JBN 8-AUG-72 11:10 11307

AFETR Recognized as Network Site

NIC recognizes Air Force Eastern Test Range as a Network site, following your Journal item of 4-AUG-72, 11222. 1

Their Station Agent and Liaison, Mrs. Jane Moody and Mr. Mike Young, will receive a set of functional documents and will be put on the respective mailing lists. 2

We have requested an Enterprise number for them. 3

The site will haveeq the ident AFETR. 4

JBN 8-AUG-72 11:10 11307

AFETR Recognized as Network Site

(J11307) 8-AUG-72 11:10; Title: Author(s): Jeanne B. North/JBN;
Distribution: Bruce A. Dolan, Jeanne B. North/BAD JBN; Sub-Collections:
NIC; Clerk: JBN;
Origin: <NORTH>SAFETR.NLS;2, 8-AUG-72 11:05 JBN ; ,SCR=2;

it now seems that the dialup lines are not providing the service necessary.

would users please contact donald limuti in regard to this service.

1] what is the nature of the problem?
2] what phone numbers are you using?

in addition, would users having problems switch to a lower speed and determine if it persists.

(J11308) 8-AUG-72 11:10; Author(s): Don Limuti/DL; Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DL;

DVN 8-AUG-72 11:18 11309

Job Situation

Dear David:
The only 2 job opportunities at ARC are the assistant manager for the NIC and a systems programming job. You don't have enough experience for either. I have circulated your resume to a couple of people in other parts of SRI who have to do with hiring computer people. That's the best I can do for the moment. Good luck.

1

DVN 8-AUG-72 11:18 11309

Job Situation

(J11309) 8-AUG-72 11:18; Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: David H. Crocker, Douglas C. Engelbart/DHC DCE;
Sub-Collections: SRI-ARC; Clerk: KFB;

Xed

This exercise is most useful as it appeares when printed through output device teletype. 1

SYNTAX: SP.0 CA [ ]
o[utput] d[evice] t[eletype] CA [ ] 1a

Conventions of this exercise: 2

In commands, what the system echos is in square brackets, e.g., [echo]. 2a

Statements printed with their left margin in the center of the page are comments. 2b

On most machines CA=↑D; CDOT=↑B; SP=spacebar. 2c

For futher details of character and syntax conventions, see the TNLS User Guide (nic,locator,2a2:xbb) 2d

n[ull file] NEWNAME CA [ ] 3

i[nsert] s[tatement at] CA [ ] CA [ ] 4

Leave your stepping stones behind, now something calls for you.
CDOT
d CA [ ] 5

The cdot allows you to enter a series of statements without repeating the first part of the insert command. The d enters the following statement one level lower in the hierarchy. Otherwise each statement enters at the level of the previous statement. 6

But whatever you want to keep, you'd better grab it fast. CDOT 7

Following CDOT you may use SP instead of CA. 8

SP Yonder stands your orphan with a gun. CDOT 9

SP Crying like a fire in the sun. CDOT 10

SP Lookout boy, things are coming through. CDOT 11

SP It's all over now, Baby Blue. CA 12

Xed

To see what you have. 13

p[rint] p[lex] .1 CA [ ] CA [ ] 14

Leave your stepping stones behind, now something calls for you. 15

But whatever you want to keep, you'd better grab it fast. 15a

Yonder stands your orphan with a gun. 15b

Crying like a fire in the sun. 15c

Lookout boy, things are coming through. 15d

It's all over now, Baby Blue. 15e

If you wanted to duplicate this branch, you would: 16

c[opy] b[ranch to] .1 CA [from] .1 CA [ ] CA [ ] 17

If you want to see what you have: 18

p[rint] b[ranch] .0 CA [ ] m CA [ ] 19

The "m" between the CA's makes statement numbers print out. 20

<USERNAME>FILENAME;NLS;# Date Time IDENT; 21

1 Leave your stepping stones behind, now something calls for you. 22

1A But whatever you want to keep, you'd better grab it fast. 22a

1B Yonder stands your orphan with a gun. 22b

1C Crying like a fire in the sun. 22c

1D Lookout boy, things are coming through. 22d

1E It's all over now, Baby Blue. 22e

2 Leave your stepping stones behind, now something calls for you. 23

2A But whatever you want to keep, you'd better grab it fast. 23a

Xed

2B Yonder stands your orphan with a gun. 23b

2C Crying like a fire in the sun. 23c

2D Lookout boy, things are coming through. 23d

2E It's all over now, Baby Blue. 23e

You could get rid of the duplicate branch by deleting it as a branch, but, for the sake of exercise, let's dispose of it piecemeal. 24

d[elete] g[roup at] .2a CA [ ] .2c CA [ok?] CA [ ] 25

p[rint] b[ranch] .2 CA [ ] CA [ ] 26

TNLS will keep printing out statement numbers with the text until you command it to stop. 27

2 Leave your stepping stones behind, now something calls for you. 28

2A Lookout boy, things are coming through. 28a

2B It'a all over now, Baby Blue. 28b

Note TNLS has renumbered the remaining statements. 29

d[elete] p[lex at] .2b CA [OK?] CA [ ] 30

The address 2a would have specified the same plex. 31

p[rint] b[ranch] .2 CA [ ] CA [ ] 32

2 Leave your steping stones behind, now something calls for you. 33

d[elete] s[tatement at] .2 CA [ok?] CA [ ]. 34

p[rint] s[tatement] .2 CA [ ] [.2?] ↑x (command delete) 35

It questions you because there is now no statement 2. 36

The last four lines of branch one make sense as a stanza by themselves. If you wanted to set them up that way. 37

c[opy] g[roup to] .1 CA [ ] [from] .1b CA [ ] .1e CA [ ] CA [ ] 38

p[rint] p[lex] .1 CA [ ] CA [ ] 39

1 Leave your stepping stones behind, now something calls for you. 40

1A But whatever you want to keep, you'd better grab it fast. 40a

1B Yonder stands your orphan with a gun. 40b

1C Crying like a fire in the sun. 40c

1D Lookout boy, things are coming through. 40d

1E It's all over now, Baby Blue. 40e

2 Yonder stands your orphan with a gun. 41

3 Crying like a fire in the sun. 42

4 Lookout boy, things are coming through. 43

5 It's all over now, Baby Blue. 44

Note that the system enters the group starting at the next available statement number below the address you entered. 45

You might want to handle this short stanza by a special name that would stay with it as the numbering changes. 46

r[eplace] c[haracter at] .2 CA [by text?] CA [yes]
(shorty) SP Y CA [ ] 47

Xed

We will discuss the commands that affect characters futher below.

48

p[rint] s[tatement] .shorty CA [ ] CA [ ] 49

2 (shorty) Yonder stands your orphan with a gun. 50

To arrange the lines following the first line as substatements, move the group "down": 51

m[ove] g[roup to] .shorty CA [from] .3 CA [ ] .5 CA [ ]d CA [ ] 52

Now they form a branch with the source .2 (or "shorty"). 53

p[rint] b[ranch] .shorty CA [ ] CA [ ] 54

2 (shorty) Yonder stands your orphan with a gun. 55

2a Crying like a fire in the sun. 55a

2b Lookout boy, things are coming through. 55b

2c It's all over now, Baby Blue. 55c

Note that to move some entity, the system first copies it and then deletes the original. 56

These two stanzas are now two branches that can be transposed. 57

t[ranspose] b[ranch at] .1 CA [and] .shorty SP f CA [ ] 58

p[rint] p[lex] .shorty CA [ ] CA [ ] 59

1 (shorty) Yonder stands your orphan with a gun. 60

1a Crying like a fire in the sun. 60a

Xed

1b Lookout boy, things are coming through. 60b

1c It's all over now, Baby Blue. 60c

2 Leave your stepping stones behind, now something calls for you. 61

2a But whatever you want to keep, you'd better grab it fast. 61a

2b Yonder stands your orphan with a gun. 61b

2c Crying like a fire in the sun. 61c

2d Lookout boy, things are coming through. 61d

2e It's all over now, Baby Blue. 61e

You might want to replace a line or a stanza with something else. In the simplest case you would replace one statement with another. Such replacement is equivalent to a delete and copy: 62

r[eplace] s[tatement at] .1a CA [by text?] n[o] .1c CA [ ] 63

p[rint] p[lex] .1a CA [ ] CA [ ] 64

1a It's all over now, Baby Blue. 64a

1b Lookout boy, things are coming through. 64b

1c It's all over now, Baby Blue. 64c

You might prefer however to replace the line with one of your own. In that case you take the yes approach. 65

r[eplace] s[tatement at] .1a CA [by text?] CA [yes]
Looking for his mother in law. CA [ ] 66

p[rint] b[ranch] .shorty CA [ ] CA [ ] 67

1 (shorty) Yonder stands your orphan with a gun. 68

1a Looking for his mother in law. 68a

1b Lookout boy, things are coming through. 68b

1c It's all over now, Baby Blue. 68c

Note that if you replace a branch, plex, or group with Lit, the Lit must appear as one statement. 69

r[eplace] p[lex] .1a CA [by text?] CA [yes]
Let's get rid of this mess. CA [ ] 70

p[rint] b[ranch] .shorty CA [ ] CA [ ] 71

1 (shorty) Yonder stands your orphan with a gun. 72

1a Let's get rid of this mess. 73

We can get back to the original form of (shorty) by replacing .1a with the intact statements now in branch 2. Note that to move a group you have to put a double address in both parts of the command. 74

r[eplace] g[roup] .1a CA [ ] .1a CA [by text?] n[o] .2c CA [ ]
.2e CA [ ] 75

p[rint] b[ranch] .shorty CA [ ] CA [ ] 76

1 (shorty) Yonder stands your orphan with a gun. 77

1A Crying like a fire in the sun. 77a

1B Lookout boy, things are coming through. 77b

1C It's all over now, Baby Blue. 77c

The most powerful single command for editing text is substitute. 78

s[ubstitute] s[tatment at] .1 CA [ ]
[Text] x CA [For] SP CA [Go?] CA [Yes]

```
[substitutions = 7]                                                    79

1 (shorty)xYonderxstandsxyourxorphanxwithxaxgun                        80

                                    Note that the entity named in
                                    the substitute command is the
                                    range over which it operates
                                    character by character.            81

s[ubstitute] p[lex at] .1a CA [ ]
[Text] E CA [  for] e CA [ Go?] CA [Yes]
[substitute in progress]
[substitutions = 6]                                                    82

p[rint] p[lex] .1a CA [ ] CA [ ]
                                                                       83

1a Crying likE a firE in thE sun.                                      84

1b Lookout boy, things arE coming through.                             85

1c It's all ovEr now, Baby BluE.                                       86

                                    The alternative at "Go?"
                                    allows you to make more than
                                    one substitution at a sweep.       87

s[ubstitute] b[ranch at] .1 CA [ ]
[text] SP CA[for] x CA[Go?] n[No]
[text] e CA [for] E CA [Go?] CA [yes]
[Substitute in Progress]
[Substitutions =13]                                                    88

p[rint] b[ranch] .1 CA[ ] CA[ ]                                        89

1 (shorty) Yonder stands your orphan with a gun.                       90

   1a Crying like a fire in the sun.                                   90a

   1b Lookout boy, things are coming through.                          90b

   1c It's all over now, Baby Blue.                                    90c

                                    In editing, it is often
                                    useful to substitute longer
                                    strings.                           90d

   s[ubstitute] b[ranch] .1 CA [ ]
```

```
   [text] flower CA [for] gun CA [Go?] n[o]
   [text] shower CA [for] sun CA [Go?] CA [Yes]
   [Substitute in Progress]
   [Substitutions=2]                                          90e

p[rint] b[ranch at] .1 CA [ ] CA [ ]                          91

1 (shorty) Yonder stands your orphan with a flower.           92

   1A Crying like a fire in the shower.                       92a

   1B Lookout boy, things are coming through.                 92b

   1C It's all over now, Baby Blue.                           92c

                                To consider other methods of
                                editing smaller than
                                statements, let us begin by
                                making a statement wherein
                                changes show up easily.       93

r[eplace] b[ranch at] .shorty CA [  by text?] CA [yes]        94

abc, def, ghi, jkl, mno. CA [ ]                               95

p[rint] s[tatement] CA [ ]m CA [ ]                            96

1 abc, def, ghi, jkl, mno.                                    97


1 abc, def, ghi, jkl, mno.                                    98

/<
    >abc, def                                                 99


i[nsert] c[haracter at] .1 SP + 1 CA [ ]
P CA [ ]                                                      100


1 abPc, def, ghi, jkl, mno.                                   101

                                In editing commands, a "word"
                                differs from a character,
                                text, or visible, in that the
                                system arranges the
                                non-alphabetic characters to
```

preserve the strings
identified as a word. 102

i[nsert] w[ord at] .1 SP + 1 CA [ ]
P CA [ ] 103

1 abPc P, def, ghi, jkl, mno. 104

When you inserted a "word" the
system set it up with proper
spacing in the first available
spot. 105

c[opy] s[tatement to] CA [ ] [from] CA [ ] CA [ ] 106

p[rint] g[roup] .1 CA [ ] .2 CA [ ] CA [ ] 107

1 abPc P, def, ghi, jkl, mno. 108

2 abPc P, def, ghi, jkl, mno. 109

The delete command handles
words and characters the same
way the insert command does. 110

d[elete] c[haracter at] .2 SP 'P CA [ok?] CA [ ] 111

2 abc P, def, ghi, jkl, mno. 112

d[elete] w[ord at] .2 SP [P] CA [ok?] CA [ ] 113

2 abc, def, ghi, jkl, mno. 114

Or, since <> specifies search
for a word. 115

d[elete] w[ord at] .1 SP <P> CA [ok?] CA [ ] 116

1 abPc, def, ghi, jkl, mno 117

Note the spacing and the comma
in statement 1 have been taken
care of. 118

Insert text turns out to be exactly like insert character because the system again makes no provision for spacing. 119

```
i[nsert] t[ext at] .1 SP 'd CA [ ]
text CA [ ]                                                    120

abPc, dtextef, ghi, jkl, mno.                                  121
```

Delete text, however, requires an address to point to each end of the text. 122

```
d[elete] t[ext at] .1 SP 1w SP 1c CA [ ] .1 SP [xt] CA ok? CA [ ]   123

abPc, def, ghi, jkl, mno.                                      124
```

Like transpose group, transpose text requires a total of four adresses, one for each end of each string: 125

```
t[ranspose] t[ext at] .1 CA [ ] .1 SP ', CA [ ] [and] .2 SP 'm CA
[ ] .2> CA [ ]                                                 126

p[rint] g[roup] .1 CA [ ] .2 CA [ ] CA [ ]                     127

1 mno. def, ghi, jkl, mno.                                     128

2 abc, def, ghi, jkl, abPc,                                    129
```

The replace command may bring in either text or the content of a statement address. To bring in text: 130

```
r[eplace] w[ord at] .2 SP > CA [  by text?] CA [Yes]
last word CA [ ]                                               131

2 abc, def, ghi, jkl, last word                                132
```

Note that the comma at the end of 2 did not confuse the

system. To replace with the content of a statement address: 133

r[eplace] w[ord at] .1 SP +21 CA [by text?] n[o].3e CA [ ] 134

1 mno. def, ghi, jkl, It. 135

Since the command named a word, it picked up a word from the source text. When the command names text, you have to supply an address consonat with text. 136

r[eplace] t[ext at] .1 SP 'I CA[ ] .1 SP > CA [by text?] n[o] .3e CA [ ] .3e SP > CA [ ] 137

1 mno. def, ghi, jkl, It's all over now, Baby Blue. 138

Copy and move work like insert. They differ only in whether they leave behind the original 139

m[ove] w[ord to] .1 SP 'd CA [from] .1 CA [ ] 140

1 . def mno, ghi, jkl, It's all over now, Baby Blue. 141

c[opy] w[ord to] .2 SP [st] CA [from] .1 SP > CA [ ] 142

p[rint] g[roup] .1 CA [ ] .2 CA [ ] CA [ ] 143

1 . def mno, ghi, jkl, It's all over now, Baby Blue. 144

2 abc, def, ghi, jkl, last Blue. word 145

The table below shows a partial matrix of TNLS editing commands. The commands may also be applied to the entities invisible, link, and number. This file exercises the forms x'd. All the options work except those marked with dashes. 146

	'stmnt	brnch	plex	group	charc	word	text	
insert	x	-----	-----	-----	x	x	x	147
print	x	x	x	x	-----	-----	-----	148
delete	x		x	x	x	x	x	149
copy	x	x		x		x		150
move						x		151
transps		x					x	152
replace	x	x	x	x	x	x	x	153
								154
								155

Xed

(J11311) 8-AUG-72 13:38; Title: Author(s): Dirk H. van Nouhuys/DVN;
Sub-Collections: NIC TU; Clerk: BER;
Origin: <NIC>XED.NLS;9, 26-JUN-72 16:49 DVN ;

NDM 8-AUG-72 14:57 11313

Missing Journal Reference Copy

Jim: As you requested, I looked through the red binders and compared the hard copy to the index (11162). I also compared the earlier binders with the old index. I have a list of journal items missing from the red binders.

In addition, at Marilyn's request, I did the same for the Handbook, and commpiled a lists of journal items needed there.

In talking to Fergy and Smokey, I learned that it will be a fairly large task to recover all these items. (There are quite a few.) If you decide that it is worth the effort, I will go through Doug's binders and then submit the list to Fergy and Smokey. We are waiting to talk to you about it before we go on. 1

NDM 8-AUG-72 14:57 11313

Missing Journal Reference Copy

(J11313) 8-AUG-72 14:57; Title: Author(s): N. Dean Meyer/NDM;
Distribution: James C. Norton, Marilyn F. Auerbach/JCN MFA;
Sub-Collections: SRI-ARC; Clerk: NDM;

JBN 8-AUG-72 16:22 11314

Acknowledgement to JBL of NIC Directory Error

Joel
We really had BBN mixed up. Compounding the errors, we have just set a master of the Affiliations directory to the printer with those errors. We'll hold the issue up to get it corrected.
Thanks.

