.

4b

I discovered in assembling SMFS this time that either FAIL or LOADER is clobbering occasional words in the program, three of which I've found and patched with DDT. Could be another such problem has introduced this new bug.

4c

I'll pursue this problem.

5

15408 Distribution
Crocker, David H. ,

Changing Protection Attributes

Hi, Bob.

1

We are in the process of bringing up a new monitor. Once that has happened, we will enable the EXEC PROTECTION command for Net users.

1a

Meanwhile, you should be able to do what you desire with the EXEC RENAME command, since file protection attributes appear as a field in the filename. Do something like the following:

1b

```
RENAME myfile.nls <ALTMODE> myfile.nls;Paabbcc <CR>
```

1b1

where:

1c

aa = your own access priviledges

1c1

bb = your group's access priviledges

1c2

cc = everyone else's access priviledges

1c3

aa, bb, and cc are all octal numbers whose bits (numbered 0-5) have the following significance:

1d

Bit 0 -- one allows read access

1d1

Bit 1 -- one allows write access

1d2

Bit 2 -- one allows execute access

1d3

Bit 3 -- one allows append access

1d4

Bit 4 -- one allows directory-listing access

1d5

Bit 5 -- one allows protection modification

1d6

What you want, I think, is ';P770202'.

1e

If you have problems, give a hollar. -- Jim White

1f

15409 Distribution

Lieberman, Robert N. , Iseli, Jean , Wallace, Donald C. (Smokey) ,

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

Desirable characteristics of the common data-base system planned under MPS are discussed here in terms of user interface. The discussion is presented in the form of recorded dialogue among JBN, JAKE, MDK and JFV and is divided into ten major sections that cover the points to be developed in future discussions with the NMDT group.

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

JFV 19-MAR-73. DATA-BASE FACILITIES. Report #3.

LANGUAGE FACILITIES IN A COMMON DATA-BASE SYSTEM: a user viewpoint.

1

Abstract.

2

Desirable characteristics of the common data-base system planned under MPS are discussed here in terms of user interface.

2a

One of the extensions to NLS that is contemplated within the scope of the MPS conversion is the combination of data base facilities into a common system - with enhanced retrieval capabilities.

2b

Before proposing technical changes it was important to gather and document the needs perceived by specialists using the current NLS system, including the recently-released QUERY language that was our first prototype in this direction.

2c

The discussion is presented in the form of recorded dialogue among Jeanne North (JBN), Elizabeth Feinler (JAKE), Mike Kudlick (MDK) and Jacques Vallee (JFV). It is divided into ten major sections that cover the points to be developed in future discussions with the NMDT group.

2d

Main Conclusions.

3

The main points that emerged from a discussion of existing limitations were:

3a

- The slow processing of large files and lack of ability to simultaneously handle several files.

3a1

- The need to perform many retrieval operations via L-10 programs rather than user commands.

3a2

- The fact that output processor directives are currently embedded within the text.

3a3

- The fact that one had to wait at the terminal while output processor was in function, and could not proceed with retrieval or other operations.

3a4

- The fact that no Boolean operations were available in set manipulation.

3a5

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

The discussion of the evolution of NIC/QUERY posed the question: should we continue expanding the language or should we take a fresh start? It was felt that there was a need to protect the investment made by users now familiar with this system, to preserve its tutorial style, and to preserve the novice/expert duality in QUERY.

3b

Structure needs in Catalog and on-line indexing work were identified as follows: a mechanism is needed for the handling of multiple occurrences; retrieval must be generalized to the concept of links, and this implies some problems that are developed in Sections 9 and 10 of this document.

3c

1. PURPOSE OF MEETING.

4

(JFV) I have prepared a short agenda; what we could do is go through the agenda first, then see if there is anything you would like to cover now, add it to the agenda and start from there.

4a

And what I have here is,

4a1

1) Purpose of the meeting and what the group is going to do.

2) The second thing would be to discuss QUERY--In general terms, without going into all the details of everything you want, but: where are we going now?

3) The phase II catalog. Not in terms of what the other group is doing, but in terms of NLS structure - everything that relates to NLS structure. (Again, along the lines of discussing the structure in view of making recommendations for the future MPS implementation.)

4) The fourth point would be user-created data-bases. What are the requirements there? taking the Resource Notebook as an example of the first user-created data-base that we have.

4a2

So is there anything in that context, that we should cover now?

4a3

(MDK) Maybe you are going to cover this in the statement about the Catalog system or others, but one of the things that's been nagging at me for a long time is the question of online versus offline files and the present need to have two different versions of these files because of the way the output processor works. I think if we are going to have a Data Management system we're going to have to look at that.

4b

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JFV) I see that kind of thing coming up (on the Agenda) both in the QUERY context and in the context of the Catalog. The purpose of this kind of meeting, the way I see it now, is not to set up a group that will meet regularly to discuss data-base problems, but to give me essentially some direction to make a recommendation or report to the MPS group in terms of their future file system ...

4c

(MDK) A subset of the question about online versus offline is the question about the output processor itself, whether it helps us or hinders us at the present point and what we want to see.

4d

(JFV) Right, that should be after the Resource Notebook, that would be a logical place to put it. So please, let's keep it flexible. The definition of what I have to do (and why I seek your advice in technical input), is under the MPS conversion document which is (14928,1:w) in the journal. The paragraph is called NLS file system with a statement that "Requirements on design will come from areas described below such as: Database facilities, mixed text graphics, large character set, interface to other subsystems," etc. And under that there is one statement about data-base facilities, what role they will play there, and it says the following :

4e

Data Base Facilities (JFV)

4e1

We presently have in the system a number of data bases each with its own record format, input, update, retrieval, and format facilities; examples being master catalog, journal catalog, ident file, resource notebook, baseline record, formatted indices, TENEX sequential files, etc.

4e1a

We are also probably going to want to interface to network data base resources such as the Datacomputer.

4e1b

If NLS is going to be the more general information machine we want it to be, rather than simply a fancy text machine, we need to provide some standard data base facilities.

4e1c

The emphasis should be on determining what basic functions DO WE NEED, what should be in the NLS file system as primitives to meet these, and what subset, if any, should be implemented during the conversion for the ident file or other presently existing data bases.

4e1d

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

I had some discussions with Chuck, and also with Charles Irby and since it was under this structure, I saw this as essentially a task of monitoring what was being done in terms of the next entire system. But in discussions with Charles and Dick it was clarified that this was really a mandate to go ahead and look at the existing files, working from the outside in, working from the external specifications of the file to the existing blocks of programs including the structure and down into the file system.

4e2

So what I expect to do is have a series of consultations with groups of people on using those files like the Ident file, the Resource Notebook, Catalog and so on... and try to form some picture out of that. So that is essentially what our mandate is and I think this would be a logical place to start.