Jeanne

1

JBN 8-AUG-72 16:22 11314

Acknowledgement to JBL of NIC Directory Error

(J11314) 8-AUG-72 16:22; Title: Author(s): Jeanne B. North/JBN;
Distribution: Joel B. Levin, Jeanne B. North/JBL NICSTA;
Sub-Collections: SRI-ARC NICSTA; Clerk: JBN;

Response to (11310,)

Hi there...,
I think we're already got what you're asking for; if you disagree let me know. 1

1. Such an animal essentially exists. The Execute Viewchange subsystem allows the user to cause the system to feed back the actual address when an address expression is used and before the next or terminating "CA" is entered. The syntax for this command is: 2

e[xecute] v[iewchange] f[eedback] l[evadj] CA CA 2a

This command acts as a switch in much the same way as setting viewspecs. It remains in effect as long as the current NLS job. 2b

This is, however, no way for showing the user the exact location of the CM within a statement other than using the period command (".") to echo the current statement and location within that statement prior to inserting or whatever. 2c

2. As for "verbose", the user may use the NLS syntax query character ? at any point while entering a NLS command. Thus, if the user has entered "i[nsert] s[tatement at] ?" the system would echo "ADDR CA LEVADJ LIT CA. 3

MFA 8-AUG-72 16:41 11315

Response to (11310,)

(J11315) 8-AUG-72 16:41; Title: Author(s): Marilyn F. Auerbach/MFA; Distribution: David H. Crocker/DHC; Sub-Collections: SRI-ARC; Clerk: MFA;

DVN 8-AUG-72 16:51 11316

Mass Deletion of Unread Files

After weeks of threats, on Monday night the archive (9968,) program ran at ARC. 1

The archive program deletes any file that has not been read in a month. 1a

This run freed 12,000 pages of our 39,000 pages of storage. 1b

We had been running within a thousand pages of over flow for the last month or six weeks. 1c

The free pages will make some file operations run faster, will improve the availability of our Journal substantially, etc. 1c1

We plan to run archive every monday night from now on. 2

To save your files from deletion: 3

either read them more often than once a month 3a

or archive them (9968,). 3b

To get back files that were deleted last night, get in touch with Jef Peters: 4

By dialing the NIC through the ENterprise number used at your cite. 4a

By sending a journal message to jcp 4b

By sending a TENEX message to user Peters. 4c

DVN 8-AUG-72 16:51 11316

Mass Deletion of Unread Files

(J11316) 8-AUG-72 16:51; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Barbara E. Row, Marcelle D. Petell, Roger B. Panara, Duane L. Stone, Joan E. Slottow, Jeffrey C. Peters, A. Wayne Hathaway, William P. Jones, Joy A. Glenn, Elizabeth J. Feinler, Kirk E. Kelley, Barbara E. Row, Ralph Prather, Kay F. Byrd, Gino Pucine, Diana L. Merry, Don Limuti, Thomas B. Gray, Raynor K. Rosich, Prentiss H. Knowlton, David M. Grothe, Leon R. Zar, Terry J. Layman, Marvin L. Graham, David E. McIntyre, Karl C. Kelley, Gary R. Grossman, W. Jack Bouknight, Michael S. Sher, James M. Madden, Daniel L. Slotnik, Katy Howe, John D. Day, David H. Crocker, Beauregard A. Hardeman, Richard C. Roistacher, William R. Ferguson, Ernest H. Forman, Linda L. Lane, Douglas C. Engelbart, Ellen Westheimer, Jeanne B. North, John W. McConnell, L. Peter Deutsch, James G. Mitchell, Alan C. Kay, Marilyn F. Auerbach, Martin E. Hardy, Charles H. Irby, Mil E. Jernigan, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Barbara E. Row, Dirk H. van Nouhuys, Richard W. Watson, John T. Melvin, Steve D. Crocker, Thomas F. Lawrence, John F. Heafner, Robert E. Long, Ari A. J. Ollikainen, James E. White, A. Wayne Hathaway, Dan L. Murphy, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Robert L. Sundberg, James M. Madden, Abhay K. Bhushan, Peggy M. Karp/TU; Sub-Collections: SRI-ARC TU; Clerk: DVN;
Origin: <VANNOUHUYS>TU.NLS;1, 8-AUG-72 15:57 DVN ;

DVN 8-AUG-72 17:20 11317

Mass Deletion of Unread Files

After weeks of threats, on Monday night the archive (9968,) program ran at ARC. 1

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either read them more often than once a month 3a

or archive them (9968,). 3b

To get back files that were deleted last night, get in touch with Jef Peters: 4

By dialing the NIC through the ENterprise number used at your cite. 4a

By sending a journal message to jcp 4b

By sending a TENEX message to user Peters. 4c

Mass Deletion of Unread Files

(J11317) 8-AUG-72 17:20; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Barbara E. Row, Marcelle D. Petell, Roger B. Panara, Duane L. Stone, Joan E. Slottow, Jeffrey C. Peters, A. Wayne Hathaway, William P. Jones, Joy A. Glenn, Elizabeth J. Feinler, Kirk E. Kelley, Barbara E. Row, Ralph Prather, Kay F. Byrd, Gino Pucine, Diana L. Merry, Don Limuti, Thomas B. Gray, Raynor K. Rosich, Prentiss H. Knowlton, David M. Grothe, Leon R. Zar, Terry J. Layman, Marvin L. Graham, David E. McIntyre, Karl C. Kelley, Gary R. Grossman, W. Jack Bouknight, Michael S. Sher, James M. Madden, Daniel L. Slotnik, Katy Howe, John D. Day, David H. Crocker, Beauregard A. Hardeman, Richard C. Roistacher, William R. Ferguson, Ernest H. Forman, Linda L. Lane, Douglas C. Engelbart, Ellen Westheimer, Jeanne B. North, John W. McConnell, L. Peter Deutsch, James G. Mitchell, Alan C. Kay, Marilyn F. Auerbach, Martin E. Hardy, Charles H. Irby, Mil E. Jernigan, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Barbara E. Row, Dirk H. van Nouhuys, Richard W. Watson, John T. Melvin, Steve D. Crocker, Thomas F. Lawrence, John F. Heafner, Robert E. Long, Ari A. J. Ollikainen, James E. White, A. Wayne Hathaway, Dan L. Murphy, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Robert L. Sundberg, James M. Madden, Abhay K. Bhushan, Peggy M. Karp/TU; Sub-Collections: SRI-ARC TU; Clerk: DVN;
Origin: <VANNOUHUYS>TU.NLS;1, 8-AUG-72 15:57 DVN ;

PARSLEY's at it again - 8 August

PARSLEY Meeting, 8 August 1

Attendees: KEV, MEJ, MFA, DCW, PR, KK, NDM, DVN, JDH 1a

Agenda 1b

PARSLEY REPORTS 1b1

ARC lunches - Mil 1b1a

See (kjournal,11224,1) 1b1a1

Librarian - Mil 1b1b

"As PARSLEY-librarian, I'm the flunky who looks up information, prints the files about PODs and files the copies in the POD PAPERS section of the ARC Library, makes copies of reprints, and generally runs errands involving printed material or documentation." 1b1b1

The Librarian will also be responsible for obtaining PODAC-related external sources. 1b1b2

PODAC special events - Marilyn, Paul 1b1c

In general PODAC special events will be handled on an as suggested demand/interest basis. 1b1c1

Paul has proposed some specific activities for the near future (in a month or so). Before the next PARSLEY meeting Paul will sound out the group about some specific plans. Possibilities include a weekend camping trip, a one-day hike, a fishing trip, and a few days at Asilomar for group conference and recreation. 1b1c2

PODAC events of a social/recreation nature will be open to ARC families and friends as appropriate. 1b1c3

Historian - Marilyn 1b1d

The PODAC Historian will be responsible for maintaining a diary of all POD activities commencing with the new regime (August 3, 1972). 1b1d1

The PODAC Diary will be arranged chronologically with indexes to its content by activity type. 1b1d1a

The pushers of the various special interest groups and the members of the PARSLEY will be responsible for submitting information about their functions/activities to the PODAC Librarian for inclusion in the diary. 1b1d1b

The PODAC Historian will review, supplement, and rewrite information submitted to the diary as necessary and appropriate. 1b1d1c

The PODAC Historian will maintain two copies of the PODAC Diary. One will be kept in the ARC Library and the other will be available to PARSLEY. 1b1d1d

Entries in the PODAC diary will be kept as simple and as non-evaluational as possible. At minimum, any special interest group should document each of its meetings in terms of when it was held, who attended, the subject of the meeting, and if possible, the effects of the meeting in terms of its consequences, future planned activities, etc. In addition, it would be "nice" if such Diary entries included statements by individuals in the group as to their attitudes, concepts, feelings, etc. about the group and what is it doing. 1b1d1e

Administrative Interface - Dirk 1b1e

See (kjournal,11265,2) 1b1e1

POD Pusher Pusher - Dirk 1b1f

This function was inappropriately included in the list of PARSLEY responsibilities. Instead, it is a Special Interest Group function and will be titled "Formal Techniques in Communication and Conflict". It is described in (kjournal,11265,3) 1b1f1

Armtwister - Mil, Smokey 1b1g

Mil: 1b1g1

In the role of Armtwister, my grip isn't too hard, so I don't think anyone need bother dodge when I approach. I feel that the invitation to "let's go do something that might be fun/useful/interesting/or whatever", is far more

to the point than a nagging conscience. Like I say, let's take the positive approach. 1b1g1a

I will attempt to be date and time reminder, and general information dispenser for meetings, activities, and whatever is happening. If we don't get something out of the Happening, if we don't enjoy it, then I'm with you -- let's find something that is worthwhile to spend our time on. 1b1g1b

Smokey: 1b1g2

Smoky pretty much agrees with MIL but will twist a little harder 1b1g2a

POD Economist - Kirk, Dean 1b1h

PODscript - Proposal for handling the funds and deciding what activities PODAC should be, and determining how much money will be used for which activities in PODAC. 1b1h1

After talking with several members of Parsley concerning PODscript, I received several conflicting ideas. This healthy sign has made a written discription of PODscript a bit difficult, however. 1b1h2

POD Script will be based on PODAC's financial budget. (The manhour budget will be covered by the membership chairman). 1b1h3

Each individual in the ARC will be allocated equalamounts. 1b1h4

Using their own judgment, they will then have complete control over what their Script will be used for. 1b1h5

A record will be kept of what each person chooses to use his script doing. This will provide a system for planning activities, and will also show a record of what PODAC has done, and how it spent it's money. 1b1h6

---------- 1b1i

DEFFERRED REPORTS 1b1j

Special Interest Group Coordinator - Harvey 1b1j1

Representational Dialog Facilitator - Dave 1b1j2

This function now includes interfacing with Doug. 1b1j2a

Publicity/Membership - Smokey 1b1j3

Seminars - Ken 1b1j4

OTHER BUSINESS 1b2

How about a new name for PODAC???? 1b2a

PARSLEY says no 1b2a1

Doug has seen the new PODAC launch document 1b2b

and he likes it so far 1b2b1

The next PARSLEY meeting will be held Tuesday, August 15. The agenda will consist of reports deferred from today's meeting. 1c

MFA 8-AUG-72 17:26 11318

PARSLEY's at it again - 8 August

(J11318) 8-AUG-72 17:26; Title: Author(s): Marilyn F. Auerbach/MFA; Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/sri-arc ; Sub-Collections: PODAC SRI-ARC; Clerk: MFA;

Yesterday (8 Aug), I sent you a message re: Enterprise vs. 'measured In-WATS' telephone service for incoming calls to the NIC. There is no record of it in my own NLS file-- did you receive it? ....Bruce

1

(J11322) 9-AUG-72 7:20; Title: Author(s): Bruce A. Dolan/BAD;
Distribution: Richard W. Watson/RWW; Sub-Collections: NIC; Clerk: BAD;

RBP 9-AUG-72 8:13 11323

Load dumped files

jeff please load the three files you located. i will need assist and will make copies of the other two before expunging them. I will look for them in my directory. 1

RBP 9-AUG-72 8:13 11323

Load dumped files

(J11323) 9-AUG-72 8:13; Title: Author(s): Roger B. Panara/RBP;
Distribution: Jeffrey C. Peters/JCP; Sub-Collections: RADC; Clerk: RBP;

DVN 9-AUG-72 9:07 11324

Visitor Log: Kirk Brayner of UCLA

I demonstrated the system to Kirk Brayner and two friends on July 24 and provided them with various pieces of literature about ARC. Kirk Brayner was most interested in "human engineering" by which he meant what it was like to work with our system as it appears to the user--the display, mouse, keyset, etc. 1

He would like to come back sometime and explore our display system with text that he has put previously into the system. He would like to make a DEX cassette at UCLA which he could later load into our system. He has cassette making equipment, but it is not the same as ours. I told him that it would be possible to just come and work for a couple of hours if he called me ahead of time. It was not clear to me whether he would be able to create and load a DEX tape from UCLA with his equipment even when we change the way we handle the Network to allow people to run "CASSET.SAV". But he is a sophisticated guy, and I armed him with the DEX User Guide and Martin's essay on Termicettes. 2

DVN 9-AUG-72 9:07 11324

Visitor Log: Kirk Brayner of UCLA

(J11324) 9-AUG-72 9:07; Title: Author(s): Dirk H. van Nouhuys/DVN;
Sub-Collections: SRI-ARC; Clerk: BER;
Origin: <ROW>JUCLAVISIT.NLS;1, 9-AUG-72 9:05 BER ;

DVN 9-AUG-72 9:19 11325

Encouragement to Ask for Help

A couple of recent linkings to me or to others that I have happened to see give me the impresion your learning process is suffering some heavey going. 1

Let me remind you we are glad (underlined) to help when we can. 2

For example you can link to us ad repeat procedures while some one watches. 3

Marilyn Auerbach and I are good people to link to at any time. 4

DVN 9-AUG-72 9:19 11325

Encouragement to Ask for Help

(J11325) 9-AUG-72 9:19; Title: Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Marilyn F. Auerbach, Marilyn F. Auerbach, Rome Air
Development Center (ISIM)/mfa mfa radc ; Sub-Collections: SRI-ARC
RADC; Clerk: DVN;
Origin: <VANNOUHUYS>ROMEHELP.NLS;1, 9-AUG-72 9:15 DVN ;

JBL 9-AUG-72 9:46 11326

New BBN-NET ID

Dear Jeanne,
  This is to ask you to please verify a new entry to BBN-NET: Peter M. W. Bliss, who was given ID PMB. He would like you to change that ID to PMWB if you would please. Thanx much.
        Joel

1

JBL 9-AUG-72 9:46 11326

New BBN-NET ID

(J11326) 9-AUG-72 9:46; Title: Author(s): Joel B. Levin/JBL;
Distribution: Jeanne B. North/JBN; Sub-Collections: NIC; Clerk: JBL;

DVN 9-AUG-72 13:52 11329

On Sunday Monitor 1.29 Will Make "CASSET" Available Over the NET

The command "CASSET" can be carried out over the Net when we bring up the next monitor (1.29). 1

Barring unforeseen difficulties, we will bring up the new monitor on Sunday morning, August 13. 2

We are waiting until Sunday because a possible failure in the new monitor could destroy that day's work. 2a

Again barring unforeseen difficulties the new monitor with the CASSET command available to Net users will run from then on. 2b

DVN 9-AUG-72 13:52 11329

On Sunday Monitor 1.29 Will Make "CASSET" Available Over the NET

(J11329) 9-AUG-72 13:52; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Duane L. Stone, William P. Jones/DLS WPJ; Sub-Collections: NIC; Clerk: BER;
Origin: <ROW>JCASSET.NLS;1, 9-AUG-72 13:51 BER ;

KIRK 9-AUG-72 15:00 11330
KIRK 12 AUG 72 3:27AM

In order to see how the proposed four-day work week in the PSO department of ARC (11220,), will work, an experiment will be run August 14 through August 18 using the following schedule: 1

Barbara: Monday - Thursday 7:00-------12:00 lunch 12:30----5:30 2

Kay: Uuesday - Friday 7:00------------12:30 lunch 1:00 - 5:30 3

Cindy Monday - Friday 8:00--11:00 lunch 12:00-------5:00 4

Carol Monday - Friday 8:00--11:00 (Subject to change) 5

Linda Monday - Thurday 7:00-------12:00 lunch 12:30-----5:30 6

Kirk Tuesday - Friday 8:00----------12:30 lunch 1:30 -----7:00 7

(J11330) 9-AUG-72 15:00; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Sub-Collections: SRI-ARC; Clerk: KIRK;
Origin: <KELLEY>EXPMT.NLS;2, 9-AUG-72 14:54 KIRK ;

Jacques F. Vallee
Stanford Research Institute
Augmentation Research Center
333 Ravenswood Avenue
Menlo Park, California 94025

To:

Jacques F. Vallee
Stanford Research Institute
Augmentation Research Center
333 Ravenswood Avenue
Menlo Park, California 94025

11331

Author Copy

JFV 9-AUG-72 15:27 11331

Progress of SDIS Planning.

(J11331) 9-AUG-72 15:27; Title: Author(s): Jacques F. Vallee/JFV; Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JFV;
Origin: <VALLEE>TRANSCRIPT.NLS;57, 9-AUG-72 15:17 CHI ;

JFV 9-AUG-72 15:27 11331

Progress of SDIS Planning.

The SDIS Planning team (Jeanne North, Mike Kudlick and Jacques Vallee) met on 26 July for a review of current ideas and to prepare the groundwork for specific discussion with DCE. The present document is a transcript of the session.

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PART 1: SCOPE OF THE PROBLEM. 2

Mike: I have a general view of what we might be able to do. I would like to use the existing computer system. I really think that the Journal System and the initial file, and the viewspecs and the capability for having tables of contents and pointers and links and all that stuff has got a lot of potential power... But it's all there now as a set of disjoint techniques that have not been put together with an eye towards what a human being wants, in order to really use it. So the model that I gave Jacques the other day in talking to him is like the Encyclopedia Britannica: You've got a lot of information, theoretically all the information in the world, OK, how do you get the information out? Clearly you don't read from page one in order to find what you want. And not so clearly but also equally true, you can't go by the letters on the volume that tell you it's going to be under volume S, you can't go by the subjects across the top of the page because there's always subjects that aren't heads of articles... 2a

Jeanne: Sure. 2b

Mike: So you have to use an index: The guys who write each individual article pop words into this index, and say: "these are the important words"... You know all this... and so they publish an index. Now if you want to know anything about Stonehenge, it gives you fifty articles in which Stonehenge is discussed, and perhaps it happens that there is NO article in which Stonehenge is the main word, so that there was no way to find it without the Index. What I think we need, and ought to have, is a computer index, the best we can think of getting, which says that such-and-such a topic is in such-and-such an article, or several articles. And then over this somewhere else there is a table of contents with all the articles listed, and the dates, and the journals, and the author, and maybe an abstract even. 2c

Jeanne: Yes. 2d

Mike: But just in one place in the computer. And then the article itself, the thing that's really referenced, the piece

of intelligence, may or may not be in the computer. It might be on microfilm, it might be on a shelf; I prefer microfilm but there may be other ways to store it, anyway you can find out about it from the computer. Maybe after you've read the article, you may want to say, "that ought to be indexed under something else as well", and you need to tell this information analyst, in the best case you do it yourself... somehow you can update the index dynamically. 2e

Jeanne: Yes. 2f

Mike: That's a big task, as you think of all the information that one would want to have. As I was telling Jacques, a company like API does nothing but abstract articles, and make keywords, indices and all the rest, and that's difficult work. I don't know how much intelligence we can get into the computer with the limited staff we have, but presumably being a research group, and an experimental outfit, we're not trying to solve the world's problems. 2g

Jeanne: No, we're only trying to make a model. 2h

Mike: There is a couple of interesting tricks we can do, and I know that you've seen these things, I've seen them at Shell: one of the things that is really useful to me, anyway, is tables of contents. In the Communications of the ACM the only thing I really read ninety-nine percent of the time is the table of contents; and if it's there then I go to the article. If I don't like what I see I never go any further. I think it would be really nice to have as one subset of our intelligence information a table of contents (monthly or however depending upon the frequency of publication) of all the journals that we think are important. That might even include Science magazine, at least the articles that come under the News heading, not the Biochemistry section. 2i

Jeanne: Yes. 2j

Mike: For example in last week's Science there was a very good article on Cable TV and its implications for the information utility in the home, in the next fifteen years. We ought to know about that, it's just absolutely relevant. The table of contents would show you that clearly. There are many other things, like titles of publications that IBM, Xerox or BBN put out, just short little things; it would say, "here is where the information is, and this is what it's about, and we may or may not have the full text anyway, but at least here is a clue to you about something that you may be interested in." 2k