4e3

(MDK) Well, what do you want to get out of this group? From Jeanne and Jake and I?

4f

(JFV) What I would really like to get at is where you feel the limitations of NLS in your work. That online/offline thing is a good point, the output processor is a good point, but there may be others, like the problems that Jake had in editing the Resource Notebook, the problems that Jeanne has in creating indexes, all of that is fair game. And also I thought that might be an opportunity to do some blue skying: Lets assume we have infinite computer resources, what would be the direction of the things we would want in terms of data-bases?

4g

2. EXISTING LIMITATIONS.

5

In applying the NLS system to information retrieval tasks, a number of limitations are felt. Some occur at the system level, others at the language level. This part of the discussion addresses some features that are needed to support this type of activity.

5a

5b

(MDK) Well, I can list two limitations which I think are severe. One is: the system is very slow, exponentially slow, on large files, it seems. It is not a linear function. The larger the file, much slower the processing rate. I don't know what that is attributed to other than the fact that it is a very complicated file structure etc., ok?

5c

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JFV) You mean the text files. 5d

(MDK) I mean, NLS files. When I say the system, I mean the
NLS system. I really can't say if TENEX is slow or not,
copying large amounts, I don't have any feel for that. But
NLS for example in an Update is excruciatingly slow. 5e

The second really significant limitation is that there is
no way to simultaneously process two or more files. You can
only process one file with this system. If you want to
assimilate, namely merge, you have to do it by hand. Or be
very smart and write an L-10 program. 5e1

(JAKE) I would like to go on record by saying that I don't
think everything in an information retrieval system should be
done by writing an L-10 program. 5f

(JFV) I would like to go on record and say that NOTHING should
... 5g

(Laughter) 5h

(JFV) ... be done by writing an L-10 Program. 5i

(JBN) Not by the user. 5j

(MDK) You might write that down as a third limitation which is
that the only way you can add to the language capabilities is
with an L-10 program. Which is untenable. The primitives are
not enough to do what you want to do. 5k

(JAKE) I think it is fine that we have L-10 programs that do
interesting things, but they shouldn't be the user's
responsibility. 5l

(MDK) Yes, well said, I think. That's fine if you want to call
them from a Program Library. 5m

(JAKE) But you shouldn't have to call them out every time you
want to do a fairly straightforward thing, like finding
something, or merging files, or making sub-files... 5n

(JBN) Or there should be standard programs which prompt you
for input in order to tailor to your specific need... It is
the pattern matching problem. You shouldn't have to figure
out what your pattern is, I mean what your whole program is

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

and put your pattern in. It ought to just come to you and you
put your pattern in. 5o

(MDK) I would like to add to the list because now I'm getting
up steam a little bit. 5p

(JAKE) When you're hot, you're hot 5q

(laughter) 5r

(MDK) A very general complaint is in the area of the output
processor which is really two complaints. One complaint is
that I don't think the directives should be embedded in the
text at all. Even when they're needed they're needed to be at
a specific place in the text. There ought to be a way to say,
"This directive goes at this spot in the text." 5s

(JBN) Oh, neat. Wouldn't that be good 5t

(MDK) You shouldn't have to have it in the text. 5u

(JBN) You have to point to something, a branch or a statement.
Now you can use statement names, or numbers. 5v

(MDK) The second point is that it shouldn't have to tie me up
at the terminal while it's running. If it is queued. 5w

(JAKE) Preferably not Queue 4'ed 5x

(MDK) It's queued anyway, but I'm not queued with it. 5y

(JFV) Can we come back to this? 5z

(MDK) Ok, I'm finished. Jacques, you're the first guy who's
asked that question, "What's wrong". 5a@

(JAKE) Ok, getting back to information retrieval in a very
general sense, I feel that SOMEWHERE in the system we need a
Boolean logic approach. That's fairly fundamental, I think, to
having any kind of information retrieval setup. You should be
able to find a subset and output that to a new file, and be
able to work on that file in a simpler way than doing content
analyzer patterns and, well, you can't even output those can
you? Isn't "execute assimilate"...? 5aa

(JBN) Sure, it puts them into another file. It's just not as
simple as it would be if we had a higher level language. I

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

think the Boolean is there, but I don't use it. I think I'm like a lot of other people who say, "oh yeah, we already have that." And then you say, "How do you use it?" And then they say, "Oh, well, I don't ever use it myself, it doesn't work."

5ab

(JFV) There is a proposal by Doug on what he called "Sets", which is a way of defining entities in NLS - retrieving subsets by combining them and doing other Boolean things with them. Most of you can think of classical ways of doing that with the standard file system approach other languages use. But Doug was proposing that within the context of NLS, as an extension of the language. So we might want to go back to that...

5ac

3. STATUS OF NIC/QUERY

6

This section is concerned with the question of review, evaluation and centralization of user feedback concerning the NIC/QUERY language. It does not address the issue of future data-base facilities and can therefore be skipped by readers concerned with that subject.

6a

6b

(JFV) The first point that I want to bring up within the general discussion is QUERY. Because we have a new Query language essentially released now. I don't want to go into the details of the things that should be added to it or how to expand it at this point. I do want to ask your opinion on how to set up a process to review it, to get user feedback, to allow it to evolve, to compile a list of the things we want for the future.

6c

(JAKE) Ok, I've already written a memo, I'm not sure if it has already gone out yet, asking some people I think will be heavy users to give us feedback. We can make that a little more formal. And I asked them to send their comments to my directory simply because it was a big one and I thought I would be sure to see it and be able to pass it on to you or whoever wants to see it. It can be a file that anyone can look in. That's a start.

6d

Those people were: Susan Poh, John Isely, Nancy Neigus, and Dave Crocker, just because they have shown a fair amount of interest in "when would it be available?". And I talked to Jeff Golden today and he wanted to look at it online. I asked everyone that I talked to, "would you send us

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

feedback, good or bad," which we may or may not get. I feel that we really do need it. It is for the people out there that we designed the thing, and if they don't like it, then I guess we ought to know that. I mean whether we like it or not is somewhat incidental.

6d1

(JFV) Mike, do you think the NIC should act as sort of the review group for the QUERY language and centralize all that,... or should I do that?

6e

(MDK) I'd be really happy to let you do that. I only think one thing, that the people ought to know that they are talking to the NIC when they do that. Which is why I kind of insisted that it be called the NIC/QUERY Language. Really people think of this whole place as the NIC.

6f

ARC is a subset of NIC to them , not the other way around. So the answer is yes. I would like to it look like the NIC was organizing that stuff, which means RFC's and a working group that consists of people, and a group ID if that is necessary so people can send things to everybody at the same time. I think that kind of a thing would be worthwhile.

6f1

(JFV) What I would like to do is not to centralize all the comments now: I may be assumed to be biased since I designed the thing. It might be easier to have an outside ...

6g

(MDK) Well let me make the following offer which may be propitious in time. We're just about to set up a group of working people on the subject of the Resource Notebook. And these will be some regionally located people who will have the responsibility of collecting data and also in some sense organizing data for their own particular uses once it has been collected here. We might use that as an impetus to start getting feedback on the QUERY language. And I think it would be natural to do that.

6h

(JFV) There would also be some feedback on this side. Jim Norton has an active interest, Dick Watson, they have ideas about it.

6i

(MDK) Oh yes, Dick could give you half a dozen thoughts right now, I know, he's given them to me.

6j

(JAKE) How can we collect all of this stuff together? I was planning to send a memo saying that it was up and running and

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

anybody who wants to give feedback on either the data-bases or the design could do so... But I don't know if we want to make it any more formal than that.

6k

(JFV) I think there should probably be something in the Journal saying it, as a follow-up to the early documents that are around describing the QUERY language for the ICCC (there was a little description of it). I think I need to do a reiteration of that and then maybe that could be followed up by your RFC and we would centralize all the comments about it...

6l

(JAKE) I had been planning, under Mike's suggestion, to send out an RFC to all the people who had said, "Let me know when it's ready." So perhaps it could be a combination of the things the three of us would like to say. In other words, "QUERY is up; and it is an extension of the one at ICCC; and the following has been added; and the data-bases on it are:" and so forth. And, Jeanne, you could put a short notice in the ARPANET NEWS just saying it's up and running, and these are the things that are on it, and if you want to get more detail, see RFC such and such. Does that sound reasonable?

6m

(JBN) I don't see what's inappropriate about having things come to Jacques if they deal with the QUERY language itself, particularly if they're going to ask questions. We can take comments from people about it, but if they have questions, I would think that you would be the one. Also I think that QUERY is really neat, and your name ought to be more prominently featured with it. And whatever we gather because of the use of the Resource Notebook or the ARPANET Newsletter, any comments about the language itself should come to you. The comments about the data-base and the use being made of it should come to us, but I sort of see it being skewed if you're not the center of the thing.

6n

(JFV) I want to avoid the thing that happens with NLS where any comment about the language is directed to the people who are inside the language and they don't really, they don't necessarily see it as the user sees it. And I think the whole idea of...

6o

(JBN) Do you think you are that biased that you wouldn't report what people...

6p

(JFV) No, I would, but I might see something as a minor technical problem that can be fixed with a little quick

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

command whereas the user might see it as a major deficiency in the approach or philosophy. I think there is a difference there.

6q

(JBN) Well, I think you are in a better position to do that than anybody else is, though. I'm not sure I would understand what was a minor technical problem and what was a major design thing. I always have to come to you anyhow to see if we wanted to do this kind of a feature, what is involved, because I don't know what is real simple and what is going to take two weeks. And I just think that sort of thing gets the problem handled by people who are just sort of intermediaries anyway. That's my feeling about it.

6r

(JAKE) I tend to agree with Jacques... and you, both. First of all I think Jacques should be advertised, and that we can do pretty effectively in the RFC

6s

(JBN) And the Resource Notebook thing where it is a facility that is advertised, a resource that is available, certainly to make sure that this is listed in there at our site like other sites do: who is the responsible person for that thing. And I think it is certainly appropriate for anyone who puts a data-base into that to get comments saying "How would you like this better formatted?" Because my expertise, if any, is only in what I have used the language to do. But I think that the basic facility of the language, it ought to be clear that that's you...

6t

(JAKE) This is where it seems to me a user group says, "This is what we really feel our next priority is." And then Jacques says, "Yes we can implement that" or "no we can't." That kind of a give-and-take seems like it would be reasonable.

6u

(JFV) Ok, right now I'm more concerned in setting up something like a file in somebody's directory... Letting people know that this file exists, that it will be updated, that somebody will look at it. That is what I have in mind...

6v

(JAKE) I would suggest that it be something that we can all get at one way or another. I think they should send it through the Journal...

6w

(JBN) Yes, it should be journalized, I think that's true...

6x

(JAKE) I guess I have some feelings along those lines: I have

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

been campaigning with users in that I have asked about this before. And I do think that the user doesn't always make the distinction of what it is he wants, whether it is a design problem, or a data-base problem, or what-have-you, he just decides he'd like to see something.

6y

Anyway, I guess what I'm saying is that there does need to be a mechanism where all of this stuff does go in focus. How that is, I don't know. We could make up a file called "Query Problems" in NETINFO...

6y1

(JFV) We could set up an ident of a group that could be composed of the four of us and Charles Irby that would be the special interest group - Ok, let me set up a NIC-QUERY Users Group Ident... (NOTE: THE NIC-QUERY IDENT GROUP HAS NOW BEEN SET UP . Please contact JFV if you want to be on the list).

6z

(JBN) And that would give prominence to it too. Then it would come out in the directory and...

6a@

(MDK) Fine,...

6aa

(JFV) And then there will be two things in the Journal, I assume. There will be a sort of technical description that I'll write just to be on record from the NLS standpoint: that there is a new thing in the system, and that needs to be in the NLS status. (NOTE: THIS DESCRIPTION HAS NOW BEEN JOURNALIZED AS REPORT#2) And the second thing is the RFC announcing it to the outside user, telling about the new QUERY. I need to do these two things, and we need to do them in a hurry. OK, the next thing is...

6ab

(JAKE) If I get user stuff coming to me, and it's by way of the Journal, I can do secondary distribution into NIC-QUERY, right? Or if I have something or any of us has something we think would be a good feature, we should send it to that group?

6ac

(MDK) Sure.

6ad

4. HOW SHOULD QUERY EVOLVE?

7

This section attempts to define ways of effecting a smooth evolution of our retrieval facilities into an expanded system. A primary question of concern to this group is the design of future extensions to QUERY. An alternative is proposed here,

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

namely the integration of QUERY-type commands within an
expanded NLS.

7a

7b

(JFV) In the context of what we are doing here, today, there
is one question I would like to ask (Mike and I had some
discussion about that last week): Suppose QUERY is here and we
can have a number of objectives out there. Is it really what
we want to do to develop QUERY to embrace all of these
objectives? Or are we looking at this from the wrong
standpoint?

7c

QUERY was something that was done quickly to satisfy a
special need, essentially the Resource Notebook type of
need, I tried to do it in a generalized way so that we
could use it to sort of educate people in doing other types
of information retrieval with NLS files, but really what we
need is a much more general way of handling data-base
facilities. Or maybe we should just take the suggestions
for future QUERY features but implement them in the context
of a completely new kind of thing. So maybe the idea is
not to let QUERY evolve at all. To just keep it the way it
is and design something better from scratch.