Jacques: There are other centers that are in the business of gathering information, or intelligence, about the same field. I'm thinking for instance of the lists of new acquisitions of the computer science library at Stanford since I'm on their mailing list; I usually don't do anything with it but it would be simple to put it into the system so that other people may be aware that some publications exist. 2l

Mike: Yes, that's a really good category, new publications. 2m

Jacques: Information gathered by other centers. 2n

Jeanne: Well, I'm accepting what you say and thinking too, because I've been over this, many times. 2o

Mike: I'm sure you have. In fact there are two things that scare me. In the first place what we put in there may become immediately dead wood forever because no one uses it. One way to overcome that is to try to have a system whereby people can say, "these are the sorts of things I want to know about", "whenever you put in a new table of contents give me a Journal item which says, the Communications of the ACM has now been updated for July 1972", and then Irby and Paxton and Kudlick and Watson say, "yeah, I want to hear about that", and very few say "I want to hear about Innovation and a few others", or whatever, so have a sort of selective dissemination of information. That's classical. 2p

PART 2: INTERROGATION AND DISSEMINATION. 3

Mike: Then there is another thing that you need, when you have all this, and it is some way to QUERY the system. 3a

Jeanne: That's our problem right now. 3b

Mike: That's our problem. For example you might go on vacation and you come back and want to ask what's new since you left; or "is there something in the system for such-and-such a magazine at such-and-such a date?" These are the easy kinds of questions, and the harder questions are: "Is there anything in the system on paging for PDP-10 systems", you know that's a big keyword problem. I don't know how we're going to tackle that. But it starts mushrooming as a set of technical problems to solve. 3c

Jeanne: Right. 3d

Mike: There may be special people we may want to support in a grander way. For example, Doug, maybe Bart Cox if he wants to

really put on some shows for people, we could have a tailored intelligence system, in which there would be information that was relevant to him and accessible by him only. Or updated for him only. Tailored information. That would be an interesting thing to do; it goes along Jacques' earlier comments in one of his first writings on this subject, that there literally are certain key people in any organization that are plugged in to the world, and when you want an answer you generally ask them... 3e

Jeanne: Technological gate-keepers. 3f

Mike: That's right. So maybe we ought to make their lives easier in some way, I don't know what the way is. This is something that we could do for Doug. The thing that always amazes me is that you go to his office, and there aren't very many books, it's mainly his own etchings, and maybe he'd like to have a system that would help him for that. I don't know. 3g

Jeanne: He used to have it all put on-line. 3h

Mike: What happened to that ? 3i

Jeanne: It's now on paper tape. There is no way to index it. 3j

Mike: Now, that is the sort of technical aspect of it that we'll come back to. When I was talking to Jacques the other day he had what I thought was a really good idea, which is that in order to make this thing visible and make it work and see how it's being used, etc, we ought to have a special area in which we have display consoles that would be used mainly for this purpose initially, and the microfilm reader, which we're experimenting with, and later there will be another one, and whatever we have in there, and some journals. The hard copy, the microfiche, the documents, etc. Maybe the best area is along the wall opposite our cave, at the other end of the building, where the picture of the Earth is; it's already partitioned off anyway, we could make it into the X-DOC room. 3k

Jeanne: Yes. Or "RINS". 3l

Mike: About names: This effort is going to serve the NIC community as well as serve ARC, and it will be to our benefit to get feedback from NIC users, other than ARC. Maybe we should call this thing something like the NIC Technical Support Center or whatever conveys the meaning. 3m

Jeanne: If the premise is right, what we do for NIC will set

the pattern for any other community. If it isn't, then we had better find that out right away. 3n

Mike: That's all I wanted to start out saying, and maybe Jacques wants to add to some of these notes. 3o

PART 3: INDEXING AND CATALOGING. 4

Jacques: I have a couple of questions and I'm not sure what they are related to here, but perhaps I should mention them now. One is, you said something about indexing. Are we talking about an index or are we talking about a thesaurus, where concepts are related so that you can go through the concept chain ? 4a

Mike: Oh, I'd love to get to that. 4b

Jacques: OK, so that's something that we should discuss. 4c

Jeanne: We need both, I mean it isn't one OR the other to my mind, it's an index which is based on a thesaurus, you have to make up your mind. 4d

Jacques: The other thing is, we have to address the question of data acquisition. How are we going to find information? We have to develop techniques for doing that. We need to GO AFTER the information which is of interest to us, and does not come our way. That means we have to have some procedure to extend what we have been doing so far on a purely experimental basis, of taking field trips; should we do this as a matter of policy or not ? We should review the experience we have accumulated in this way. Also, we should ask whether we need to identify some new functions that haven't been recognized so far within ARC, something that to some extent we all do, that you are primarily doing, Jeanne, the function of information analyst. Shouldn't we hire somebody that you would train to do that on a full time basis ? 4e

Jeanne: Right. 4f

Jacques: And then, there is one thing that we never seem to be getting to, the NATURE of the information we're dealing with, and HOW it can be represented. I tend to agree with Doug's statement that we have all we need, almost all we need to handle it in the system, with the structure and all that, and yet the file system is changing, we'll soon be able to handle tables, graphs, and other types of entities; how can we best take advantage of that? And how can we relate it to the nature of the information? So far all our discussion has revolved

around concepts that are traditional in library automation, and we need to break away from that. I think that's what Doug wants, only we couldn't get feedback from him; when he talks about the intelligence system, obviously he has some idea in mind, but we couln't get to that. 4g

Jeanne: Have you gone back and read the RINS background documents ? I haven't lately, there is a lot of stuff in there that I'd be ready to use now that I wasn't when I read it before. We really should do that, because I do think that he's consistent in that. 4h

Jacques: We need to compile a little history also of the organization policy of RINS, how it got to be what it is now, what would be needed... 4i

Jeanne: My suspiscion is that it's just been neglect up to now, it wasn't so much policy as it was lack of policy in some of these things. 4j

Jacques: That should be part of the plan, to compile this history. That's all I had to say. 4k

Mike: Along that line, what is intelligence information? Are there new ways of storing this information? I'm really a little bit scared about this whole concept of keywords and how you find your way around in information space, that's an area that needs an awful lot of concerted research. I was looking at one of the documents that you showed us a couple of months ago when we had our first meeting, it looked to me like a very cryptic thing with keywords and the asterisks and all that jazz, a very error-prone system to get information in, and very likely the main keywords aren't going to be there, and I don't know how you add to keywords, or how you index things,.. I don't have any answers, all I have is the one big question, which is: isn't there a better way? 4l

Jeanne: Yes, there is. That was at Dick's insistence, I wasn't even going to put keywords in, the only keywords that I would have put in would have been keywords that exist on the document itself, and that captures something on which there is no argument; these people said: "these are subjects"; according to their keyword system, these are the subjects that this document treats. Then Dick insisted that people wanted keywords, and we had this to throw keywords in, and we have done it at random. If there was not a good set in the document page, then we supplied keywords as we had time, and that was compeletly free form, because there is no existing thesaurus which is satisfactory for what we are doing. 4m

Mike: Sure, exactly. 4n

Jeanne: Doug asked... When I first mentioned that it was sort of useless to put in random keywords, he said, "how long do you think it would take to develop a thesaurus", and I said, a couple of years, and he said we don't have time, and so we went from there. But it's part of a larger problem as I see it. I think one of the design decisions that we have to make, or at least we have to deal with, and say why we took a stand on it one way or the other, is whether there is going to be an intermediary: are we going to design a system, or are we going to design several systems? One system would be designed so that any individual could do his own input, according to his own interests, and his own tools and so forth, just like an individual researcher who is making his own file, and that way can take care of keywording his own set: "Here is something that means something to me, and when I get ready to retrieve it I'll use this word to retrieve it." That has never worked very well in practice in years past. 4o

Jacques: Right. 4p

Jeanne: Everybody is always designing his own system and then giving it up in favor of some other system that he hopes will work better, but you don't find many people that say "I've designed this system for my information, and now I can find what I want." Whether it's a filing system in folders or whether it has the complexities of a keyword system, it still does not work very well. 4q

Mike: One of the reasons that personal file systems do not work is that there is no way of making an effective cross-reference list and keeping it up-to-date. You want to file things under more than one heading. 4r

Jeanne: But even if you make a card index... You say, "OK, I have to file it somewhere, so I'll file it under one word", or under a number, or whatever, and then you create an auxiliary that has links, as it were, to this; then you can pick your words for that, or you can use the standard set, like the EJC thesaurus, and then put the links with the numbers to the documents. People of course get quite complicated with that; and still most people are not satisfied with what they are able to do with it. 4s

Mike: I'd like to make a standard suggestion, which you all can shoot down. One of the things which I've found to be a very powerful tool is the very simple idea of keyword-in-context, KWIC indexes, where you permute all the

words in the title. It seems to me that it would be really nice to have something like that for all the titles. 4t

Jeanne: Well, we use that, you see, in the NIC catalogue, that's the title word index, it's the KWIC index. 4u

Mike: Is it useful ? 4v

Jeanne: It's keyword OUT of context you know, we don't just rotate it around, but we print the word out in the margin. Sure, it's KWIC and dirty... It's not satisfactory for good retrieval, because you can't insure that the people are going to put the words that you're going to want in the title. Unless you make it into an index, in which you have all kinds of cross-references, and then you have a thesaurus base. 4w

Mike: Yeah, but the trouble with a lot of systems is that they are designed in such a way that the person who is using them doesn't have to be intelligent, he's got to be mechanical instead, He's going to use certain keywords, and if the documents aren't there under those keywords, then by God he doesn't get everything and he does not even KNOW that he does not get everything. 4x

Jeanne: Well, tests have shown that they don't, that you're not that intelligent, that you can't even index something yourself and then go back and look for it, and look for it under the words that you put it under, because the mind just doesn't work that way. That is why they have these extremely complicated cataloging sections in big libraries, where they try to use thesaurus and go back and look each time 4y

Jacques: Yes. 4z

Jeanne: The cataloger has a new article in "Information Processing Letters", and says "ah, it seems to me that certain words..." or he has a class system where there is a general class in a hierarchical system where you see, INFORMATION PROCESSING, and then all the sub-headings; then you can look down and say: "this article is most closely related, of all the choices I see here, most closely related to THESE terms." Then the thing they have to do is go and see what else they've already put under those terms, because they can't remember. Particularly if, over a period of time, you've changed your thinking about it; or, if you have more than one person doing it, they are not going to be consistent in it, no matter how much you tie it down, you will find that things are in strange places, or you find that you put things in two places instead of one, and it's just a constant re-working of an organic

thing, which is a thesaurus, and an index based on a thesaurus. 4a*

Mike: In my opinion, it probably will never change. 4aa

Jeanne: No, I can't see that it will. That's another decision we have to make in our design: are we going to go for things like title words and automatic indexing, where you're simply going to use the terms that occur in the material that you're handling? You can search on those terms, and then have an auxiliary thesaurus where you put in all the things you've discovered so far: "we'll use this word, but it probably is related to this word, so look under this word". You can do that. The automatic text searching on the title words and the abstract and the body of the thing (that's another decision) and then, you can set up a machine system where it says, "this word is equal to this word." The idea is, "be sure to look under this word". That's a very complicated, expensive way to do searching, but you can do it. 4ab

Jeanne: Then you have, of course, all the human aspects over here; because if you ever try to build a machine such as people have done, you still have, somewhere down the line, the text processing itself and it is not to the point yet where we can tell by the context whether this word is the same as this word. There are programs that will go through abstracts and indexes and titles, of course, and pick up all the new words, and say, "here are the words that we haven't found before, shall we use them or not?" And then a human goes through and says, "I don't think we will." It still takes the intermediary somewhere along the line to make the thing consistent. So you're going to have to decide if we are going to have the KWIC and dirty, like the keywords, which does it automatically... but then you end up with a lot of garbage, and a big suppress list of things that occur in titles and are not significant... 4ac

Mike: Like five or six hundred words... 4ad

Jeanne: Yes, and then you've got a really expensive system, too... Another thing that we're going to have to decide is, how much are we going to spend on something like this? Are we going to do one which is inexpensive, and dirty, or one that is expensive and has a lot of fancy stuff to it? It depends again on who are you designing it for. 4ae

PART 4: SHORT-TERM GOALS. 5

Jacques: Maybe we should come back to what we said earlier,

that we're not going to solve the general problem, we're trying to create a model which works in this environment. In this respect I think we're not supporting a general library of computer science, but a number of individual projects. For example, Mike does a survey of terminals. We want to have some way of keeping this up-to-date, so that whenever you come across an article about terminals, it goes into this system and he has access to it. Also we need to have methods and procedures by which data are transferrable to a new person. 5a

Jeanne: We take some subject area, but then try to design a system that will work for any subject... 5b

Jacques: Yes, so in reference to that I think we have to include, as part of our planning, addressing the general problem that we just discussed; we also need to take some practical steps towards improving the system we have now, in terms of just using it better. 5c

Jeanne: Well, that's probably a design decision, whether we're going to try from the platonic ideal and work back to the practical, or whether we're going to say, OK, we're this far along, so all we'll do is improve where we see room for improvement. I think we've got to start from one end or the other. 5d

Jacques: The last time we discussed it with Mike we came up with a couple of things that would be worth trying, and wouldn't mean a big investment either philosophically or practically. One would be... When we visited one of the sites that we went to, they had an interesting concept; they did not have a computerized catalogue system for their library, however they had "interest lists" in the computer, so that the machine could generate labels for all the people interested in a particular subject. Whenever a publication came on this subject (for example, the OS scheduler) all the people on that list would get a copy. That's a simple idea. 5e

Jeanne: Yes. 5f

Jacques: Another thing that we could do is operate a clipping service. For example, Mike is interested in terminals, you're interested in microfilm readers... you know that whenever I come across something that has to do with microfilm readers I turn it over to you; well, we could have some general way of doing that. That means again procedures... It may not even use the computer. 5g

Jeanne: Now, are we going to try to do things that are already

state-of-the-art, or are we looking for ways to make breakthroughs in the things that are not? Because we could spend a lot of effort on that... 5h

Jacques: Well, I think we are talking at two levels here, and these are parallel, but I see us coming out with a plan in a couple of weeks that will say: "On September 1st we'll begin operating a clipping service, and we'll begin a file on terminals". All these things we can say. We can also say, "On October 1st we'll start THINKING about breakthroughs, in this and that direction, and here are the options"... I think we need to define the two things, We cannot have the breakthrough by October 1st. 5i

Jeanne: No. 5j

Mike: I'm very much in favor of doing something simple that works right away (or on the scale of time that we operate on, it would be right away.) I like what I have seen in Shell, which is to have the tables of contents, as I indicated before. I like taking an area, whether it's CRT or microfilm readers, disks or whatever, and just making a little information bank about that. 5k

Jeanne: Well, you see there is already a commercial service that we can buy that gives us the tables of contents of most of the journals that we'd be interested in, so you know, go ahead and buy it, but then what do you do with it ? 5l

Mike: I thought that tables of contents ought to be in the computer. 5m

Jeanne: Then that's another thing that... Well the first thing I thought of is, we have to decide what kind of trade-off we're going to have with computer input, because it's just like you said, error-prone and so forth. Once you start putting text into the computer, you're going to be in the same bag that we're in with the NIC catalogue, and the directory and all these things, that we can't get out. And it's just like Jacques is saying, about using idents and using numbers instead of trying to spell out names, you're just fooling yourself if you think that you're saving anything by putting it into the computer. You've got a trade-off all the way, and you have to decide what's really worth putting in, and it seems to me that anything that exists and is accessible outside the computer, don't for Heaven's sake try to put it into the computer. Copying something into the computer, and I include whole text input, is a dumb thing to do, it's wasteful, because you have it already. 5n

Mike: What would you put into the computer? 5o

Jeanne: Only things which allowed you to make faster indexing, cross-indexing... 5p

PART 5: THE LIBRARY MODEL. 6

Mike: Now we could do blue-skying a bit. One of the horrors that I see in a system like this is the same kind of thing you see in the library; you know exactly what you want when you walk in the door, and then suddenly you realize you DON'T know what you want and you look through a lot of documents and you don't find it, and there is no sense in buying some books, that's why they have the library in the first place, if you're not sure which book it is that you want, you go through several and you pick references off and finally you get a concept of what you want and you might even wind up calling the author and talking to him... 6a

Jeanne: Yes... 6b

Mike: So the horror that I see is that the system won't serve this need to browse. If we were given all of the smart people, and all the designers and all the money and all the technology, we would still have to have a system to browse. A system in which a computer could direct a microfilm library that would place a certain card on your plate, like a juke-box, and then you would position it and read it and say, yeah, or no, or give me more, or less, or forget about that subject let's go to another one, that would be one aspect of a nice system... It might have to be one station, which you went to, just like you go to the library, everybody doesn't have all the books he needs all the time in his office... 6c

Mike: Another capability is one we already have in libraries, namely the LIBRARIAN. It's a very important function. She knows what's in the system, and how to get at it; and you, the occasional, casual but interested user, don't know everything. 6d

Jeanne: Then you have a choice, you can either search by yourself using the browsing capability, or you can have some human intermediary that will help. 6e

Mike: In a phyical library you're always physically close to the librarian, you talk to her person to person. Maybe in the computer library you really want to have two screens, one at the librarian's station and one at yours. You watch her do the work, and she comes across a title, and it flashes on her screen and yours, and you can say, that's it, or that's not

it. Some kind of semi-automated communication between you and a trained person, that would be important for me to have. 6f

Mike: Every time I go to the library I spend fifteen minutes looking through the shelves, another half hour at the catalogue, and in five minutes I get the information from the girl anyway: that she didn't have it in the first place... 6g

(laughter) 6g1

Mike: These are the two things that come to my mind, as we're just talking off the top of our heads. That's all I had to say. 6h

Jeanne: What we want to have is a system that, insofar as it's practical, will let the machine do the work before you go to the intermediary. But you have to get that trade-off all the time, is it something that the machine can do better, like comparing a whole group of things, or is it something that a person can do better by making a connection which will leap over... 6i

Mike: Well, the librarian serves this function, she knows more about the capabilities of the computer than you the casual user, and she may know of some obscure search routine in there that just went in yesterday or the day before and she can hook... 6j

Jeanne: Or just familiarity... In systems which exist now, familiarity with the vocabulary; this is what Ralph Lewis down at NASA says, (using the RECON system which is an automatic keyword kind of thing, where you go in and you get a choice of all different kinds of keywords, then you decide what you want, and get all kinds of related terms): that the trained person there in the library working with the guy can always get twice as much stuff out than him, and he says "yeah, how did you get that ?" Some people can sit down and use it, and what they get is fine, but if they ask for help from a person who knows the system, they always get a quantity more which in their own judgment is better. 6k

Mike: Intrinsic in that librarian concept is that the librarian has her own display. 6l

Jeanne: Sure. And that's something new. 6m

Mike: So that the user doesn't have to physically get up and go down the hall and talk to her. Ideally you'd be on a network somewhere and you would see what she sees ... 6n

Jeanne: As far as we know, the only systems that exist now work only on teletypes, where the conversation has to be at a very slow speed, and you can't see what the person is looking at, which is what we really need, a video system... 6o