7c1

(JBN) With the idea that after all, until AFTER they have had
a language like this to use, we really don't know what their
comments about that kind of a language would be. Once you get
feedback about how they use that kind of a language, then you
evolve a new one.

7d

(JFV) Also in terms of its implementation, it is a departure
from the way NLS has been implemented and we need to have some
period of testing with that before we can go ahead and do
something more ambitious.

7e

(MDK) Well, I'd only feel comfortable with that, at least
right now, in the following context. We spend a lot of money,
time and effort teaching people how to get things out of the
computer and although QUERY has only three letters to learn,
it is still a lot of concepts to learn, till they finally know
there are only three letters, and what the power of those
three letters is. So, I'd hate to throw that time and money
out the window at date X and say, "Ok, you guys have shown us
what a great thing QUERY is, here's another great thing, show
us what a great thing that is.

7f

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

So what I would really like to see, if we go along a new channel, then QUERY really ought to be a command in that channel, and you ought to be able to drop back into the old mode and do all the familiar things that made us happy. Ok?

7f1

(JFV) All right, I'd like to respond to that quickly. What I'm assuming is that the commands will remain the same. Even though they are in a different language, you would still say, "Bring" and "Show". Only you wouldn't do it by jump-to-name any more, it would have an extended meaning.

7g

(MDK) Ok, the guy doesn't know that and doesn't care. Whether or not he turns on his TV and has compatible color and black-and-white, the guy doesn't care. Ok? All he wants to do is see his picture for a hundred dollars. If he has been turning on his TV for ten years and if the darn thing wants to put color out, that's fine, but he doesn't want it. He just still wants his black-and-white. And that's the guy I want to protect. Ok?

7h

(JFV) I agree.

7i

(JAKE) I'll go along with that analogy. He'll take color if he still only has to turn on the knob. I would like to make a distinction about QUERY language here for the record and to me, I think that one of THE features of QUERY language is that it has a tutorial style. I mean it can be used that way and that's how we have used it. And we may have a whole other system that is an information retrieval system if you will, but I still think we're going to need a tutorial style program that walks people through things until they get the hang of how they are organized.

7j

So even if Jacques thinks another route would be more successful, I think we still need this tutorial style. And if we are going to maintain QUERY the way it is, it needs at least a few more features in order to make it really pay off from the standpoint of the work on this end putting information in and being able to put other files into it. I don't know what you have in mind possibly for a much more encompassing set-up, but I feel we do need a tutorial type of program.

7j1

(JBN) Isn't it the ideal to have the novice and the expert mode for the same language? Like typing question mark for help? And as the user gets more experienced, he's not even

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

aware that there is a novice mode in that language. They still use QUERY, but they get carried right over everything they had to use as a tutorial before.

7k

(JAKE) Yes but what I'm saying has to do with what happens in a lot of systems: it's not the programming, but what the user sees. Everybody assumes that he is terribly sophisticated. And even if he IS on his own system, he may not know where the ON button is on the next guy's system, and that's what I don't want to see taken out of QUERY, because that's what I think is its great thing.

7l

Could I ask one more thing on QUERY? Are we going to have a phase II of that or is it now going to be under study for a while?

7ll

(JFV) I assume from our earlier discussion that it is frozen now for about two months to give users time to accumulate comments, to gain some experience, to really identify problems, and so on. Because if we keep changing stuff... you can't have an evaluation of something that is a moving target....

7m

(JAKE) You will be looking into that kind of thing?

7n

(JFV) Yes. And of course any technical thing that comes up. Any bug that needs to be fixed, I'll fix it.

7o

(JAKE) Then all suggestions should go to that ident group, NIC-QUERY?

7p

(JFV) Yes.

7q

(JAKE) Because I've got some I've been saving up.

7r

5. THE CATALOG AND ON-LINE INDICES.

8

The Catalog is a major consumer of our computer resources and an example of a reference file that is central to the "workshop" concept. This section introduces several specific design considerations related to linking of on-line indices.

8a

(JFV) Now, again with the Catalog. The purpose is not to go into the design -that is going on at other meetings- but just to see where are the limitations of the NLS structure, without

8b

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

going into the history of why it was set up the way it was set
up.

8c

What are we going to need if we remove it from the ARC
environment, doing it on the network? what are we going to
need in terms of structure? and assuming you could do an
ideal catalog system in the next phase, what would be its
structure and what kind of support would we need? For
example, as a specific question, could you do it under the
QUERY language? and what would the QUERY language or some
future phase of it have to have in terms of features in
order to be able to support that? Is that a fair question,
a fair way of putting it?

8c1

(MDK) Yes. I think that's really nice because I've been
wrestling with the question of what is needed in QUERY to
support the online use of the indexes.

8d

The crying need is to be able to show multiple occurrences
of a single name. We can't use the system at all because
that's not there. Kudlick has at least two pages in there
and he can see but one of them. He can't learn about any
of them. The second CRYING need (I use that word only as
an exaggeration — laughter from group--) that thing we
can't do without, is the ability to be able to take a link.
And have a guy say, "Here's Kudlick's paper all right, but
now I want to read it." And now you get into a file that
isn't formatted for QUERY any more, probably never will be.
But you at least want to show it to them, you know, print
it. Statement one until he types control o or what ever.
And when he hits control o, which is the only way he can
stop seeing it, you are back in QUERY.

8d1

(JAKE) I would like to add another thing to that. That he
could do something like control p and somehow get a printed
copy of the thing. I don't know how that would work. Whether
it would be offline or online or...

8e

(MDK) Ok, now we are getting down to details, but I thought
that is what you opened up.

8f

(JFV) Yes, yes. I'd like to answer too, not just answer,
counter what you were saying, but trying to keep open the
argument, answering two things.

8g

The first one is with respect to the multiple occurrences
thing. Mil has set up for me a little experimental file

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

that is a very small bibliography with names of authors, publications in which an article appeared, a little abstract... It is a file that we can use for statistical purposes, so that we don't have just abstract ideas (about commands that would take care of multiple occurrences), we can tie them to an existing file. It's not going to stay that way, but it is just so we can play with it.

8g1

The second thing is about the links. There is a tendency among people, to say, "Well we can solve any problem we have, we'll solve it with a link", "If we run out of space, we'll link to another file" ... but that's the kind of thing I've been trying to stay away from. Hence the dividing up of the Resource Notebook into smaller files WITHOUT using links. Because that is the kind of thing that could be a time bomb in the system. Having links without having link management is really having nothing at all, because we don't really MANAGE links. I can have a link to file A that links to file B that links to file C, but if I delete the statement in file B, I have links that lead to nowhere.