PART 6: DATA ELEMENTS. 7

Jacques: Maybe we could come back to what we discussed one day, about other types of documents, and data elements. 7a

Jeanne: Yes, I have strong but rather confused ideas on what to do about input documents, other than text, when we start putting indexing-type things. 7b

Mike: Is that in line with the blue-skying? 7c

Jeanne: Yes, I haven't seen anything like it before, and that is to design a set of data elements which is universal enough that it won't get hung up with any particular system. We wouldn't design it to fit -as we did here- to fit more or less what we thought we were going to retrieve; and under stress, and hurry and so forth. We need to say, "OK, assuming all the different kinds of information retrieval that we know people need, can we find a set of universal data elements?" And I still haven't found one... That would be a big contribution, something that nobody has done yet, to design a set which is good for all kinds of information, and we know that's a terribly big problem; We probably wouldn't get any more than just the outline: that a universal set of data elements would be thus, and get just a beginning draft of it. 7d

Mike: Can you give me a feeling for what you mean by "data elements?" 7e

Jeanne: One thing which is my strong feeling about data elements is that we could handle all kinds of information if we would start with the premise that there needs to be a data element for a person's NAME, and it doesn't matter whether the person is an author, or a medical patient, or a fictional character, or whatever it is; there has to be something that says "personal name", and that's a data element, and from that, and in conjunction with that, we would have an expanding list of role names, as to whether he WAS an author. Here is the guy, and then you say, "OK, in this search I'm looking for him as an author", or "in this search I'm looking for him as a subject of a biography", or "I'm looking for him as the discoverer of some specific thing." 7f

Jeanne: Whatever it is that we're looking for, there are roles

connected with it, and there would be no limit to the number of roles. Most data element systems are running the other way around. They have a data element for author, and then another system has a data element for cancer patient, and so forth, and a system which could be used by every one for any kind of retrieval would seem to indicate that you'd start with that. TIME of course is another data element. The date or the range of time... And it wouldn't matter then whether it was the date something was published, the date something was discovered, like astronomical periods, just any kind of a date, and then with roles connected with that: what are you looking for in connection with this date? What is the ROLE that you're looking for? 7g

Jeanne: By going at it this way, you'd never confuse a person with a date, it's just two completely different things. Then when we get into more complicated things, it's when it gets down to all kinds of concepts, and we would have to say, are all concepts the same... 7h

Jacques: It seems to me we should propose to do two things. We should propose to first, gather information about that, and find out what people have been saying, and what could be done, and two we should design a little test, something that would not require extensive development of software but would give us some feeling for how to handle that. That's really the important subject. 7i

Jeanne: Yes. 7j

Jacques: I had the experience of going into Children's Memorial Hospital in Chicago, where they had a big problem with surgery archives, and each case was unique: These people were doing operations on infants, sometimes even on newborn babies, and meeting absolutely unexpected situations, so they had extremely valuable archives. On the other hand, they had a very complex problem because each case had its own structure. The first thing we did was to spend about one month reviewing their problem, and then designing a form that was organized exactly the opposite way from what they were expecting. We just had a table of EVENTS for each patient, a matrix of events with procedures, complications, and comments in English; this way, like you were saying, there were NAMES, there were TIMES, and they could access it at any level... 7k

Jacques: The first thing they did was to have about ten thousand copies of the form itself printed, and they distributed it through the clinic because just, without ever using the computer, just the form itself was valuable enough

for them to use it in their work. So if you can find the basic structure of a problem, you have done ninety percent of the work, you can almost throw away the computer. 7l

Jeanne: Yes, that's true. You could ALWAYS throw away the computer, that is the thing... 7m

(laughter) 7m1

Jeanne: And that's what we want to prevent, designing something that has a computer built into it, when you could do better by cutting the computer out... But there are some ways in which the computer can do things that are almost impossible to do some other way, and that's worth the effort. 7n

Jacques: Maybe we should look for a little data-base that we have right here, that we could use for that. Or maybe we should take something really complex, a novel by Dostoievski... and put all the characters and all the events? Something that has a great deal of structure and is beyond the capability of NLS... 7o

Mike: Do you think NLS itself is big enough, and beyond the capabilities of NLS? It would be really challenging to do this, and maybe something good would come out of it. 7p

Jacques: That could be related to the sort of thing Paul is doing, analyzing the system performance. 7q

Jeanne: That would seem to be better, I think the system should be sort of incestuous. It would be interesting, and we need to measure it against something like Dostoievski, which is outside our thing, but we need to try it at least on something that it will help the bootstrapping idea, so we can see if it helps in our own situation... 7r

Mike: We don't really know if NLS is adequately structured, or adequately documented, or learnable, and maybe a task would be just to find that. 7s

Jacques: Another kind of thing would be just taking a section of the Journal. 7t

Jeanne: Well, the kinds of information that's in there... It's not very structured, because it's all kinds of announcements, not deeply thought out programs... Yes, I think that would be very good. 7u

PART 7: TOWARDS AN INTELLIGENCE SYSTEM. 8

Mike: What I would like to have for my own use, if I had options, would be a sort of personalized file system in the computer, in which it did a large amount of work for me, it would not pass it all... The initial file is a very passive thing, it doesn't do anything for me. The Journal comes along and plops something into it without any regard for category, it's just Journal items; I like to manipulate these things, move them into subsets, but I'd like to have a lot of that work done automatically. 8a

Jeanne: How can it be done automatically? 8b

Mike: I don't know. Somehow you have to give it some input, but now I think you have to give it TOO MUCH input, you have to give it every coma, every period, and I think some research could be done, and some software could be developed, to allow you to build a more usable personal file system. 8c

Jeanne: It seems that we ought to attack both problems, or we're not really doing the job. One of them is how you work with your own file, which is what you're talking about now, and the other is how you talk to the outside world. Neither one of those seems very adequate without the other: if you can talk to any information center in the country, you have to put what you find out somewhere, and you have to have your own file designed, and if it is not designed to take advantage of the things that you are getting, nor to look through it at what the outside world is doing, then you've lost a lot there. I can only see it as a link, you can never use it in the same way inside as outside. 8d

Mike: You have a subset of knowledge, that you find from the Library, but you don't want to go to the Library every time you'd like to capture some more information... 8e

Jeanne: Or make comments, and so forth, and you can't put it in the Library, because the Library doesn't have room for your comments, so that's one thing I feel real strongly about: Rather than a total mass of information somewhere, have most of it (and this is what I feel about the tables of contents, or index of other things, and about the list of acquisitions that you get from Stanford), I think we ought to get links to things in some kind of a CHAIN without thinking we have to bring it all in. I feel about that like about the full text input: If the full text exists somewhere, then let it exist somewhere, and access it by VIDEO, rather than to try to get it in the computer, on the microfiche, or whatever, and maybe do optical scanning when you search. But DO NOT RE-KEY anything if it already exists somewhere. And that is something

that almost is the premise; that if the concept has gotten into words somewhere, then use the words that are already recorded rather than to re-key it, or even copy it. 8f

Mike: Yeah, except that some of this sort of recorded information may not be usable. 8g

Jeanne: I think that is one thing we want to say as a premise: we'll use all kinds of recorded information. 8h

Mike: I see. 8i

Jeanne: If it's in hard copy book... We cannot fight the fact that most of the knowledge that everybody has in this world is already recorded somewhere, in a visible piece of paper, and you're never going to get everything into some other form... Everybody is always going to want to scribble something down when he is not near a keyboard. If he's out somewhere talking to somebody, he doesn't suddenly pull out of his pocket some long-distance thing with his radio connection and key it in, I mean that doesn't seem very practical yet, if you can use pencil and paper and then hand it to somebody. The one thing I feel real strongly is, do a linking of different files rather than make everything one big file. 8j

Jeanne: And I think that's one reason I feel strongly about the data elements, in that you could then link from a data element system in one place to a data element system in another, if they were comparably structured, instead of having to do a great translation process,,. The more systems you could get which ran on something so that you'd say, "OK, I did this kind of a search here, now I can do a comparable search on this other data base someplace else, because it's structured..." We can't change all of those now, but there aren't that many, compared to the amount of stuff that exists in print, there aren't that many data bases that would be so engrained in their own that they couldn't make some transformation to a different set if they want to. 8k

Mike: Yes. 8l

Jeanne: And if it did mean a big thing, like the Library of Congress that has all its data in a certain format, then you have to get an interface, just like talking different languages in the computer... We're never going to use the same language, but you find some interface with it; so I think finding interfaces is going to be one of the biggest things, rather than to say, we're going to design it so that EVERYTHING fits into this one grand scheme. 8m

Mike: I think that's a very good concept. 8n

Jeanne: OK, I think I have said it about three different ways now. 8o

Mike: We can stop here. 8p

The SDIS Planning Team (Jeanne North, Mike Kudlick and Jacques Vallee) met on 26 July 1972 for a review of current ideas and to prepare the groundwork for specific discussion with DCE. The present document is a transcript of the session, prepared by JFV. There were natural breaks in the discussion and the transcript has accordingly been organized in seven parts to increase its readability.

PART 1: SCOPE OF THE PROBLEM.

Mike: I have a general view of what we might be able to do. I would like to use the existing computer system. I really think that the Journal System and the initial file, and the viewspecs and the capability for having tables of contents and pointers and links and all that stuff has got a lot of potential power... But it's all there now as a set of disjoint techniques that have not been put together with an eye towards what a human being wants, in order to really use it. So the model that I gave Jacques the other day in talking to him is like the Encyclopedia Britannica: You've got a lot of information, theoretically all the information in the world, OK, how do you get the information out? Clearly you don't read from page one in order to find what you want. And not so clearly but also equally true, you can't go by the letters on the volume that tell you it's going to be under volume S, you can't go by the subjects across the top of the page because there's always subjects that aren't heads of articles...

Jeanne: Sure.

Mike: So you have to use an index: The guys who write each individual article pop words into this index, and say: "these are the important words"... You know all this... and so they publish an index. Now if you want to know anything about Stonehenge, it gives you fifty articles in which Stonehenge is discussed, and perhaps it happens that there is NO article in which Stonehenge is the main word, so that there was no way to find it without the Index. What I think we need, and ought to have, is a computer index, the best we can think of getting, which says that such-and-such a topic is in such-and-such an article, or several articles. And then over this somewhere else there is a table of contents with all the articles listed, and the dates, and the journals, and the author, and maybe an abstract even.

Jeanne: Yes.

Mike: But just in one place in the computer. And then the article itself, the thing that's really referenced, the piece of intelligence, may or may not be in the computer. It might be on microfilm, it might be on a shelf; I prefer microfilm but there may be other ways to store it, anyway you can find out about it from the computer. Maybe after you've read the article, you may want to say, "that ought to be indexed under something else as well", and you need to tell this information analyst, in the best case you do it yourself... somehow you can update the index dynamically.

Jeanne: Yes.

Mike: That's a big task, as you think of all the information that one would want to have. As I was telling Jacques, a company like API does nothing but abstract articles, and make keywords, indices and all the rest, and that's difficult work. I don't know how much intelligence we can get into the computer with the limited staff we have, but presumably being a research group, and an experimental outfit, we're not trying to solve the world's problems.

Jeanne: No, we're only trying to make a model.

Mike: There is a couple of interesting tricks we can do, and I know that you've seen these things, I've seen them at Shell: one of the things that is really useful to me, anyway, is tables of contents. In the Communications of the ACM the only thing I really read ninety-nine percent of the time is the table of contents; and if it's there then I go to the article. If I don't like what I see I never go any further. I think it would be really nice to have as one subset of our intelligence information a table of contents (monthly or however depending upon the frequency of publication) of all the Journals that we think are important. That might even include Science magazine, at least the articles that come under the News heading, not the Biochemistry section.
Jeanne: Yes.
Mike: For example in last week's Science there was a very good article on Cable TV and its implications for the information utility in the home, in the next fifteen years. We ought to know about that, it's just absolutely relevant. The table of contents would show you that clearly. There are many other things, like titles of publications that IBM, Xerox or BBN put out, just short little things; it would say, "here is where the information is, and this is what it's about, and we may or may not have the full text anyway, but at least here is a clue to you about something that you may be interested in."
Jacques: There are other centers that are in the business of gathering information, or intelligence, about the same field. I'm thinking for instance of the lists of new acquisitions of the computer science library at Stanford since I'm on their mailing list; I usually don't do anything with it but it would be simple to put it into the system so that other people may be aware that some publications exist.
Mike: Yes, that's a really good category, new publications.
Jacques: Information gathered by other centers.
Jeanne: Well, I'm accepting what you say and thinking too, because I've been over this, many times.
Mike: I'm sure you have. In fact there are two things that scare me. In the first place what we put in there may become immediately dead wood forever because no one uses it. One way to overcome that is to try to have a system whereby people can say, "these are the sorts of things I want to know about", "whenever you put in a new table of contents give me a Journal item which says, the Communications of the ACM has now been updated for July 1972", and then Irby and Paxton and Kudlick and Watson say, "yeah, I want to hear about that", and very few say "I want to hear about Innovation and a few others", or whatever, so have a sort of selective dissemination of information. That's classical. but they rarely work!

PART 2: INTERROGATION AND DISSEMINATION.

Mike: Then there is another thing that you need, when you have all this, and it is some way to QUERY the system.
Jeanne: That's our problem right now.
Mike: That's our problem. For example you might go on vacation and you come back and want to ask what's new since you left; or "is there something in the system for such-and-such a magazine at such-and-such a date?" These are the easy kinds of questions, and the harder questions are: "Is there anything in the system on paging for PDP-10 systems", you know that's a big keyword problem. I don't know how we're going to tackle that. But it starts mushrooming as a

set of technical problems to solve.
Jeanne: Right.
Mike: There may be special people we may want to support in a grander way. For example, Doug, maybe Bart Cox if he wants to really put on some shows for people, we could have a tailored intelligence system, in which there would be information that was relevant to him and accessible by him only. Or updated for him only. Tailored information. That would be an interesting thing to do; it goes along Jacques' earlier comments in one of his first writings on this subject, that there literally are certain key people in any organization that are plugged in to the world, and when you want an answer you generally ask them...
Jeanne: Technological gate-keepers.
Mike: That's right. So maybe we ought to make their lives easier in some way, I don't know what the way is. This is something that we could do for Doug. The thing that always amazes me is that you go to his office, and there aren't very many books, it's mainly his own etchings, and maybe he'd like to have a system that would help him for that. I don't know.
Jeanne: He used to have it all put on-line.
Mike: What happened to that ?
Jeanne: It's now on paper tape. There is no way to index it. Why not?
Mike: NOW, that is the sort of technical aspect of it that we'll come back to. When I was talking to Jacques the other day he had what I thought was a really good idea, which is that in order to make this thing visible and make it work and see how it's being used, etc, we ought to have a special area in which we have display consoles that would be used mainly for this purpose initially, and the microfilm reader, which we're experimenting with, and later there will be another one, and whatever we have in there, and some journals. The hard copy, the microfiche, the documents, etc. Maybe the best area is along the wall opposite our cave, at the other end of the building, where the picture of the Earth is; it's already partitioned off anyway, we could make it into the X-DOC room.
Jeanne: Yes. Or "RINS".
Mike: About names: This effort is going to serve the NIC community as well as serve ARC, and it will be to our benefit to get feedback from NIC users, other than ARC. Maybe we should call this thing something like the NIC Technical Support Center or whatever conveys the meaning.
Jeanne: If the premise is right, what we do for NIC will set the pattern for any other community. If it isn't, then we had better find that out right away.
Mike: That's all I wanted to start out saying, and maybe Jacques wants to add to some of these notes.

PART 3: INDEXING AND CATALOGING.

Jacques: I have a couple of questions and I'm not sure what they are related to here, but perhaps I should mention them now. One is, you said something about indexing. Are we talking about an index or are we talking about a thesaurus, where concepts are related so that you can go through the concept chain ?
Mike: Oh, I'd love to get to that.
Jacques: OK, so that's something that we should discuss.
Jeanne: We need both, I mean it isn't one OR the other to my mind, it's an index which is based on a thesaurus, you have to make up your mind.

Jacques: The other thing is, we have to address the question of data acquisition. How are we going to find information? We have to develop techniques for doing that. We need to GO AFTER the information which is of interest to us, and does not come our way. That means we have to have some procedure to extend what we have been doing so far on a purely experimental basis, of taking field trips; should we do this as a matter of policy or not ? We should review the experience we have accumulated in this way. Also, we should ask whether we need to identify some new functions that haven't been recognized so far within ARC, something that to some extent we all do, that you are primarily doing, Jeanne, the function of information analyst. Shouldn't we hire somebody that you would train to do that on a full time basis ?
Jeanne: Right.
Jacques: And then, there is one thing that we never seem to be getting to, the NATURE of the information we're dealing with. and HOW it can be represented. I tend to agree with Doug's statement that we have all we need, almost all we need to handle it in the system, with the structure and all that, and yet the file system is changing, we'll soon be able to handle tables, graphs, and other types of entities; how can we best take advantage of that? And how can we relate it to the nature of the information? So far all our discussion has revolved around concepts that are traditional in library automation, and we need to break away from that. I think that's what Doug wants, only we couldn't get feedback from him; when he talks about the intelligence system, obviously he has some idea in mind, but we couln't get to that.
Jeanne: Have you gone back and read the RINS background documents ? I haven't lately, there is a lot of stuff in there that I'd be ready to use now that I wasn't when I read it before. We really should do that, because I do think that he's consistent in that.
Jacques: We need to compile a little history also of the organization policy of RINS, how it got to be what it is now. what would be needed...
Jeanne: My suspiscion is that it's just been neglect up to now, it wasn't so much policy as it was lack of policy in some of these things.
Jacques: That should be part of the plan, to compile this history. That's all I had to say.
Mike: Along that line, what is intelligence information? Are there new ways of storing this information? I'm really a little bit scared about this whole concept of keywords and how you find your way around in information space, that's an area that needs an awful lot of concerted research. I was looking at one of the documents that you showed us a couple of months ago when we had our first meeting, it looked to me like a very cryptic thing with keywords and the asterisks and all that jazz, a very error-prone system to get information in, and very likely the main keywords aren't going to be there, and I don't know how you add to keywords, or how you index things,.. I don't have any answers, all I have is the one big question, which is: isn't there a better way?
Jeanne: Yes, there is. That was at Dick's insistence, I wasn't even going to put keywords in, the only keywords that I would have put in would have been keywords that exist on the document itself, and that captures something on which there is no argument; these people said: "these are subjects"; according to their keyword system, these are

the subjects that this document treats. Then Dick insisted that people wanted keywords, and we had this to throw keywords in, and we have done it at random. If there was not a good set in the document page, then we supplied keywords as we had time, and that was compeletly free form, because there is no existing thesaurus which is satisfactory for what we are doing. We have been making one.
Mike: Sure, exactly.
Jeanne: Doug asked... When I first mentioned that it was sort of useless to put in random keywords, he said, "how long do you think it would take to develop a thesaurus", and I said, a couple of years, and he said we don't have time, and so we went from there. Bull— 2-3 months But it's part of a larger problem as I see it. I think one of the design decisions that we have to make, or at least we have to deal with, and say why we took a stand on it one way or the other, is whether there is going to be an intermediary: are we going to design a system, or are we going to design several systems? One system would be designed so that any individual could do his own input, according to his own interests, and his own tools and so forth, just like an individual researcher who is making his own file, and that way can take care of keywording his own set: "Here is something that means something to me, and when I get ready to retrieve it I'll use this word to retrieve it." That has never worked very well in practice in years past.
Jacques: Right.
Jeanne: Everybody is always designing his own system and then giving it up in favor of some other system that he hopes will work better, but you don't find many people that say "I've designed this system for my information, and now I can find what I want." Whether it's a filing system in folders or whether it has the complexities of a keyword system, it still does not work very well.
But this you can do on the terminal!!
Mike: One of the reasons that personal file systems do not work is that there is no way of making an effective cross-reference list and keeping it up-to-date. You want to file things under more than one heading.
Jeanne: But even if you make a card index... You say, "OK, I have to file it somewhere, so I'll file it under one word", or under a number, or whatever, and then you create an auxiliary that has links, as it were, to this; then you can pick your words for that, or you can use the standard set, like the EJC thesaurus, and then put the links with the numbers to the documents. People of course get quite complicated with that; and still most people are not satisfied with what they are able to do with it.
Mike: I'd like to make a standard suggestion, which you all can shoot down. One of the things which I've found to be a very powerful tool is the very simple idea of keyword-in-context, KWIC indexes, where you permute all the words in the title. It seems to me that it would be really nice to have something like that for all the titles. Ugh!
Jeanne: Well, we use that, you see, in the NIC catalogue, that's the title word index, it's the KWIC index.
Mike: Is it useful ?
Jeanne: It's keyword OUT of context you know, we don't just rotate it around, but we print the word out in the margin. Sure, it's KWIC and dirty... It's not satisfactory for good retrieval, because you can't insure that the people are going to put the words that you're going to want in the title. Unless you make it into an index, in which you have all kinds of cross-references, and then you have a