8g2

Also, the moment you have a multi-file system - (and there are systems on the market that do support linked files), you have a problem in updates, for example you have a problem in triggered updates. There are very few systems that really try to handle that problem completely and NLS doesn't at all. So if we're going to do that, let's do it right and really look at the problem of triggered updates. For example, suppose that someday I realize there was an error in spelling your name, and your name has to be respelled another way. The system should look at the links, and at all the files that it links to and make sure that it is changed also. And that should happen automatically, and that's a triggered update problem. You pay a price for that.

8g3

(MDK) Ok, I'd like to respond to that, I think that's very good thinking. We do have a problem in our system. A very simple one sometimes, but sometimes a very annoying problem. The problem is the way our damn file names come about and what they look like once they come about. Ok? And if you look at the name of the author index, you will find that it is a string of 15 letters and unless you're Beau or Walter and you swear by these letters as having unbelievable meaning and profound implications, then you can't remember those goddamn letters and all you want to say is "Authors".

8h

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JBN) It used to be that way, you know. 8i

(laughter) 8j

(JBN) I've got to be right once in a while. 8k

(JAKE) You're right, you're right, I agree. 8l

(MDK) So the problem is obvious. If you don't have links, you've got to spell the filename out by hand. And if you try just typing those damn names, you'll never get it right. Ok? So we have to think of that problem at the outset. But I agree with you, links are not the answer, and we don't have to tie ourselves to the concept if we have another simple-to-use mechanism. The thing with links is, that once you learn how to type your three or four hieroglyphic characters, you can use them with constant ease. Ok, just space, up-arrow. No matter how dumb in connotation that is, it's terribly easy to do. And you don't have to type angle bracket and then a string, and then maybe a close angle bracket and then another string and a period. 8m

6. POSSIBLE ENHANCEMENTS TO NLS. 9

A future COMMON DATA-BASE system will need to combine the features of our existing QUERY mechanism with an upgraded Journal system. This section addresses the problem of on-line dialogue in terms of interrogation facilities, string specifications, and so on. 9a

----- 9b

(JAKE) Could I add what might be a way to try links and see if we want to go any further. We could start out with a linking mechanism in QUERY that would go only to journal items. Those items we can pretty much be sure will be there. 9c

Some Journal items have later versions, but let the person who maintains a reference data-base be sure that links lead to valid, current Journal items. This would apply only to data-bases in QUERY that are termed "reference" or "maintained" such as the Resource Notebook or ARPANEWS. If a user pull in a random file, he's got to take his chances with whatever links happen to be in that file. 9c1

(JFV) This is exactly what I want to get at, because this is exactly under the mandate of this little study. One

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

recommendation that could come out of this is to look at the Journal. The Journal is one of the data-bases, and ought to be included in this survey, and all the links there have to be explicitly looked at. One possibility would be to look to see if there is any inexpensive way of making the Journal and QUERY compatible.

9d

(JAKE) That would be very interesting, the only thing I was trying to say is that the Journal is there, and if you link to something in the journal, you can more or less say that it will really be there. That might give us a little laboratory to see what else might be in that sea of problems.

9e

(JFV) Well, I would be very disappointed if the future retrieval mechanism doesn't include the ability to update as a general facility. Then you already have half of a Journal. You have the ability to add to a file which is a journal file. Now you need another facility which would make that record visible only to certain groups of people, which means you also have to look up the ident file. But I'd be disappointed if we came up with a design that couldn't really support both of these things, and could also support a Resource Notebook, and so on, without having dedicated processes supervising all these activities, you see. That's exactly what I want to get at.

9f

(MDK) One more item on that general list of things that QUERY ought to have when we move into the area of cataloging and indexes: when you say, "Show X". and you type X in, which may be a string of 5-10 letters. You may misspell it, you may not know how to spell it. If the guy's name is Davidson, and you want to look up his papers, you don't know how to spell Davidson. It's not so obvious how to spell it. So I'd like to have the system come back and say, "Here are the five names of [Davidson] beforehand alphabetically, and the five names [Davidson] afterwords the way you spelled it. Or even if you spelled it wrong and there isn't a match, it ought to come back and say, "Here is the best I can find, which one of these do you want?"

9g

(JFV) You are running into a system where you specify "Give me all the authors that have this prefix, or that suffix, or that string in the middle."

9h

(JBN) Yes we really need that.

9i

(MDK) Charles happens to be working on that now for the ident

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

file, he's had that in there most of the time under a different guise, but you can indeed say Kud and get all the people whose names begin, or lic and all the people who have that as a string, or ck and all the people who end in that. Can you do that? Yes, I think you can do all three of those things, and that would be nice to have. And this is kind of an expanded HELP type feature that we really need....

9j

(JBN) I'd like it to work better than the NASA one does, in that I'd like to get the exact match when there is one. Without any indication of "Here is what's on both sides." But that if it doesn't find exactly what you say, then it immediately gives you the things all around it without having a prompt or anything...

9k

(MDK) The problem is: you may not know when you have an exact match. For example Davidson can be spelled at least 3 ways. One Davidson, the otherway, Davison, doesn't have a d and it may have two S's which is a third way... you don't know which one to choose.

9l

(JBN) That's true if the ambiguity occurs far enough down-stream. If it occurs in the second or the third letter, it's not going to be able to prompt you anyway...

9m

(MDK) That's true.

9n

(JBN) So I sort of like the idea that, either you spell it right, and if it gives it something, and if you look at it and say, "No, that's not what I wanted, then you can think of the options.

9o

(MDK) I'll buy that.

9p

(JBN) I find it terribly tiresome in the IBM system that you're always getting everything around it.

9q

(JAKE) Something that we had in INFAC, which I think is fairly straight forward, is this: you look for Smith and it says, "Smith, J. A., Smith, L. B." you know, it gives you some options. You pick one of those and it will say: "ten items, do you wish to see them?"...

9r

(JBN) Yeah, that's what I don't like, something like that gets awfully tiresome if you do it at all. What I'd like to see is Smith * if you don't know his initial, and right away it knows, I've got a problem here, so I have to display. And if

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

you truncate, you know, whatever the convention is..., but *
is often used or something like that. So if you don't know
how to spell the end of his name, you say, Dav* and the system
knows right away: OK, I've got to display a range of things
because the guy knows that he doesn't have the complete
thing."

9s

7. CATALOGS AND NLS STRUCTURE.

10

The existing ARC Catalog does not use the NLS structure. Even
after the moving of the ARC Catalog to the Net, an important
point in the support of future retrieval applications will be
the optimization of the structure representation to support
referencing work.

10a

10b

(JFV) I think we are getting too much into designing a future
language, and I would like to stick with existing structure.
I have a question I would like to ask: "How expensive would it
be to support the existing catalog with all its structure
under NLS? Are there data about this? What would be the
overhead in terms of structure? What are all the data
elements you want in the catalog? And..."

10c

(JBN) The existing catalog is something that we need to ...

10d

(JFV) No, I don't mean the existing Catalog, but assuming that
you were to support a collection of entries like this under
NLS, what would the structure look like, and would there be
drastic ways of optimizing that?

10e

(MDK) What do you mean by "Structure"?

10f

(JFV) You know that NLS separates the text from the structure
and that you can indeed have a separate count of the text
pages and the structure pages. Well, what I want to know is,
"What would be the ratio of structure pages to text pages in a
bibliographic catalog if you were to implement it under NLS,
and that is related to how deep a structure you need. What
would the tree look like, and how many elements would you
need? So you don't have to answer that here, but is there
some document I could get that would give me some feeling
about that?"

10g

(JEN) I don't know...

10h

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

(MDK) You know Jeanne, I can't answer this for you, because you are so much more involved in the Catalog than I am, but it seems to me that in terms of NLS structure, simple definition of hierarchy, there's not a need for more than two levels at any point in the catalog. Is that true or false? 10i

(JBN) That seems right. 10j

(MDK) Ok, it's just all one level almost, with possibly some auxiliary information. 10k

(JBN) I don't want to design anything that fits the present catalog if there is any possibility of getting something else (That's why I jumped in in a hurry), because the formatting we are using now is SO bad. It was the best we could do at the time and we did it to get a catalog out, but we need two levels, for instance, we need a keyword index, and we need an organization index and the only way to do those is two levels. And we already have in the number listing, I think, two levels, for instance there is the entry, and there is the block of entry which is formatted to match it. 10l

(MDK) Abstract or something. 10m

(JBN) Yes, whatever else goes in there. And it's not just the one line, we have the one line thing, and that's one level, but the others should be two levels; two levels is adequate to my mind. I think that that would take care, but again, I would hate to design something that we couldn't expand to three levels if we wanted. 10n

8. TOWARDS A "DATA-BASE LABORATORY". 11

Possible directions for experimenting with data-base prototypes are defined in the context of our existing NLS environment. The concept of a "laboratory" is introduced. 11a

----- 11b

(JFV) I assume that my report will center on how to optimize the ratio of structure to text in future data-bases. This seems to be the main thing of an initial contribution from our group. And to do that, I want to get some feeling of what the situation would be with the Catalog and also with the Resource Notebook. With the Resource Notebook, we have something that is accessible because it is already set up under NLS. And also we know how many entries we need and what the tree looks like. 11c

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

(JBN) Would it be worthwhile to try to do the Catalog to suit the QUERY language, to just make a few little formats to see what it would look like? 11d

(JFV) It would be interesting to do that with two or three typical entries, 11e

(JBN) Just enough to see what's involved with it. And then we have to project ourselves into the expert to the point where we figure out if it is any advantage. 11f

(JAKE) Well, another thing we might be able to do, to give us a "Laboratory", would be to take the references I have cited in the Resource Notebook, and just play around with them. 11g

(JBN) The references are such a whole different animal from the Catalog entries. You know, the input that we use is entirely different, with completely different programs that would have to be written. So this is the problem I see with Mil's test file: It is simply a list of entries in a bibliographic format, and trying to sort that out with a program, I would think would be more difficult than staying with the concept we already have of the asterisk and the fields divided that way. 11h

(JFV) I am just trying to get a feel for the static file: what would be the ratio of the structure to the text if you were to support that. You see, in the NLS text, in the tree, with the full structure of the catalog, you would have a certain number of computer words explaining to the computer what the structure of the tree looks like. And that is overhead you have to pay to store very limited information, in the entries themselves, and I want to get at that ratio because I can see ways of optimizing that. 11i

(JBN) Yes, let's get at it. 11j

(MDK) Jacques, I think the answer to your question is epsilon, and epsilon can be almost as small as you want it to be because in the catalog there isn't any structure more than two levels, and there is volumes of data. Ok? And Jeanne... 11k

(JBN) Yes, I'm having trouble trying to handle it, you know, to understand well enough the questions. If you know the answer, you tell him the answer. 11l

(MDK) Well, let me tell you the question. When you quoted the

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

Ruth Davis Paper, you had an awful lot of structure because that's the way it was, and you had paragraph one, and subsection 1A and 1A1 and so forth, you went down four or five levels. And what I understand Jacques question to be is, "How much of that kind of thing, levels, is in the catalog?" 11m

(JBN) Ok, we have only one at this point. Though we would like to have two... 11n

(JFV) No that's not true, because in the Catalog you have different types of entries. you have the date of publication, the author, and so on. All of these would have to be seperate statements in NLS, you know, if you are doing it in a clean NLS way. Every statement has a pointer, and all the nice things that go with that. 11o

(JBN) That seems like a bad way to go doesn't it? 11p

(JFV) That's the problem. You see, either we buy the NLS philosophy, or we don't. And if we buy it, then we have to pay a price for having all those nice things like statement numbers, statement names, statement signatures, and all that if you want to do a full maintenance of the Catalog: you want signatures, you want all those things, if you are going to have an online Catalog of that type. This why we're here: to anticipate, to try and not to have to pay that price of making heavy structures and I think there are ways of doing that, but I need some indication of that... 11q

(JBN) Ok, I'll get you that. 11r

9. USER-CREATED DATA-BASES. 12

This section aims at documenting the problems encountered by users trying to support thir own retrieval and documentation applications under NLS. The Resource Notebook is a case in point: difficulties arise in using a single file for on-line query and off-line printing. 12a

----- 12b

(JFV) I'd like to ask the same question now about the Resource Notebook. Going on to the next point on the agenda, I think we are getting near the end. What are the limitations of NLS (NLS itself now, not the QUERY language) in your own experiments with the Resource Notebook? 12c

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JAKE) There are about three things I find to be a problem
with QUERY and the Resource Notebook. 12d

(JFV) Well, it's not QUERY now, it's NLS. When are you limited
in handling the file structure? You had some discussion with
Charles the other day, about levels. You wanted to extract all
of the entries of the same level for editing purposes? .. all
of the entries of the same name? 12e

(JAKE) I asked for a viewspec of "statement names only" so I
could pull out the structure of a file without pulling out all
of the data. With current viewspecs the best you can get is a
view of the first level, or of the first line. But I don't
really want the first line, I just want to see what my Outline
is. And you could use the Outline for a table of contents if
you could pull it out, along with statement numbers. Maybe
with some variation of that you'd be able to do rough
indexing... I haven't thought it out terribly clearly... you
ought to be able to do it for a table of contents. 12f

(JBN) I don't understand, because we already have one way of
doing a table of contents. It doesn't work, you have to make
two files to do it. But why is this different from just using
a viewspec that gives you the levels you want? 12g