This is much better Kirk said it I didn't!

thesaurus base.
Mike: Yeah, but the trouble with a lot of systems is that they are designed in such a way that the person who is using them doesn't have to be intelligent, he's got to be mechanical instead, He's going to use certain keywords, and if the documents aren't there under those keywords, then by God he doesn't get everything and he does not even KNOW that he does not get everything.
Jeanne: Well, tests have shown that they don't, that you're not that intelligent, that you can't even index something yourself and then go back and look for it, and look for it under the words that you put it under, because the mind just doesn't work that way. That is why they have these extremely complicated cataloging sections in big libraries, where they try to use thesaurus and go back and look each time!
Jacques: Yes.
Jeanne: The cataloger has a new article in "Information Processing Letters", and says "ah, it seems to me that certain words..." or he has a class system where there is a general class in a hierarchical system where you see, INFORMATION PROCESSING, and then all the sub-headings; then you can look down and say: "this article is most closely related, of all the choices I see here, most closely related to THESE terms." Then the thing they have to do is go and see what else they've already put under those terms, because they can't remember. Particularly if, over a period of time, you've changed your thinking about it; or, if you have more than one person doing it, they are not going to be consistent in it, no matter how much you tie it down, you will find that things are in strange places, or you find that you put things in two places instead of one, and it's just a constant re-working of an organic thing, which is a thesaurus, and an index based on a thesaurus.
A lot of this can be handled well with this system (NLS)
Mike: In my opinion, it probably will never change.
Jeanne: No, I can't see that it will. That's another decision we have to make in our design: are we going to go for things like title words and automatic indexing, where you're simply going to use the terms that occur in the material that you're handling? You can search on those terms, and then have an auxiliary thesaurus where you put in all the things you've discovered so far: "we'll use this word, but it probably is related to this word, so look under this word". You can do that. The automatic text searching on the title words and the abstract and the body of the thing (that's another decision !) and then, you can set up a machine system where it says, "this word is equal to this word." The idea is, "be sure to look under this word". That's a very complicated, expensive way to do searching, but you can do it.
Jeanne: Then you have, of course, all the human aspects over here; because if you ever try to build a machine such as people have done, you still have, somewhere down the line, the text processing itself and it is not to the point yet where we can tell by the context whether this word is the same as this word. There are programs that will go through abstracts and indexes and titles, of course, and pick up all the new words, and say, "here are the words that we haven't found before, shall we use them or not?" And then a human goes through and says, "I don't think we will." It still takes the intermediary somewhere along the line to make the thing consistent. So you're going to have to decide if we are going to have the KWIC and dirty, like the keywords, which does it automatically... but

then you end up with a lot of garbage, and a big suppress list of things that occur in titles and are not significant...
Mike: Like five or six hundred words...
Jeanne: Yes, and then you've got a really expensive system, too... Another thing that we're going to have to decide is, how much are we going to spend on something like this? Are we going to do one which is inexpensive, and dirty, or one that is expensive and has a lot of fancy stuff to it? It depends again on who are you designing it for.

PART 4: SHORT-TERM GOALS.
Jacques: Maybe we should come back to what we said earlier, that we're not going to solve the general problem, we're trying to create a model which works in this environment. In this respect I think we're not supporting a general library of computer science, but a number of individual projects. For example, Mike does a survey of terminals. We want to have some way of keeping this up-to-date, so that whenever you come across an article about terminals, it goes into this system and he has access to it. Also we need to have methods and procedures by which data are transferrable to a new person.
Jeanne: We take some subject area, but then try to design a system that will work for any subject...
Jacques: Yes, so in reference to that I think we have to include, as part of our planning, addressing the general problem that we just discussed; we also need to take some practical steps towards improving the system we have now, in terms of just using it better.
Jeanne: Well, that's probably a design decision, whether we're going to try from the platonic ideal and work back to the practical, or whether we're going to say, OK, we're this far along, so all we'll do is improve where we see room for improvement. I think we've got to start from one end or the other.
Jacques: The last time we discussed it with Mike we came up with a couple of things that would be worth trying, and wouldn't mean a big investment either philosophically or practically. One would be... When we visited one of the sites that we went to, they had an interesting concept; they did not have a computerized catalogue system for their library, however they had "interest lists" in the computer, so that the machine could generate labels for all the people interested in a particular subject. Whenever a publication came on this subject (for example, the OS scheduler) all the people on that list would get a copy. That's a simple idea.
Jeanne: Yes.
Jacques: Another thing that we could do is operate a clipping service. For example, Mike is interested in terminals, you're interested in microfilm readers... you know that whenever I come across something that has to do with microfilm readers I turn it over to you; well, we could have some general way of doing that. That means again procedures... It may not even use the computer.
Jeanne: Now, are we going to try to do things that are already state-of-the-art, or are we looking for ways to make breakthroughs in the things that are not? Because we could spend a lot of effort on that...
Jacques: Well, I think we are talking at two levels here, and these are parallel, but I see us coming out with a plan in a couple of weeks that will say: "On September 1st we'll begin operating a clipping service, and we'll begin a file on terminals". All these

things we can say. We can also say, "On October 1st we'll start THINKING about breakthroughs, in this and that direction, and here are the options"... I think we need to define the two things. We cannot have the breakthrough by October 1st.
Jeanne: No.
Mike: I'm very much in favor of doing something simple that works right away (or on the scale of time that we operate on, it would be right away.) I like what I have seen in Shell, which is to have the tables of contents, as I indicated before. I like taking an area, whether it's CRT or microfilm readers, disks or whatever, and just making a little information bank about that.
Jeanne: Well, you see there is already a commercial service that we can buy that gives us the tables of contents of most of the journals that we'd be interested in, so you know, go ahead and buy it, but then what do you do with it ?
Mike: I thought that tables of contents ought to be in the computer.
Jeanne: Then that's another thing that... Well the first thing I thought of is, we have to decide what kind of trade-off we're going to have with computer input, because it's just like you said. error-prone and so forth. Once you start putting text into the computer, you're going to be in the same bag that we're in with the NIC catalogue, and the directory and all these things, that we can't get out. And it's just like Jacques is saying, about using idents and using numbers instead of trying to spell out names, you're just fooling yourself if you think that you're saving anything by putting it into the computer. You've got a trade-off all the way, and you have to decide what's really worth putting in, and it seems to me that anything that exists and is accessible outside the computer, don't for Heaven's sake try to put it into the computer. Copying something into the computer, and I include whole text input, is a dumb thing to do, it's wasteful, because you have it already.
Mike: What would you put into the computer?
Jeanne: Only things which allowed you to make faster indexing, cross-indexing...

PART 5: THE LIBRARY MODEL.

Mike: Now we could do blue-skying a bit. One of the horrors that I see in a system like this is the same kind of thing you see in the library; you know exactly what you want when you walk in the door, and then suddenly you realize you DON'T know what you want and you look through a lot of documents and you don't find it, and there is no sense in buying some books, that's why they have the library in the first place, if you're not sure which book it is that you want, you go through several and you pick references off and finally you get a concept of what you want and you might even wind up calling the author and talking to him...
Jeanne: Yes...
Mike: So the horror that I see is that the system won't serve this need to browse. If we were given all of the smart people, and all the designers and all the money and all the technology, we would still have to have a system to browse. A system in which a computer could direct a microfilm library that would place a certain card on your plate, like a juke-box, and then you would position it and read it and say, yeah, or no, or give me more, or less, or forget about that subject let's go to another one, that would be one aspect of a nice system... It might have to be one station, which you went to, just like you go to the library, everybody doesn't have all the

books he needs all the time in his office... but he could!
Mike: Another capability is one we already have in libraries, namely the LIBRARIAN. It's a very important function. She knows what's in the system, and how to get at it; and you, the occasional, casual but interested user, don't know everything.
Jeanne: Then you have a choice, you can either search by yourself using the browsing capability, or you can have some human intermediary that will help.
Mike: In a phyical library you're always physically close to the librarian, you talk to her person to person. Maybe in the computer library you really want to have two screens, one at the librarian's station and one at yours. You watch her do the work, and she comes across a title, and it flashes on her screen and yours, and you can say, that's it, or that's not it. Some kind of semi-automated communication between you and a trained person, that would be important for me to have. you should have the option of doing it yourself or having someone do it for you
Mike: Every time I go to the library I spend fifteen minutes looking through the shelves, another half hour at the catalogue, and in five minutes I get the information from the girl anyway: that she didn't have it in the first place...
(laughter)
Mike: These are the two things that come to my mind, as we're just talking off the top of our heads. That's all I had to say.
Jeanne: What we want to have is a system that, insofar as it's practical, will let the machine do the work before you go to the intermediary. But you have to get that trade-off all the time, is it something that the machine can do better, like comparing a whole group of things, or is it something that a person can do better by making a connection which will leap over...
Mike: Well, the librarian serves this function, she knows more about the capabilities of the computer than you the casual user, and she may know of some obscure search routine in there that just went in yesterday or the day before and she can hook...
Jeanne: Or just familiarity... In systems which exist now, familiarity with the vocabulary; this is what Ralph Lewis down at NASA says, (using the RECON system which is an automatic keyword kind of thing, where you go in and you get a choice of all different kinds of keywords, then you decide what you want, and get all kinds of related terms): that the trained person there in the library working with the guy can always get twice as much stuff out than him, and he says "yeah, how did you get that ?" Some people can sit down and use it, and what they get is fine, but if they ask for help from a person who knows the system, they always get a quantity more which in their own judgment is better.
Mike: Intrinsic in that librarian concept is that the librarian has her own display.
Jeanne: Sure. And that's something new.
Mike: So that the user doesn't have to physically get up and go down the hall and talk to her. Ideally you'd be on a network somewhere and you would see what she sees ...
Jeanne: As far as we know, the only systems that exist now work only on teletypes, where the conversation has to be at a very slow speed, and you can't see what the person is looking at, which is what we really need, a video system...

PART 6: DATA ELEMENTS.

Jacques: Maybe we could come back to what we discussed one day,

about other types of documents, and data elements.
Jeanne: Yes, I have strong but rather confused ideas on what to do about input documents, other than text, when we start putting indexing-type things.
Mike: Is that in line with the blue-skying?
Jeanne: Yes, I haven't seen anything like it before, and that is to design a set of data elements which is universal enough that it won't get hung up with any particular system. We wouldn't design it to fit -as we did here- to fit more or less what we thought we were going to retrieve; and under stress, and hurry and so forth. We need to say, "OK, assuming all the different kinds of information retrieval that we know people need, can we find a set of universal data elements?" And I still haven't found one... That would be a big contribution, something that nobody has done yet, to design a set which is good for all kinds of information, and we know that's a terribly big problem; We probably wouldn't get any more than just the outline: that a universal set of data elements would be thus, and get just a beginning draft of it. Meaty problem
Mike: Can you give me a feeling for what you mean by "data elements?"
Jeanne: One thing which is my strong feeling about data elements is that we could handle all kinds of information if we would start with the premise that there needs to be a data element for a person's NAME, and it doesn't matter whether the person is an author, or a medical patient, or a fictional character, or whatever it is; there has to be something that says "personal name", and that's a data element, and from that, and in conjunction with that, we would have an expanding list of role names, as to whether he WAS an author. Here is the guy, and then you say, "OK, in this search I'm looking for him as an author", or "in this search I'm looking for him as a subject of a biography", or "I'm looking for him as the discoverer of some specific thing."
Jeanne: Whatever it is that we're looking for, there are roles connected with it, and there would be no limit to the number of roles. Most data element systems are running the other way around. They have a data element for author, and then another system has a data element for cancer patient, and so forth, and a system which could be used by every one for any kind of retrieval would seem to indicate that you'd start with that. TIME of course is another data element. The date or the range of time... And it wouldn't matter then whether it was the date something was published, the date something was discovered, like astronomical periods, just any kind of a date, and then with roles connected with that: what are you looking for in connection with this date? What is the ROLE that you're looking for? ?
Jeanne: By going at it this way, you'd never confuse a person with a date, it's just two completely different things. Then when we get into more complicated things, it's when it gets down to all kinds of concepts, and we would have to say, are all concepts the same...
Jacques: It seems to me we should propose to do two things. We should propose to first, gather information about that, and find out what people have been saying, and what could be done, and two we should design a little test, something that would not require extensive development of software but would give us some feeling for how to handle that. That's really the important subject.
Jeanne: Yes.

Jacques: I had the experience of going into Children's Memorial Hospital in Chicago, where they had a big problem with surgery archives, and each case was unique: These people were doing operations on infants, sometimes even on newborn babies, and meeting absolutely unexpected situations, so they had extremely valuable archives. On the other hand, they had a very complex problem because each case had its own structure. The first thing we did was to spend about one month reviewing their problem, and then designing a form that was organized exactly the opposite way from what they were expecting. We just had a table of EVENTS for each patient, a matrix of events with procedures, complications, and comments in English; this way, like you were saying, there were NAMES, there were TIMES, and they could access it at any level...
Jacques: The first thing they did was to have about ten thousand copies of the form itself printed, and they distributed it through the clinic because just, without ever using the computer, just the form itself was valuable enough for them to use it in their work. So if you can find the basic structure of a problem, you have done ninety percent of the work, you can almost throw away the computer.
Jeanne: Yes, that's true. You could ALWAYS throw away the computer, that is the thing...
(laughter)
Jeanne: And that's what we want to prevent, designing something that has a computer built into it, when you could do better by cutting the computer out... But there are some ways in which the computer can do things that are almost impossible to do some other way, and that's worth the effort.
Jacques: Maybe we should look for a little data-base that we have right here, that we could use for that. Or maybe we should take something really complex, a novel by Dostoievski... and put all the characters and all the events? Something that has a great deal of structure and is beyond the capability of NLS...
Mike: Do you think NLS itself is big enough, and beyond the capabilities of NLS? It would be really challenging to do this, and maybe something good would come out of it.
Jacques: That could be related to the sort of thing Paul is doing, analyzing the system performance.
Jeanne: That would seem to be better, I think the system should be sort of incestuous. It would be interesting, and we need to measure it against something like Dostoievski, which is outside our thing, but we need to try it at least on something that it will help the bootstrapping idea, so we can see if it helps in our own situation...
Mike: We don't really know if NLS is adequately structured, or adequately documented, or learnable, and maybe a task would be just to find that.
Jacques: Another kind of thing would be just taking a section of the Journal.
Jeanne: Well, the kinds of information that's in there... It's not very structured, because it's all kinds of announcements, not deeply thought out programs... Yes, I think that would be very good.

PART 7: TOWARDS AN INTELLIGENCE SYSTEM.

Mike: What I would like to have for my own use, if I had options, would be a sort of personalized file system in the computer, in which it did a large amount of work for me, it would not pass it all... The initial file is a very passive thing, it doesn't do

anything for me. The Journal comes along and plops something into it without any regard for category, it's just Journal items; I like to manipulate these things, move them into subsets, but I'd like to have a lot of that work done automatically.
Jeanne: How can it be done automatically?
Mike: I don't know. Somehow you have to give it some input, but now I think you have to give it TOO MUCH input, you have to give it every coma, every period, and I think some research could be done, and some software could be developed, to allow you to build a more usable personal file system.
Jeanne: It seems that we ought to attack both problems, or we're not really doing the job. One of them is how you work with your own file, which is what you're talking about now, and the other is how you talk to the outside world. Neither one of those seems very adequate without the other: if you can talk to any information center in the country, you have to put what you find out somewhere, and you have to have your own file designed, and if it is not designed to take advantage of the things that you are getting, nor to look through it at what the outside world is doing, then you've lost a lot there. I can only see it as a link, you can never use it in the same way inside as outside.
Mike: You have a subset of knowledge, that you find from the Library, but you don't want to go to the Library every time you'd like to capture some more information...
Jeanne: Or make comments, and so forth, and you can't put it in the Library, because the Library doesn't have room for your comments, so that's one thing I feel real strongly about: Rather than a total mass of information somewhere, have most of it (and this is what I feel about the tables of contents, or index of other things, and about the list of acquisitions that you get from Stanford), I think we ought to get links to things in some kind of a CHAIN without thinking we have to bring it all in. I feel about that like about the full text input: If the full text exists somewhere, then let it exist somewhere, and access it by VIDEO, rather than to try to get it in the computer, on the microfiche, or whatever, and maybe do optical scanning when you search. But DO NOT RE-KEY anything if it already exists somewhere. And that is something that almost is the premise; that if the concept has gotten into words somewhere, then use the words that are already recorded rather than to re-key it, or even copy it.
Mike: Yeah, except that some of this sort of recorded information may not be usable.
Jeanne: I think that is one thing we want to say as a premise: we'll use all kinds of recorded information.
Mike: I see.
Jeanne: If it's in hard copy book... We cannot fight the fact that most of the knowledge that everybody has in this world is already recorded somewhere, in a visible piece of paper, and you're never going to get everything into some other form... Everybody is always going to want to scribble something down when he is not near a keyboard. If he's out somewhere talking to somebody, he doesn't suddenly pull out of his pocket some long-distance thing with his radio connection and key it in, I mean that doesn't seem very practical yet, if you can use pencil and paper and then hand it to somebody. The one thing I feel real strongly is, do a linking of different files rather than make everything one big file.