(JFV) She wants all the levels, but she wants to see only the
statement names... 12h

(MDK) There is another problem hidden in what Jake says, and
that's something that NLS doesn't address. Not all branches
have the same depth that you want to look at. Some branches
have only one level of depth. Then you only want to see that
statement name. Then the next branch may have two levels that
you want to see. Then the next branch may have five levels,
whatever. So the question is, as you move from branch to
branch, the number of levels you want to see, it varies, and
NLS doesn't let you do that. 12i

(JAKE) Well, as you open it up further, you can't see your
structure any more because the text stretches out and you
can't really see your outline. 12j

(MDK) Some chapters in the book have more sections and
sub-sections than other chapters. And when you encounter
those chapters, you want to know what the hell the whole
outline is, for that chapter. 12k

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JBN) You mean if your structure is fairly simple and you have several paragraphs under it. You would like to know what's under there in the way of bulk as well as what's under it in the way of structure? 12l

(MDK) Just what's under there in the way of structure. 12m

(JAKE) The bulk is what you get now. 12n

(JBN) If there are ten statements at the fifth level, you only want to see one of them? 12o

(MDK) No,... 12p

(JAKE) Only the statement name... 12q

(MDK) Wait, wait, wait... 12r

(JFV) The problem is that you want to see all that stuff, but you never know ahead of time how many there will be. So if you turn on a viewspec, 12s

(JBN) ...all you see is a whole page at level 10... 12t

(JFV) You want to see n levels, but n isn't something you can specify in advance, it is something that is file-dependent. It depends on the data... You have to wait till you get there. There is no way to say that at the beginning. 12u

(MDK) Let me draw you a picture... 12v

(JAKE) I think we are missing the point. What I'm asking for is statement names, not levels. Levels are what you get now, you can't see where the statement names are because you've got so many first lines of things stuck in there. 12w

10. TEXT FORMATTING WITH NLS STRUCTURE. 13

The discussion concludes with remarks about text formatting and the possible conflict between "true" structure in the hierarchical sense and text organization in the editing sense. 13a

--- 13b

(JFV) You said you had three things. Is that one of them? 13c

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

(JAKE) Well, actually I have a dilemma between QUERY and NLS. And that is: QUERY takes away all of my structure, which means I have to format files by using what I call more traditional structure such as carriage returns, spaces and tabs and linefeeds and that kind of thing. And those seem to be somewhat incompatible with NLS files.

13d

(JFV) I don't get that.

13e

(JAKE) Ok. I have a statement name that QUERY ties into. Then under that, I am allowed essentially, one large paragraph. And if I want that to look like anything more than a paragraph, it can have several statements; but they have to all be at the same level. If I want it to appear that I've got levels I have to format them. And that's a hell of a lot of work. And that's where we got into all of the problems with the tabs and all that Jazz.

13f

(JFV) Ok, let me point out that this was done in QUERY by design. That is designed so there can be hidden levels that the online user doesn't see. That was the purpose of it: in the Resource Notebook, we have large blocks of text that we don't want to show the online user, ever. So the rule is, whenever those are two levels down from a named statement, they will be invisible online. I think it is a handy thing to have. The problem you have here derives from an NLS convention which is that when you go down one level, you go to the right three characters. You see, the structure in NLS is also an editing rule, ok?

13g

(JAKE) Ok, but...

13h

(JFV) To go down, you go to the right. It doesn't have to be that way. I could go down conceptually. I could say, "This is under that" without indenting it...

13i

(JBN) Oh...

13j

(JFV) ... In NLS you have a combination of indentation and structure. Given the indentation, you can derive the structure, given the structure, you can derive the indentation. Here you are using the structure to format a table, but you are not really using the structure concept. See what I mean?

13k

(JAKE) Yes.

13l

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common Data-Basse System: A user viewpoint.

(JBN) This is a visual clue to the guy that this is less important, or this is a substatement to something else, while structurally it's not. And I've done that with the other thing too, but I find that to be ok, given the alternative which is that you then have to look at all the things at a certain level if you don't make these only appear to be indented. That's ok with me, because I've gotten out of the NLS clue that this is really a sub-statement, it's not a substatement, it's just visually I want this to obviously be less important or a subdivision textually of the other...but at the same level.

13m

(JFV) We are now talking about a structure limitation of an automaton that has to be able to recognize two situations: i) when you want things to the right because it's prettier, and ii) when you want things to the right because it has to be under it in terms of structure... those two things don't have to be tied together. The fact is, that they are. It is a very interesting thing to go through the documentation of the NLS code itself, which was written by people who were using structure extensively, and you will find that they do it exactly the way you do it with your tables, that is, with carriage returns and spaces

13n

(MDK) Why is that?

13o

(JFV) Because they were using the structure for something else (namely the code itself), and they just wanted a pretty table or a pretty comment, and they just spaced all over with tabs, carriage returns, and so on.

13p

(JAKE) Ok, let me say a few things here for the record. One is that even though I'm stuck with one level of NLS, I figure that the things I indent are subsets of what they're under (and are therefore sub-levels). So I've got a mini-NLS structure going here but it's got to be formatted a different way. Ok, that's one problem.

13q

The other problem is when a file comes out and is then an NLS file in its own right, not under QUERY, it causes problems because people don't realize that the formatting is done by carriage returns, spaces, and so forth. And they are not expecting that. They think if they see an indent, that that's another NLS level, so when you try to give this to clerical personnel, they really have to know how things are laid out before they can deal with it.

13q1

DATA-BASE FACILITIES. Report #3. Language Facilities in a Common
Data-Basse System: A user viewpoint.

Ok, a third thing is that when you're faced with using
output processor directives and you have other things in
your files like carriage returns, you've got to make sure
that you have carefully "nulled" all that other structure
before you put your output processor directives in, and
that's not trivial.

13q2

(MDK) It's tremendous as a matter of fact.

13r

(JAKE) Right.

13s

(JFV) The general feeling I get from this, to sort of
summarize, is that we have to learn to deal with structure
that's separated from data, in a much more formal sense than
we have been doing so far. We have to be able to "factor out"
the structure in data-base types of operations. And I'd like
to tie that with what Mike was saying about the Output
Processor. I think we need to discover some way of describing
things that apply to a file tied to a structure, whether it is
this table business, or whether it's output processor
directives, without actually imbedding it within the data.

13t

13u

JFV 30-MAR-73 15:58 15410

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Data-Basse System: A user viewpoint.