Jeanne: And I think that's one reason I feel strongly about the data elements, in that you could then link from a data element system in one place to a data element system in another, if they were comparably structured, instead of having to do a great translation process,,. The more systems you could get which ran on something so that you'd say, "OK, I did this kind of a search here, now I can do a comparable search on this other data base someplace else, because it's structured..." We can't change all of those now, but there aren't that many, compared to the amount of stuff that exists in print, there aren't that many data bases that would be so engrained in their own that they couldn't make some transformation to a different set if they want to.
Mike: Yes.
Jeanne: And if it did mean a big thing, like the Library of Congress that has all its data in a certain format, then you have to get an interface, just like talking different languages in the computer... We're never going to use the same language, but you find some interface with it; so I think finding interfaces is going to be one of the biggest things, rather than to say, we're going to design it so that EVERYTHING fits into this one grand scheme.
Mike: I think that's a very good concept.
Jeanne: OK, I think I have said it about three different ways now.
Mike: We can stop here.

<HARDY>SDIS.NLS;3, 17-AUG-72 13:30 MEH ;

Subject: SDIS Journal item # 11331.

In reading your dialogue It seems apparent that you are looking for an area to focus your efforts upon,

I would like to take this opportunity to suggest that you consider your minority Hardware Group. We represent, on a small and manageable scale, the needs of many other people, groups and tasks.

(ie: Xdoc, updating, filtering, text input/output, graphic input/output, record keeping, analysis, communications, cataloging retriving, etc)

We also are very close to home and willing to participate.

<VALLEE>SDIS2.NLS;17, 7-SEP-72 10:26 JFV ;

COMPARATIVE ANALYSIS OF THREE STATE-OF-THE-ART INFORMATION SYSTEMS.

The SDIS Planning team (Jeanne North, Mike Kudlick and Jacques Vallee) has met on 16 August 1972 to compare notes regarding recent site visits to three installations supporting information systems. This document is a transcript of the taped discussion edited by JFV. For greater readability it has been broken into sections. It is the third document in our planning series (see JOURNAL 10806 and 11331).

PART 1. OVERVIEW OF THREE INFORMATION SYSTEMS.

Mike: In order to set the framework for future planning stages, we have visited three sites with interactive computer systems that serve special functions, one of them at the Rand Corporation, the second site at IBM's Research Lab in Los Gatos, the third site at NASA Ames Research Center here in Mountain View.

The last two systems, NASA and IBM, were tailored for library management, for document retrieval, at least for bibliographic searching, and in the IBM case, for management of a library system excluding circulation. It covered book ordering and cataloging, and keywording, and all the other functions of the library; user searches were done by the users themselves. Similarly, the way I understood it, the NASA system was set up to aid the user in finding his information by giving him a browsing capability and keyword search capability, author search, etc. But I didn't think it was used in the library management functions of circulation and ordering, acquisition, cataloging and things of that nature.

Jacques: No they didn't.

Mike: So the systems differ in that respect, and then a final comment for this initial summary was that the system that we saw at RAND was not a library management system at all; in fact we saw two systems, one a Data Analysis system which was a highly interactive, to my mind very satisfactory way of displaying statistics graphically: Getting various regressions calculated and displayed and manipulated and combined, etc, and the second system was called video WYLBUR, a display version of the WYLBUR text editing system, which we'll talk about also.

The main points that I'd like to cover (and then we'll get into anything into which we're led from there), are just what we learned from these systems from the design standpoint, from the user's standpoint, the computer systems standpoint, and how they might affect us in the further development of SDIS intelligence retrieval system that we are sort of chartered to design and implement. Does anyone care to add anything to that?

Jacques: I think it's important to point out that the RAND systems are the only ones that had generalized facilities for a personalized file system, in terms of what we were saying the other day in the first session, namely that we wanted to strive for personalized

processing. In the other systems you have to take whatever the indexer or librarian has put into the data-base.

Mike: That's a very good point. You're always searching on what's there and in fact, in the NASA case, to get any changes at all in the system they have to go back to Headquarters in Washington.

Jeanne: And that's by design.

Mike: That's by design. That's a very good distinction. Neither the IBM or the NASA systems are personalized in any sense.

Jeanne: There is no way to move any of it even, to make your own file? We talked last time about an interface between those two, the fact that we would want to interface with data bases in which we could not make edits; I think that's the thing we want to look for: a data base where you cannot change contents but where you can move it as we can in ours, where you can move it to a spot where you can make changes in your copy of it. That we haven't found, a system where you can do that... unless the RAND one?

Mike: There is another aspect of the systems, however, that on this general level we ought to at least comment on, and maybe get back to. That is that they were all user-oriented systems. They were not for systems programmers or highly competent computer professionals in any sense. We saw very "run-of-the-mill" librarians using the system at IBM and quite unsophisticated (in a computer sense) quite unsophisticated users at NASA and at IBM using the system to search the catalogs and the indices. At RAND even, the people were problem solvers rather than programmers. They don't want to do everything, all they want to do is mathematical analysis. The system was designed with them in mind and in that sense I think all three systems are successful. I think they've really met that goal, being user oriented. We'll get into that in a little while, I I hope. /See Part 4 below/.

Jacques: Again, the WYLBUR system would be the exception. Although he didn't demonstrate the capability of using WYLBUR as a language for procesing or doing computations by interfacing with other processors, etc.

Mike: No, I didn't see that. I don't know anything about WYLBUR. I really would like to have you maybe now or maybe in a few minutes come back and describe what you saw on the VIDEO-WYLBUR SYSTEM BECAUSE I know that it has practically all the capabilities that we have here for text editing. It may not have the hierarchy but whatever it has I'd really like to hear a description of it so we can have it on record.

PAT 2. DATA-BASE STRUCTURE.

Mike: I'd like to just start a more detailed discussion about picking up some on this subject of indexing, and how you find information in the data base. One of the things I noticed with both the IBM system and NASA system, (which we might as well call by their names, the IBM system is LMS for Library Management System and

the NASA system is RECON for Remote Console System), is the following:

> The RECON and the LMS system both have multiple indices into the data base. They have author indices, they have title indices, they have keyword indices, and you can combine keywords and indices logically to search in a rather sophisticated way for what you are looking for. You search over a good wide data base. The RECON system, and I don't remember in the LMS system, had a feature they call EXPAND which allows you to choose a word in the display surrounding entries in alphabetical order that occur before and after the word that you've chosen. This allows you to primarily pick up misspelled words or alternative versions of that word and also allows you to see that there may be phrases using that word which could serve as additional entries into the system.I think that's very valuable for a searcher.

Jeanne: I find the term EXPAND to be poor in a system sense because the general meaning of "expand a term" in the thesaurus indexing terms means that you have given the various aspects of it or taken it apart and you take a general term and then you expand it by giving various terms which are narrower or broader: That is a term expansion and in this case what they're doing is simply giving you a context from the index and I don't know what word you would use but I find that is bad because this isn't expanding a term, this is expanding a space in the index. That's something else again.

Mike: Yes, it's a window feature.

Jeanne: Yes, and there ought to be some better way; if we were designing one I think we would pick a better term for it because it's a bad use. There's lots of things we find in these machine systems that we find where somebody has settled on a term and then later it had to be changed because in the general, bigger framework, it was wrong.

Mike: The LMS system uses that EXPAND feature if I remember right in terms of the keyword-in-context listing, is that correct?

Jacques: Yes.

Mike: And I just don't remember well enough.

Jeanne: It did it in the author. It did it, I think exactly the same way. My recollection of it is that it did exactly the same thing for the author search. You ask for the author and his name appears in the beginning and then on each side or any that are alphabetically close to it in exactly the same way. I think they've picked it up from RECON. I think RECON had it first or DIALOG had it first.

Mike: Okay, my point originally in this is that I think it's a very good method for the user. He doesn't know all the correct keywords and really isn't in complete command of the article that he's searching for and he's sort of browsing, it gets him into the system in knowing what's in there in a very simple way.

Jeanne: In only one way, only in something that's spelled similarly. You need another, which would be the thesaurus or what I would call "expanding" the term and there's no systematic reason that you couldn't do that and put the EJC thesaurus which they use as their basis online, and when you say "expand" a term then it would show you the entries from the EJC thesaurus which would say: "here's the term you're asking for, here are the terms which we used instead or similar, broader or narrower terms of the other two possibilities." Then you can say, "yes, I really wanted something much narrower." There's no capability built into the RECON system for that. You have to do it by the way of subject terms, keywords that you find at the bottom. You have to go to article and then go from there to say "oh yes, this is similar," which is the same thing you do in a card catalog.

Jacques: From the point of view of implementation, it seems that in neither of the systems was there a tree structure. I didn't ask about RECON, but I asked about LMS. And it turned out that the librarian that was using it thought about it in terms of a tree structure, but there wasn't any there...

Mike: Just a straight index, just a straight alphabetical index...

Jacques: Yes, so that you couldn't have an expansion in the sense that Jeanne is asking.

Jeanne: No, I'm saying that you would have to put the thesaurus in and once you have keyed that thesaurus in then you could jump to that as your guide to what subject term shall I use. Of course you could use the published one. But that's no great advance, but most of these things we're doing are no advance over some other way of doing it, they're just more fun because you have the computer.

Jacques: What we ideally want to have is an automatic expansion here so that once you trigger one...

Jeanne: You ask for a turn-on...

Jacques: It automatically also triggers the related terms in the index. That wasn't illustrated in any of the systems.

Mike: Not at all.

Jeanne: I'm saying, that's what you want "expand term" to mean. And let's see, Thompson has something, if you have ever seen David Thompson's system he's been working for years on just that kind of thing and I think that's what Phyllis has too; a thesaurus is a way of showing your related terms in the index so there are capabilities for that and there is a, at least at NASA, there is already an existing thesaurus, so that even the terminology wouldn't have to be worked out for us, it's just a matter of feature of putting it in. In many disciplines like ours, there's no thesaurus, so you'd say ah, we'll key this thesaurus in and then we'll have one that we can use in our system because then...

Mike: Okay, but then, given that that's desirable, and I really did

agree with that, there's a really nice sort of meta-aspect of that whole concept which is that you let the user work in a context mode trying to find out, just by browsing and checking words and getting clues from keywords, what he might be wanting to look up, rather than a very dogmatic approach which is our Journal approach which says that you've got, (at least the way I understand it) you've got to know the Journal number number in order to jump to it, to get it on your screen. The only other way you can do it is to look through the index, the author index, which is a separate document and is not automatically going to get you to the document that you're looking for. You've got to look through that and find out where are all the things that Kudlick wrote (which may not be very many) but still you have got to go through in order to get the number and that's the handle that gets involved here and I think it's not desirable.

Is my interpretation of that system correct? Our system? Is there more power?

Jeanne: Yes there is, but it takes a human to do it. Well, one thing that does it, of course, is the title word index as Jim's been doing and we want to do for the NIC weekly: run a titleword program on it: then we'll have at least that keyword out of the titles in an index and the thing that Jim discovered when he tried to do it, and the reason he never put out a NIC one, (but he had a titleword index, you know to the whole Journal), was that most of the titles are so ridiculous that they're not useful for that kind of thing. Then the next step is what we do in the regular catalog which is put it through a human who assigns keywords to it and we can do the same thing to the Journal.

Now, there are two schools of thought on whether this is worth while doing. What we want to do, what I want to do is to selectively pick Journal dialogue which seems to have substantive value so it's the kind of thing you would want to refer to, or people would want to refer to, because of the subject interest (not because it was a part of a very singular dialogue), and give those the regular human treatment of assigning keywords to them, giving them normal cataloging, giving them bracketed titles in the cases where no title or a peculiar title was assigned to them, to give them enough of a clue to it that you can go at them with a titleword index.

Mike: You're saying, if I understand you right, that because there is such a wide variety of types of material in the Journal, some of it very personal and probably not of use to anyone else after it's been read once, and some of it of more widespread use in an historical interest, etc, that you'd have a human human interface to subset the Journal and pick out the articles which are of the latter category?

Jeanne: Yes, because we don't find that the system does a good job of indexing them, and we certainly don't want to say everything in the journal will go through a human, because that's just as ridiculous.

Mike: Yes, everything going through them as far as getting keywords

and all that stuff.

Jeanne: It isn't worth it. But, to my way of thinking, it's not very hard to make a selection because there aren't that many that are really important things: like the SDIS discussions, there's no question about them. That needs to be coded and treated by subject terminology; and then there are little things about meetings and so forth which are not important for a long time. If people finally want to know about, you know, how many meetings were held on a certain subject or something, I mean scheduled for something. then you could do that kind of a search some other way but you don't put everything in.

Jacques: This is deviating from what you were discussing, but it seems that at the time of article submission to the Journal, if the user was given the option to have automatic keywording, that would solve part of the problem.

Jeanne: There is such an option.

Jacques: For cataloging automatically?

Jeanne: Oh.

Jacques: At that time if he was automatically given a list of keywords for example, a subset of words picked out from the title by the system itself.

Jeanne: He is given the option to enter keywords.

Jacques: I'm saying the system could generate keywords from the title. It would type, "these are the keywords that we picked from the title", whether he had any or not explicitly.

Mike: Okay, but I think one of the problems that Jeanne mentioned is a real one and that is that people by and large compose poor titles and just as by and large, people don't write very well either.

Jacques: Maybe it would make them aware of it.

Mike: Yeah, it would make them aware of it, I just wonder if...

Jeanne: But I think we'd still have to put the human in, and if we're going to have to put the human in why burden trying to make everybody a trained cataloger which is what that comes out to. It's the same as a novice mode on some other things. If you make it seem awfully difficult, if you make the Journal process seem to load a lot of junk on the user, then he won't use it as much. If he gets, you know, he has to put in keywords or if he has to decide a more appropriate title or something.

Jacques: But that's why I suggest that there would be a default there and the system would be automatically picking words and automatically assigning them to every article.

Mike: Okay, that's good. That's what that is in my mind like in the

compiler sense, an interpretive keyword in context mechanism. okay, only it's just picking the words out right now with a stop word list, saying we don't want "and, of, the "and five hundred other words could be included, and I agree with that; but one step back is the question, is that title any good for the article in the first place? or is it sort of a cryptic message or a facetious message or what ever the hell it is as far as the guy's own whim is concerned?

Jeanne: But does it even need that kind of treatment, and I don't think we ought to discourage that kind of dialogue, and that's how I feel when just very inconsequential dialogue ought to be possible without people feeling "oh, I better not put that in the Journal because it isn't substantive". I think that's fine for the Journal but...

Jacques: But if the option was there of the author himself submitting it for indexing or not, if it was an automatic indexer, he would submit it himself and then the system would come back and say "these are the keywords that we are assigning to that". And then he could add a few or change his title if he wanted to. I just don't think we should confuse the Journal with a personalized filing system that doesn't serve the community. I don't think that you can rely on an indexer no matter how trained, you know, in a general situation where there isn't a controlled vocabulary. In LMS they have a controlled environment, but if you're talking about a very wide gommunity, you don't have that kind of control.

Mike: I think that's a very good point and if it was optional, I think that's a significant feature of the indexing. In a sense what that option says in another context, or Jeanne's context is that this document has some historical worth, or this document is a very topical localized interest but only to the sender or the receivers and isn't going to be used much in the future, like a meeting or Doug's vacation or something like that.

Jacques: Well, how do you know that it's not going to be significant, that someone isn't going to be willing to pay a price to get it out of the system at some point?

Mike: You don't know that. okay, but you don't give it the grand treatement of several indices, you just leave it in there as a Journal item with a number and an author and it's out there in a single catalog which says these are all the Journal items and it stays there for ever. And it's painful to find what you want. but you can. It's not thrown away. Some of them may want to pay the price and they can but we're not going to make that price minimal for every user that's Jeanne's point and I think I really concur with that point.

Mike: Well, maybe we've beat this a little bit to death. From what I've seen we've summarized or agreed to a couple of points. One is that you DO have to provide keywords to an article. It may be done by the submitter of the article out of words used in the title, they may be done by a professional abstractor who writes his own title for the same article that has been submitted and then says: " these are the words that should be used as the

indexed words to the article", and most importantly, that this grand treatment not be given to every article that's in the journal. I think in the state of the articles that we've been submitting it's probably a very plausible approach, it's not like science magazine where we will have to make a big decision as to what articles are valuable and what aren't. Probably a simple dichotomy.

PART 3. COMMAND LANGUAGE STRUCTURE.

Mike: So why don't we switch from the question of indexes to the question of another aspect of these systems which is there solely for helping novice users or even experienced users hand-holding, if you will, so they know what they are able to do in any step of the way.

This was done with a fair degree of similarity with all the systems I observed. One of the interesting aspects of the LMS system at IBM was that on the screen near the bottom, whenever a user was in a particular operation, then all the other operations that were available to him at that point in time, were displayed at the bottom of the screen. He couldn't use a light pen or bug them or anything else, he still had to type in a command for them, but he had them there as a reminder.

I thought that was a very useful facility for the user. It was not a general purpose system where he had every command available all the time but whenever he was on an operation, then he had a certain subset of commands which were natural successors to what he was doing now as a backup or go ahead. One of the systems we saw at RAND, the Data Analysis System was very similar in that respect.

Jacques: What is interesting here is how they all use language functions in one way or another. Some of them use function keys that are actually built into the terminal so that you are always reminded of the functions that you have available. Some of them, such as the RAND system, are essentially simulating function keys by displaying boxes at the bottom of each screen so that you could point to that box if you wanted to execute that function next. There was a variant on that which was very interesting: the LMS system was doing it by just displaying a list of the commands that were available to you next, but of course you could point to them with the light pen as you could at RAND. I thought there was a range of facilities from the hardware keys to the display-oriented keys, function keys.

Mike: Also light buttons. That was very very nice, I think, helpful.

Jeanne: Did the RAND one show only the ones which were available at that point and not ones that were not appropriate at that time?

Mike: Yes, their commands were in a hierarchy. If you wanted to get back up to a higher level so that you could make a wider choice at the moment of what you wanted, what direction you wanted to take, there was always one command which said something similar to back up or emerge or what ever the phrase was. But otherwise, at the level

you were at, you only had a few commands, maybe three, four, five commands which would allow you to get into more depth.

Jeanne: And that changed according to what possibilities were available to you?

Mike: Yes.

Jacques: With the one exception that was WYLBUR which is similar to our system in that you have to memorize the commands that are available to you.

Mike: All the commands. And they are all available what ever you are doing.

Jeanne: And that's presumably caused by the fact that you have so many commands, there aren't just a few available.

Jacques: Yes, and also, WYLBUR is a text editing system so that you don't have a natural hierarchy of things that you want to do next. In the Data Analysis Program, when you start asking for the correlation, then there are several questions that naturally follow and it's not the case in other systems.

Mike: I think we would find, if someone has the patience to study it, that the commands in NLS fall into a hierarchy of sorts. I know damn well that there's a whole subset called content analyzer which you never have to have available to you until you enter the "content analyzer." There's a whole subset in the output processor that you couldn't care less about unless you were in the output processor.

Jeanne: And the text editor and the ...

Jacques: On the other hand, THERE ARE THINGS THAT YOU MIGHT WANT TO HAVE ON A GENERAL LEVEL THAT ARE NOT AVAILABLE TO YOU AT THE GENERAL LEVEL IN NLS.

Mike: Well, that's true.

Jacques: Well, like, what Doug calls set system, the general way of dealing with sets in general, no matter if you are in the journal, the catalog or in your own file. At the present we don't have that. We have to write a special routine within each context to accomplish that.

Mike: What kind of set operations were you thinking of when you mentioned that?

Jacques: Investing, logical operations for example. Those are the obvious ones but I think that in the context of what we were saying earlier, indexing would be an appropriate one. Take this plex or take this branch and produce an index with it on this type of entry.

Jeanne: It looks more and more like we really need to be aware of the difference between just accessing a file and having an editor

change capability on it, because there are going to be lots of people who will be using files in which they have no capability to change it, and I think that there's no harm at all in being aware of which mode you're working in.

Jacques: Well, in most sites that we visited, I was really struck by two things: One, I was struck by how well those programs worked. The other thing that I was struck by was that all of them were non-procedural as opposed to the procedural approach that we have to catalog indexing so all those systems are non procedural in the sense that you had the function, you applied that function to what ever data base you were working with and that function would be accomplished. You didn't have to write a special program every time or initiate it or compile it and run it, that particular set that we are talking about. Once that function was identified, it was available to all users.

Mike: A function like that, getting back to this user aide business was the "explain" feature of the RECON system in which you could, it was sort of like a help system in the old QED sense that you, as we observed, if you wanted more definition of your command in the command language, or of an error message (I think those were the two main things) you could say explain this thing, okay, explain command or explain error message, that you dumped on the screen, you have a full text description. Whether it was accurate or not is another question, but the facility was there for this on-line instruction only when you needed it, not all the time. That's something that we lack completely.

Jeanne: Yes, we need somebody to go through the User Guide and put everything that's available to the user into some kind of "explain" format like that so that you could type in the word and then find out under what circumstances you use it and how you use it.

Mike: Yeah, sometimes I come across commands in the NLS language simply by looking in the statement setup and I've never heard of them before. You know, what the hell is it?

Jeanne: And it would be nice to say help, interrogate, explain or whatever, right then and get understanding of what it was.

Mike: And it seems to me in principle that's not difficult of the system uses links that we have set up and you can link right to a branch.

PART 4. USER-ORIENTED FEATURES.

Jacques: Lex's talk about the expert and novice modes solution to the problem we have in NLS, because that was very striking. For instance, in LMS I was impressed by the fact that you could have, instead of one function following another and getting the interactive response flashed on the screen each time, you could string all the commands together and just jump to the end of the string, if you could anticipate the answers to all the questions. It seemed to be a very elegant solution to the problem of the expert and novice.

Mike: Because you could jump into and out of an expert mode. You could be a novice during your session or be an expert during your session, intermixed depending on whether you were familiar with the question-and-answer sequence that you were working on. That's why it was a good solution, I think.

Jacques: One example of that, just to get it on record, was this: Suppose you wanted to know the author of a particular book, and the screen flashed and you would get the author, and then when you wanted the number of copies of that book, it would flash on the screen, and then you might want to know the date of that book and again you would get the answer to that. But if you knew in advance that particular sequence of questions was going to be executed, you could string those three commands together and you would only get the last screen.

Jeanne: Now, what I'm wondering is why is it that necessary to build that into the system instead of just giving it that command for the last thing that you want, which is what our system allows? I mean, if you just want to order one, why can't you just give the command "order" instead of having to go through and essentially give the command, delete, and send a "command delete", which is what it sounds like: the command and the flash and the command and the flash.

Jacques: No, you don't delete it, you originate a new function each time. It's like saying: load this file, then change this branch to put a comma out here and then jump to that link: instead of doing them one by one, you do them all together in one operation.

Mike: Looking at it in another way, there are a number of questions that have to be answered when you're ordering a book. You have to give the edition, the author, the publisher, the price, the number of copies, you know, all of these things. And the way the LMS system is set up, it was a sequence of questions and answers. They didn't all come on the screen at once in a format where you just plug in answers, rather they came up with a number of optional answers for each question and all the optional answers were displayed with each question.

> And in their system we had the choice of having each question displayed with its optional answers one by one, or, knowing the questions and all the options, just typing your particular optional answer string of answers separated by blotches of stuff. That let you just jump over all of these.

Jeanne: That lets you enter this information all at one time rather than in the series?

Jacques: The reason it was impressive to me at least was that it illustrated something that I've been trying to argue for here, that there is no such thing as a novice and there is no such thing as an "expert" user. Sometimes you are an expert, sometimes you are not; sometimes you have to be careful about what you are doing because you just won't know what information you'll find, sometimes you know

in advance and then you don't want the system to get in the way, and you just want to go as fast as you can through that; it seemed to me it was a very nice way of allowing this without making the distinction between the novice and the expert.

Jeanne: And the system can check you because if you don't enter the right system of commands you'd come back with something which would catch you up or what?

Jacques: Yes, then it restores the state of the system in the previous function executed.

Jeanne: What you're proving is that you're an expert before it lets you be an expert.

Jacques: Yes. And the only exception to that bypass is the ordering of new books, where there has to be the human confirmation to the number of copies, and so on, that have to be altered. That's the only exception.

Mike: That's a really good point, where you're going to go into the outside world and charge money to someone or whatever, cause physical goods to be known, and there you couldn't jump ahead and make an error and get the world in trouble. That was a nice answer to the expert-novice mode dilemma.

> I find that all the time on this system, that there are a certain few things that I finally have learned how to do and I presume I'm an expert at it in the sense that everybody's an expert, they can do it without too much trouble just keying around, but there's a whole set of things that I have no idea how to do and there's no way to become a novice at it.

Jacques: Unless you're an expert first!

Mike: Unless you're an expert first, yes. I think, personally, that this philosophy has been carried too far. It may have been valid several years ago when the system had a limited command set, but now look how many commands we have on the system. I don't know if anyone has a count but there are at least 250, I imagine.

Jeanne: Marilyn is making a collection of them.

Mike: Okay, and you don't know all of these, who knows all of the output processor directives, and who knows all of the ins and outs of every aspect of the system, you don't. Sorting, the markers, the content analyzers, the names, use of names, all these things that are nice features: maybe Jim Norton knows them all and that's great, but he's the exception rather than the rule and I think he'll always be the exception. I don't think anyone or everyone will beat Jim Norton.

Jacques: Well, you don't know all about the English language either, if you go that far. There are very few scientists who know what a discounted cash flow is.

Mike: That's right. And there are only a few accountants who know.

Jeanne: Is it possible that the reason that it works well in the LMS system is that there are so few procedures possible at any point? That there would be only a certain set of steps to go through, and it says to you, "okay, you can either go the slow way in which you are prompted at each point or you can go the fast way?" Our problem with NLS is what you're saying, I think, that under almost all the procedures that you get into, it branches off fast enough that the problem of trying to give a series of commands which you could jump over is taken care of by the fact that you simply use the command that you want rather than to realize that you've jumped over a bunch of possibilities.

I don't see that it's the same problem, in fact, I think that this is one of the limitations on the LMS system, that it is very linear and all you're saying that is elegant is the fact that you can linearly jump a few steps on something, but that you do not have the range of capabilities which a really interactive system, a really usable editing system has.

Mike: Okay, but we have a lot of linear things too. They may not be 100% linear but take the problem of entering something to the Journal. We don't need...

Jeanne: And we do have, you see, we have that same capability in there you can either ask it for interrogate or you can give all the information you want.

Mike: Yeah, but I'm thinking of a slightly different aspect. There's a whole set of commands in the Journal system, some of them have to do with idents, some of them have to do with document numbers, some of them have to do with submitting file messages or branches or whatever, etc. You don't ever use one of those unless you first say execute Journal. You can't just type "author" in the middle of nowhere. So there's sort of a hierarchy there. Why have those commands available to you? It isn't necessary that they all be... they're not available and and yet they are in the general philosophy of the system. It seems to me that you can make... what I'm trying to say, and it's probably not coming out clearly, is that we have if we look hard, a natural hierarchy of commands; there may be some overlaps and there may be some things which are subsets and supersets at the different commands.

But I think we could organize our commands better to make it easier for the user to be in a novice mode with respect to one set of commands and in expert mode with respect to another set.

Jacques: I think what it illustrates is the falsity of the premise that whenever you come to a decision point in designing a language like this, or designing software, you have a choice between doing something that's nice for the novice or something that's efficient for the expert. That statement is false. That's what that system showed, that you don't have such a dilemma. If you look hard enough, you can find a way of doing it that will satisfy both requirements.

Jeanne: You mean two ways of doing it?

Jacques: No, a similar way of doing it...

Mike: A similar way of combining it for the novice and expert mode.

Jacques: You don't have to decrease the efficiency of the system for the expert just to please the novice. There is a way of doing it so that both of them will be happy.

Mike: This brings up another aspect of the design. I guess I've been a particular critic with respect to NLS and that is that each of the three systems that we're talking about, it seems to me that it took great effort to talk to the ultimate users in the development of design of the system; facilities that would be presented to the system always went through two years of design and they had countless numbers of sessions with the librarians and always the users could decide what features to use and how. And I presume that RECON went through the same thing.

> Data Analysis with RAND certainly shows a heavy emphasis on the user's need, how he could use it. I don't think we have done that, except in the sense that we all consider ourselves users, experts, everything which I have always maintained and still do is an error in design.

Jeanne: I think we're about to do some of that a little bit late at the ICCC where Jacques is designing the query mode for the novice and we expect to... we were talking this morning about using that as a testing ground for finding out if we really carefully evaluate what the user says, and we'll have novices there, then we'll come back and be able to get some feedback on the equipment, but it should have been done several years ago.

Jacques: Of course the test of ANY system is the novice user! Anybody can design a system for experts, because if you can select the users and then train them, then it's not very hard to get them to use the system; but if the burden is on the novice user, then you really have problems. I was really impressed by how well those systems were working in terms of acceptance by people who were actually using them.

> There was a difference in psychological reactions that was interesting among the RECON users: she said that the physicists got very mad at the system after a while. The engineers or the librarians got used to it fairly rapidly, but the physicists were presumably expert users, got mad at it after awhile, so I found it interesting to investigate that kind of reaction.

Jeanne: Yeah, we really didn't talk to users and there are probably lots of little hidden things that didn't come out, like some things are obvious and they can't cover them up, and one of those that was obvious was the number of citations for a certain keyword was not updated by posting each time; that's a peculiar lack in the system that obviously has to go in manually; they have to go through there and enter the number of things. It's also true then that some terms

would not be entered in there even though those terms were being used. If they only post semiannually then for 6 months there are items going in there which you would not find in there in their on-line thesaurus and that's a bad thing.

Jacques: Well, the experience that I had there was sort of simulating a real user, because I did a search that interested me on Pulsars. Of course that's a subject where the literature is expanding very rapidly since they were first discovered in 1968. For six months, its exactly what you're talking about, the term wouldn't even have been in the index, and there was a difference of a ratio of one to two between the number that was posted and the actual number there on the tree.

Jeanne: But you might get thrown off if you didn't, I mean if you weren't a fairly experienced user, which I don't find you to be a novice user even though you hadn't used that system. You're not a novice on-line user and that's a different thing. I think you come to it with so much an understanding. For instance, you had the keyboard code very quickly and I don't think that a normal physicist would do that at all.

Mike: Yeah, that's mainly because we're simply familiar with computers.

Jeanne: Very. You know what to expect and that's different from somebody who hasn't used the system. I think there are still an awful lot of people who haven't used any system, or if they have they've used the keyboard terminal only which is a whole different field.

PART 5. HUMAN ENGINEERING AND TERMINAL USE.

Jacques: Well, since we're talking about design, should we bring up the parallel about TNLS and DNLS on one hand and WYLBUR and Video-WYLBUR on the other?

Mike: I think we might comment on that. We were talking about that earlier and I thought your comments were good and if you'd like you could go back over that material.

Jacques: That was the closest thing to the problems we have with NLS in terms of design: at RAND, when they went from WYLBUR, which was an outstanding typewriter-oriented text editor, to the video version, when they did that transformation, they had to essentially simulate the terminal on the television screen.

> Obviously they couldn't take advantage of the capabilities of the television system without altering the language. It seems that they went, in reverse, through the same troubles we had when we tried to simulate the display station on the teletype, going from DNLS to TNLS. DNLS being an outstanding video-oriented text editor and TNLS being a simulation of it on the terminal. That was very striking: It really illustrated the fact that you need to go back to the basic thinking of the system if you're going to change your medium. That was the most obvious thing that came out

of it.

Now I expect that Video-WYLBUR is going to evolve; the way it is now it's simply the same commands that were available on the typewriter-oriented version except that they split the screen horizontally and you see the last ten or fifteen commands that you've typed on the bottom of the screen and you see the text displayed on the top of the screen. It's continually refreshed so that you only see the latest one but it really doesn't take advantage of the capabilities of the screen for paging, for going from a document to another document. Also there are some commands that are irrelevant, that could be eliminated from the bottom part of the screen.

Then talking generally about the two systems we saw at RAND, it was obvious that you had on one hand a very good text editor or very adequate text editor; on the other hand you had a very good data analysis program, but one had no way of sharing files with the other. That's one thing that we presumably are in a position to do here? It would be very exciting to do it here. Having a common set of files that both the text editor and the data analysis program could share.

Mike: There was another aspect at the RAND system that we might just touch on, which I don't know if it's at all applicable to library management systems we saw at RECON and LMS, but it is applicable in our system, and that is subsetting files. On the RAND system you had your data base. It was fairly well known what the format and the content field they had, etc. what the data base was. But you may want to work in your data analysis mode with only a subset of that data and the way you did that was, you instructed the system to create a second file taking off of your original file only those data which satisfied certain attributes: Maybe all the data except the data that had this characteristic or that characteristic. Then you create a second file and you can work with that and analyse it etc. And I think that was very useful. A lot of times, I suppose we could do it with the viewspecs capability by copying and with the substitute command, and with the assimilate.

Jeanne: You can do a content analysis, if I understand that. That's the kind of search that you were doing from the data.

Jacques: Yes, but here again we're talking about two completely different things. The content analyzer is a procedural approach to the problem, when all the systems we've seen, and that was very striking, used the nonprocedural approach in the sense that once a function like this was identified, the user could trigger that function and the result would happen, without his having to recompile the damned thing each time.

Mike: Yeah. That's true. That's really an important point. I'd like to get at it from another aspect, which is that we have all the power, whether it's content analyzer or the assimilate command or the substitute viewspecs or whatever, but you really have to know the system so that you know that you can do what you want to do. I know what I want to do but I don't know how to do it and there's no

way to find that out unless I learn every command and just have that be part of my body, so to speak, and then I know what to do with it. But I think that's the wrong approach.

Jacques: If you take that approach, then you may as well learn assembly language, because you can do anything with assembly language, too. The problem is that when you're starting to serve this kind of need, then you pretty much have to agree that non-procedurality is going to be the premise, the design premise of the entire system.

Mike: Okay, a synonym, in my mind for non-procedural functions is user-oriented functions. That may not be a good synonym for everyone else but it works for me in the following sense that if I am a typical, a large typical user, what I need is a function I can follow if I had a task: I could ask it to give me the function key or to give me a -- which allows that function to be carried out. I really don't give a damn whether it's carried out by content analyzer or substitute sort or whatever I really don't care. And I sure as hell don't want to sort, merge and substitute etc. All I want to do is say: "subset this file according to these criteria."

> But as long as--I hate to come back to this and harp on it,--but as long as the systems programmers are the only ones who are designing the function it will always be at the assembly language level; it's a very hard psychological thing for the systems programmers to take I'm sure, because they're smarter than I am and they can make many more functions out of the system than I can even dream of, and I have no doubt about that, but they also have to accept that they are maybe not so smart to put them into a context where we can't use them. Maybe they think that I'm too dumb to deserve to use them, but then again, I think that's the wrong approach. I shouldn't be so dumb that I can't use their system.

Jeanne: We're getting to that point in the catalog production program, when we're able to get Walt's time to take the catalog production from its current form and put it into something that you just make one command and you get the whole bunch of catalog outputs: different proofing format or different output, so I think that they're working toward that in a lot of ways, but maybe it's just a lack of time on some of these other things.

Jacques: Yeah, but we're working toward that on an ad-hoc basis. We do it for one little part of the system here and one little part there. There is no unified approach to that kind of problem. There needs to be.

Mike: I am trying to think about what we've covered so far and see where we might go next. We talked about indexing, the question of design between a display terminal and a typewriter oriented terminal, we talked about user aids in terms of help or explain, we talked about the idea of having a subset of commands available to the user, so that we could know what to do every step of the way, and novice and expert mode, we've discussed the expand feature in terms of the indexing capability, the file subsetting and function

key and things of that sort. I think we've sort of exhausted that end of it.

PART 6. PERSONNALIZED FILE SYSTEMS.

Jacques: Let's talk about one of the areas that we DIDN'T see and where we think a breakthrough might be possible since we were talking about breakthroughs the other day. There was very little use of microfilm systems. Everywhere we went, we asked "are you using microfilm or microfiche systems?" and the answer was, "sort of", but none of them was really using it effectively and that's one area where we could do something completely new. In terms of personalized file systems, we didn't see much of what we were hoping to see the other day.

Mike: Yes, we saw nothing there, very little... maybe this Data Analysis...?

Jacques: Yes, a combination of WYLBUR and the Data Analysis program comes close to that if you can have a bridge between the two. combine the two.

Mike: We saw various types of use that require copy output. The Data Analysis system prepared a tape to go down to somebody... the Stylberg Carlson plotter produced hardcopy of the graphs that were on the screen and the other systems produced various, either off-line, high speed printer output or typewriter-oriented output. There may be other means. We didn't see any use for example, of a camera to take a snapshot of it.

Jeanne: Or a contact print. No technology. Whatever you get on the screen you put the copy paper on. That is ....

Mike: Sanders has a system like that.

Jeanne: Yeah, and we can see that here in town if we want to go look.

Mike: That would be very nice to see.

Jeanne: Also Varian-Adco. Varian system has a contact print.

Jacques: We can talk about terminals. I was struck by how easy it was to use LMS with a very simple-minded terminal.

Mike: Yes, simplest and perhaps the crudest also.

Jacques: Twelve lines, eighty columns, period.

Jeanne: Do you like that?

Jacques: It worked for what they were doing.

Jeanne: It's very limited. There is only a certain amount you can get on the screen. And I find that to be very restricting.

Mike: The point isn't that it was restricting, but rather that despite it's limited capabilities, they made use of it.

Jeanne: Oh yeah, but I want to see a Whole abstract and I don't find any system to be adequate that doesn't have room to display a whole item at once, and that one doesn't. You get hung up in the middle of an item with twelve lines, that just seems too... I know they make apologies for it so...

Mike: There's another aspect of the RECON system which I think we didn't dWell on When we Were there, but they used hierarchical storage in a more classical sense than we attempt to use it here. We use it for archive which is one direction, mainly as the item gets less and less use it goes on the page or somewhere else; on the other hand, they seem to put all of their documents on a tertiary storage device and then when they are going to work on one they would call it up to a secondary storage device. That's my interpretation of similar commands that We are using. When we specify author, for example, it would take a little while to go back and get the author and bring it up faster to level four and work on it from there and when they were finished, back it goes. We don't seem to do that too much, as a matter of fact we don't do it at all except as the TENEX does it with respect to swapping.

> But we don't have anything except a disk out there, and that's our online storage. We may want to have a super-fast tape or super-slow disk which has a very large capacity in handling; if we are actually going to use something we say, okay, we'll wait a minute to get this or a quarter of a minute to get this thing onto the disk. that's better than than having it out on some slow tape in an archive where it takes 15 or 30 minutes to get it. And then decide we didn't want it in the first place. I think that is a more classical use of the hierarchical storage and they seem to have implemented it real well. A simple way of allowing users to go back to the data.