(J15410) 30-MAR-73 15:58; Title: Author(s): Vallee, Jacques F. /JFV;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JFV;
Origin: <VALLEE>DFR.NLS;5, 30-MAR-73 15:44 JFV ;

The Effect of the Computer Augmentation of Human Intellect on
Communication in the Group & Organization: A Proposal

This is offered as an overview of what I am doing in the area of human communication and AHI. Your comments & suggestions are welcome. I am in the process of recording observations based on our initial experiences at RADC. This proposal represents only one part of the evaluation /analysis of the EFFECTS of AHI as we build a workshop. The review of literature represents my homework more than anything, but it indicates how I got to the problem. Thank you for your interest.

The Effect of the Computer Augmentation of Human Intellect on
Communication in the Group & Organization: A Proposal

THE EFFECT OF THE COMPUTER AUGMENTATION OF HUMAN INTELLECT ON
COMMUNICATION IN THE GROUP AND ORGANIZATION

by

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A Proposal

CONTENTS

Section	page
BACKGROUND.....	1
STATEMENT OF THE PROBLEM.....	8
REVIEW OF THE LITERATURE.....	9
HYPOTHESES.....	26
METHODS AND PROCEDURES.....	28
CONCLUSION.....	41
REFERENCES.....	42
APPENDICIES.....	47

Note: This paper was printed on the experimental printer at the Rome Air Development Center under the control of the PDP-10 at the Augmented Human Intellect Research Center, Stanford Research Institute, Menlo Park, Calif., through the nationwide ARPA Computer Network.

15411 Distribution

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The Effect of the Computer Augmentation of Human Intellect on
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r.js bug

on 30 mar at about 2:00 pm i was unable to get past login to your
r.js service. just thought i'd let you know for your information.
j. pickens.

1

15412 Distribution
Krilanovich, Mark C. ,

rjs bug

(J15412) 30-MAR-73 14:11; Title: Author(s): Pickens, John R. /JRP;
Distribution: /MCK; Sub-Collections: NIC; Clerk: JRP;

KIRK 30-MAR-73 21:50 15413

What I would LIKE to do.

cc: MDK JCN DVN

What I would LIKE to do.

Memo to RWW

1

In thinking over our conversation at the end of the day last friday, It occurred to me that I may have implied I did not like your idea about working as a research assistant, doing some typing as well as the other projects that I now have my finger in. If I left you with this impression, I am sorry. Because this is exactly what I think is appropriate for the functions I am currently handling.

2

I am not dissatisfied with my current position as it evolves into more and more interesting things. What I don't like, and would like to get rid of, is a feeling I have of inequality in relation to other people doing the same sort of things here at ARC that I am doing.

3

If your question about what kind of function I would LIKE to provide here at ARC is still of interest, let me start from the ideal and then get more specific. I am interested in providing, to as many people as possible, easily accessed online encyclopedic information using DNLS: NLEB (oNLine Encyclopedic Bush see -- Kelley, Science, 081:wy).

4

Along those lines, any dynamic information retrieval projects would be interesting:

5

an all-arc index,

5a

(DVN and MFA have asked me to consider something like this)

5a1

the NIC locator

5b

(Mike Kudlick is familiar with my abilities in this area)

5b1

the NIC collection of documents

5c

I have some strong feelings and solutions about the limitations of Query. (Again, MDK knows what these are)

5c1

NLS command documentation

5d

(I am currently working on updating the Journal documentation for Marilyn)

5d1

The online SIGART Newsletter

5e

(I could be called the NLS Editor as I do all the the

What I would LIKE to do.

Editor type functions necessary for online and hardcopy
formatting) 5e1

Structuring and keeping up the NP file. 5f

I am also interested in decision analysis. 5g

(Paul knows my interest in this field.) 5g1

I would REALLY enjoy teaching NLS to other people. 6

I am also very interested in Video Tape as a medium of
expression. 7

I have started writing user programs. 8

Since my ability has not yet been established in this area,
people do not give me things to do. However, Dean has given
up on changing the directory programs, so if we are going to
get the necessary changes, it looks as if I am going to have
to do them myself. 8a

This should give you some idea for what I would like to do. 9

KIRK 30-MAR-73 21:50 15413

What I would LIKE to do.

(J15413) 30-MAR-73 21:50; Title: Author(s): Kelley, Kirk E. /KIRK ;
Distribution: /RWW MDK JCN DVN ; Sub-Collections: SRI-ARC; Clerk:
KIRK ;

LPD 30-MAR-73 0:05 15414

Addendum to MPS conversion document

already distributed to NMDT

Addendum to MPS conversion document

The recent NMDT document on NLS re-implementation plans, coupled with my trip to the East Coast, prompts me to suggest a sixth implementation plan for your perusal.

1

While I don't really expect this plan to be adopted, I hope it will inspire the NMDT to obtain a close comparison with the favored Plan 5.

1a

PLAN 6 -- Reimplementation of NLS using ECL

2

This strategy has exactly the same properties as Plan 5, modulo differences in features and approach between MPS and ECL.

2a

Advantages of MPS:

2b

Somewhat more flexible control facilities (no syntactic distinction between different control mechanisms);

2b1

Potentially superior data definition mechanisms, though these are still undebugged even conceptually;

2b2

Much better facilities for specifying binding of names.

2b3

Advantages of ECL:

2c

A working system (includes interpreter, compiler, debugger, measurement package) now running;

2c1

A larger development staff with a more thorough dedication to development of a programming laboratory, since they have no external commitments (such as NLS);

2c2

The prospect of more fully optimized code through the "closure" facility;

2c3

Complete documentation and definition of the language and the user interface to system features;

2c4

Adoption of LISP (a result-oriented language) rather than L10 (an implementation-oriented language) as the semantic base.

2c5

Discussion

2d

While MPS includes a number of unquestionably superior features, it has never been documented or designed with the same care as ECL. ECL development is well along and being

Addendum to MPS conversion document

pursued by a bright and energetic team. Furthermore, theoretical understanding of programs is a significant component of their research program, so that we may expect results in areas such as automatic design of data structures or program verification. ECL is "free" -- anything we contribute to their development is a bonus.

2d1

I would like very much to see a believable approximate timescale from the NMDT for the following (which I can produce within a week for ECL):

3

A clear specification of the semantics of MPS control structures, binding facilities, and data definition facility.

3a

A complete specification of the syntax of the language.

3b

A list of the space occupied at runtime by the various support facilities.

3c

A reasonably optimizing compiler including facilities such as compiling specializations of procedures upon request.

3d

An implementation of the data definition facility.

3e

A complete interpreter for the language. "Complete" means "making it possible to run any program without using the compiler".

3f

A complete specification of the MPS virtual machine in terms of accessing functions, so that (for example) one could write a program to symbolically dump the entire state of the system.

3g

Addendum to MPS conversion document

(J15414) 30-MAR-73 0:05; Title: Author(s): Deutsch, L. Peter /LPD;
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