Jeanne: How does it work in the LMS? What happens there?

Mike: I don't know what happens.

Jacques: Well, they have a very large computer, with a very large core and apparently they have only one level of storage.

Mike: I think that's correct.

Jacques: Also they have a data base which is small by RECON's standards they have only 17,000 documents.

Jeanne: I think it's too small to consider as a system for anything, I mean we'd never want to design one. I said to Mike that that was one of the limitations that was really obvious: that they had designed it for a fairly small data base with fairly small data elements, no abstracts, for instance, LC subject headings, this kind of thing; and examples that they give in here are indicative. you know, if you want to look for Gable as an author you type in G in the author file and the author file is so small that it appears in

the middle of your screen and it's designed for something much smaller than we would even consider.

Also, I told Mike, it was no secret when we went there that they had put, they had given them a priority so that the library terminal, (the 2260) and their teletype input was on a priority system so that it went faster than it normally did and sometimes their response time was worse by the admission of the staff than they were getting at NASA, and it's almost insupportable for use, but for demonstrations they get a faster turnout on it,

Jacques: When was that?

Jeanne: Last year.

Mike: With all the difficulties that these people have had and with all the time and money that they've obviously poured into the development, design, and implementation of their system, a question in my mind is, what do we want to do? We certainly don't want to duplicate their errors but that's obvious. The real question is do we even want to duplicate the idea of having an automated library system? Or do we want to do something else, as an adjunct or tangent or a whatever. That question really bore home with me and these people who have designed for a year or more like that, and I don't know how many man-years they've put into it, and they still have difficulties-mainly as you pointed out they've got response time difficulties, transmission difficulties.

Jeanne: And the expense, if we'd look at what it cost to do that query of the data base and to do the printing out, when the printer is connected to make sole use of the computer, you know, real time use of the computer to print out, it's terrible.

PART 7. THE CASE FOR INTERFACES.

Jacques: Something that was certainly striking at NASA was that we don't want to compete with RECON in the light of what Mike was saying, not only do we not want to compete with them on the general technical literature, but even in our field: When we did a search for all the papers they had on information retrieval, it came out that they had 1,687 papers on that, and that was six months ago. So it seems that even in our field they cover the waterfront. Obviously this kind of service is going to be available elsewhere and we don't want to duplicate that. We have to look for, in response to what Mike was saying, we have to look for areas where we can make a unique contribution using the system we have. A good candidate for that among other things would be microfilm, mixing microfilm-video images with...

Jeanne: Well, INTREX has done that and we haven't had a chance to see it. They started off with two terminals, as I remember the report from it they had a terminal in which you were doing the things we are and another terminal where the microfiche was displayed, by the jump thing that Doug talks about doing; then they decided that they wanted it all on one terminal. It seemed to me that that was a poor decision and I'd like it if we could go and

find out how that's worked out because I'm still in favor (for my own user feeling) of having two, and I see no reason that they have to appear on the same screen. It's philosophically beautiful and that's probably why Doug would want to do it, to be able to jump back and forth, you know...interactive; and what he wants and his dream is, of course, to get the microfiche on there and then be able to change the text on the thing you're seeing on the microfiche, because I saw his eyes light up when somebody else mentioned that possibility, and any text that you get on there of course you could change.

He thinks this is great but to my mind I can't accept that as a valid thing at this point. I think you could have the microfiche over here and copy something on-to your screen and then interact with it, but I still see two different things. I agree with you, that's the area in which it's most exciting to think, because there aren't many people who are working on it.

Jacques: Well, why shouldn't we have a microfiche reader in the machine room with a television system that could be mixed with the image you get on your terminal? And maybe there could be an area that you would define...

Jeanne: I think that's what INTREX is doing. We need to get the INTREX reports and read them and then I think it would be nice if there's a chance that we could get some ideas from seeing INTREX when we go East for the ICCC. It's just another interesting thing. I've dug out the old report on TIP. We'll probably need to catch up with what they are doing too, perhaps by talking to Bill Mathews.

While we're throwing things in I think there's another system that is local that we do want to see because it has implications and that is the one at the Stanford Medical Library where they have a link with the biomedical communications system; that MITRE report that I gave you copies of was done to evaluate a system and I know that evaluation resulted in the DATA CENTRAL system being picked as the one to be used, and I haven't seen whether that is now, whether that's what was finally picked up or not, but the big advantage that they had, the reason that DATA CENTRAL was selected was that they had most of the same features as DIALOG (that's the RECON system now) has and in addition had what we would call content analysis. Instead of going only for words in the title, or words in the keyword section, it did, in fact, look at the whole data the whole citation and would pick the word, whether it appeared in the keyword, the title, the abstract, author. Any place in which this word had been entered could be selected.

And that's like our content analysis and that's why I feel that no system is complete unless it will do that, and Data Central did. Now Data Central of course doesn't exist anymore, so if this biomedical communications network picked that system up, we'll be interested in finding out. That was demonstrated and it really worked. It was demonstrated at various ASIS meetings, the one in Columbus, and the one in Philadelphia. Data Central was owned by Meade Corporation and my understanding is that they are no longer

in business.

Mike: Do you think any of the systems that we've seen, well let's put it differently. Do you think that the RECON system could be used by ARC for any of this library document problems?

Jeanne: My feeling is that, and I think that we sort of touched on it during our first conversation, that we needed to interface with other systems rather than duplicate any of them. That's what I said about rekeying. But we thought that's the area... plus the microfiche, but that's an interface system too. I mean an interface problem is to be able to interface with an existing data bank (and other people are working on this) but nobody is doing anything about reprocessing old data banks and I don't think we ought to reprocess.

Jacques: Well, fairly soon RECON or something much bigger than RECON is going to be sitting in the ILLIAC IV or some similar machine with some similar very large store, so I don't see why we couldn't go through the network and pick up that kind of information and come back locally and manage the subsets with our system.

Mike: Yeah, that may be the area that we can make contributions in: how to do that, what facilities one needs for subsetting, what facilities one needs at the local site for not tying up the main computer... maybe this would come back to the concept of hierarchy of storage, maybe no one asks what the hierarchy at the main data base is, and somehow we ship over meaningful subsets of it to a local terminal, work on it and when we're finished we send the whole thing back.

Jeanne: I don't see us taking a large storage, because if I understand what you mean, the meaning of that would be that we would move a large amount like the NASA RECON data base into ILLIAC and operate on it. I don't feel right about that. I think that although that might be possible, it's still not as advisable over being able to interface and make the NASA RECON system do its job and give you the result and just move this little subset...

Jacques: No, what I'm saying is that NASA RECON someday might be sitting in the ILLIAC IV.

Jeanne: That's what I don't see why. I don't think it should.

Jacques: Because NASA will probably do it. Because they will run out of storage and processing capability elsewhere.

Jeanne: Why? Won't they have their own ILLIAC IV?

Jacques: Right, it will be sitting somewhere and NASA or somebody else with have the responsibility for maintaining a very large data base. And what I'm saying is that, assume that it's sitting in the storage of the ILLIAC IV, that FROM HERE we go through the network and we dial up to RECON, we get RECON to set up a subset for us. When we have that subset then we come back here and we manage it locally. We use it locally, that's that I'm saying.

Mike: I agree with that.

Jeanne: Okay, I see.

Jacques: Because obviously they... it was very obvious that we want the next step of RECON, something like 10 or 50 or 100 times the number of terminals, and you can't do that on 360/50's, especially with the payroll running in the background !

Mike: All of these systems were on 360's. They all had their response time problems.

Jeanne: Well, a 360/50 isn't a really powerful thing.

Mike: Well, of course not. Well, of course not. I don't remember what they were using for the LMS. Model 65? and they also have 65 at RAND?

Jacques: Yes.

Mike: Well, it might well be that that's the area that we ultimately would want to work in here; after we examine more systems perhaps we will realize that we don't, that we needn't re-invent wheels or rediscover and redesign errors.

Jeanne: Or move data bases.

Mike: Yes, move data bases. It might well be that what we want to do instead is decide to move our data base once to another system and then call upon it to be manipulated by our NLS system, locally, by getting it through the Network, say, and then just store it out there somewhere with all of their facilities for browsing etc. Maybe a mix of the two. We've got a damn good text editor so if we could get damn good other facilities... a content analysis, and things like that, but why rebuild some of the facilities that we've seen that are also damn good?

Jacques: You know, I saw some statistics the other day, with respect to whet Jeanne was saying about not duplicating the information that's already printed or recorded somewhere: the whole contents of the world libraries is something like five times ten to the fifteenth bits of information; that's five thousand times the trillion-bit storage of the I-IV. and it's increasing at the rate of two million bits a second. So we've got a job ahead of us if we are going to keep track of all that.

Jeanne: Well I see it as being able to link where everybody else is keeping track of it, whether they are keeping track of it on on-line storage or keeping track of it on hard copy books, also old manuscript on film with an optical scanning capability, or any way in which it is. We need to say "okay, we envision, anyway, that we will interface with that rather than re-input", and that's why I don't see that we need a very big storage capability per se; what we really want to design is something which can access all of these big

data banks, even if they are actually hard copy things that are displayed before a television screen. A lot of these things are available and it's just a matter of seeing that you want to interface them instead of re-do them.

And McCarthy over there still has in mind that he's going to input every one of those citations for everyone of those books and make a great encyclopedia of knowledge and this kind of thing and this just seems like the opposite way that we would want them.

Jacques: Do we have statistics on how fast our catalog is growing?

Jeanne: It's growing very slowly but we don't have any staff to do it. And what we're doing at this point is simply sampling instead of trying to say, "We are going to create a data base which covers this subject". We're saying, this is an interesting thing, here we have a video tape, okay, we'll make a citation for video tapes so we can tell everybody else :if you have a video tape collection, here's the way you make the citation. And then you put it in and here's how you format that on the index coming out.., that's what I envision as our function, because I can't see trying to build a whole library and we want to handle only such things as they are actually useful to people here on it, like Martin.

Martin's reply to our, you know... he read our discussion and he said that he hoped that we were picking up areas to work on but we would remember the hardware people here, because he felt that they need support as well as the software programmers, that we weren't giving any kind of support that they needed in the handling of their information to the hardware people.

I know this is an important thing and something that we can do: it's just a matter of taking time to say "here are the conventions for doing it", because they have data and they have information, they have published information. We could find a way to handle it but we need a little more staff and time to set the conventions and input it.

Mike: I think this might be a convenient point to stop on because We're really getting into another subject here. We may want to take the time to review what we've said here and come back. This is sort of like a future goal to get to here, what are the breakthroughs that we might make as opposed to duplicating everybody else's failure and successes.

Jacques: We might not mind duplicating a few successes.

<VALLEE>Q1USE.NLS;10, 19-SEP-72 14:06 JFV ;

Q1: A SIMPLE RETRIEVAL TOOL FOR TNLS STRUCTURED FILES

Definition

NLS provides a sophisticated file structure that can be used in simplifying many documentation problems. It is natural to put that structure to work in the operation of a "personnalized file system" that can be driven from a teletype.

Q1 is an experiment in TNLS-based retrieval that allows people to create such a simple personal file system without requiring tailored software development and maintenance.

Principle

The scheme upon which Q1 operates is straightforward: instead of parsing and recognizing some set of commands, translating them and searching for the relevant record, Q1 relies on the NLS structure mechanism for this task; it treats as a statement name whatever input string the user passes, and executes a jump to that branch in the NLS file upon which it operates. It checks that the branch in fact exists, and provides error recovery if it does not. It responds by printing out the next level of that branch. That level may in turn be either a list of statement names (that can again be interrogated) or a text.

Illustration

A simple interrogation session is given below as an example. It uses the Resource Notebook as the basic file:

```
/g/oto /q/uery  CA

level? /1/ CR
File name? /<NIC>NETINFO/ CR

Type ? if you need help at any point.

-
/s/how /sites/ CR

   (sites)
      (TIPS)
      (users)
      (servers)

-
/s/how /servers/ CR

   (servers)
      (UCLA-NMC)
      (SRI-ARC)

-
```

/s/how /UCLA-NMC:Interests/ CR

(Interests)
UCLA-NMC has varied interests in ....

/to will stop printing at any point/

-/q/uit

* (continue in NLS)

Note that the user types a carriage return to send a command (except after ? and quit), but CA (command accept) is also recognized.

Accessing several files

The /b/ring command allows you to open and interrogate the contents of another file during a Q1 session.

If the file is not locatable the system will type:

File does not exist
or not available to Q1

The user will then have a chance to retype his command.

Applications

Q1 was designed to test an inexpensive retrieval tool that could be used with minimum training in the TNLS environment. It places users in a position not only to define their own information file but their own command structure as well. They can do that without having to maintain special software: changes in statement names (that can be made directly on the data file itself) are transparent to Q1. Also, Q1 will work on ANY FILE where statements are adequately named.

The first application will be to the on-line query of network resources. A file of our own hardware information is also being implemented.

How to use Q1

In order to use Q1 efficiently you must be reasonably consistent in the way you name the branches in your file. Often you will have a list of items, such as the network sites above, that you wish to catalog. Each site has a name and under that name is a structure which repeats in all site records: hardware, personnel, capabilities, etc. The naming convention is your own and should be based on this structure.

Your file should have a HELP branch whose name will be (h). The first thing Q1 does is to instruct users to type a question mark for assistance. This question mark gets translated into the h character

and the corresponding branch is treated as any other branch: in particular it could have structure so that help information could be given at several levels.

The Help branch should give users adequate knowledge of the naming conventions. Here again, the contents of the file are transparent to the software; you can change old commands and introduce new ones: the system will do the right thing as long as you're consistent.

You can designate a sub-branch under any named branch by the convention:

XYZ:ABC

which takes you to the first occurrence of the name (ABC) within the branch (XYZ) at any depth.

The Q1 prompt is a hyphen.

You can return to NLS by typing "quit".

On-line Help and recovery

Q1 is different from other NLS subsystems in that users need on-line help at two levels: i) what commands are available and ii)how a particular file is structured.

Help of the first kind is obtained by typing a question mark (without carriage return) which triggers a message provided within Q1 itself. Help at the file level is obtained by using the SHOW command:

*[s]*how ?

which triggers typing of the (h) branch in that file.

Q1 is designed to recover from two kinds of failures:

i) On a command such as

*[s]*how xyz

or *[s]*how xyz:abc

it may happen that xyz is not a statement name in that file. Q1 will then intercept the NLS error mechanism and type:

not found
Invalid command

ii) On a command such as

*[s]*how xyz:abc

it may happen that xyz is in the file but abc does not exist as a branch under it (or no instance of it is present at that particullar

point). Q1 will then respond:

Invalid sub-branch

In both cases the user will stay within Q1 and will have an opportunity to re-type his command.

---

9 CONCLUSIONS AND RECOMMENDATIONS.

9A We have extracted from the above transcript a series of thirty points that require action prior to completion of the present phase of the SDIS planning. They are listed in the order of their occurrence in the discussion and no effort has been made to rank them according to priority.

9B ACTION 1. Decide that a valuable subset of the "intelligence" information will consist of Tables of Contents of important publications.

9C ACTION 2. Decide that another valuable subset will consist of acquisition lists from other centers.

9D ACTION 3. Is it valid to design personalized support systems for decision-makers ?

9E ACTION 4. Is it valid to design a support system around Doug's files?

9F ACTION 5. Define a special area with display consoles and a microfilm reader within reach of shelves and cabinets, to be primarily (but not exclusively) identified as SDIS area.

9G ACTION 6.Identify the project as a part of a NIC technical support center.

9H ACTION 7. Agree on a policy for acquiring information of interest to the project.

9I ACTION 8. Take steps to facilitate discussion and cooperative design efforts in connection with future file system changes.

9J ACTION 9. Prepare a history of the RINS/SDIS project.

9K ACTION 10. Seek novel ways of storing "intelligence" type data.

9L ACTION 11. Decide at the design level whether or not system will support human intermediaries.

9M ACTION 12. Decide whether or not automatic indexing by title words will continue to be a primary tool.

9N ACTION 13. Define resource allocation to project. This requires defining first the user population to be supported.

9O ACTION 14. Decide at the design level whether the development will take place "from the inside out" (improving slightly on the catalogue and journal systems) or "from the outside in" (defining first the user interface).

9P ACTION 15. Should we implement the concept of "interest lists" for data dissemination?

9Q ACTION 16. Should we operate a clipping service in support of

major development projects?

9R ACTION 17. Decide whether we are looking for breakthroughs or repeating within the framework of NLS the same type of service available on other systems.

9S ACTION 18. Define criteria for recognizing what is worth putting into the system.

9T ACTION 19. Recognize the danger in having a system that will not serve the need to browse.

9U ACTION 20. Identify the human function of the Librarian within such a system. The librarian needs a dedicated console.

9V ACTION 21. Decide to begin design of a set of data elements.

9W ACTION 22. Identify such entities as personal name and date as instances of such data elements.

9X ACTION 23. Agree that "roles" will be connected with data elements at search time.

9Y ACTION 24. Gather information about the data element concept. Agree that this is our most important subject.

9Z ACTION 25. Conduct experiments on data elements by utilizing a small, local data base.

9A@ ACTION 26. Recognize that some research (and software development) is needed to produce a really usable personal file system.

9AA ACTION 27. Adopt as design decision to link documents into chains rather than working on a single large data-base.

9AB ACTION 28. Adopt as design decision not to re-key something that has already been captured. Examine implications for actions 1 and 2 above.

9AC ACTION 29. Recognize that defining interfaces will be one of the big problems, rather than designing an all-embracing system.

9AD ACTION 30. Study the function of "information analyst" and the possible need for such a person at ARC.

9AD1 3-August-1972

<VALLEE>INTELLIGENCE.NLS;9, 19-JUL-72 9:37 JFV ;
1 TOWARDS A SURVEY OF INTELLIGENCE NEEDS AMONG SYSTEMS DEVELOPERS

PART 1: FIELD TRIPS

1A The following is a summary of preliminary findings from the SDIS team. The purpose of this effort is to generate a well-defined plan for our ONR work in the coming year. A number of organizations involved in systems development (both hardware and software) have been visited. These organizations were chosen among active CENTERS involved in the conceptualization and dissemination of computer systems.

1B At each site we have attempted to ascertain the extent of the current documentation system, means of acquiring and disseminating information, and plans for the future. We have paid special attention to the use of current library facilities, suggestions for retaining non-classical material, use of the computer as an information tool, and microform equipment.

1C The organizations surveyed were all located in the vicinity of SRI for economy purposes and thus may not represent a cross-section of systems development activities as a whole. They range from mainframe manufacturers to consulting firms, service bureaus and government automation services.

	A	B	C
2 Name of organization			
3 In existence since.....	1955	1970	1958
4 Primary activity.....	research	manufact.	research
5 Number of systems developers.....			
5A Total	40	150	35
5B Software.....	20	20	25
6 Specialized reference library.....	Yes	Yes	Yes
6A Main purpose.....	Inf.Sys	OS/360	vendors
6B Number of documents.....	6500	800	2000
6C Books	200		
6D Reports and manuals.....	80	800	2000
6E Magazines.....	30		
6F Listings.....		x	
6G Method of circulating.....	informal	no	automated
6H Reading room.....	informal	good	yes
6I Use of microforms.....	limited	yes	yes
6J Computerized index off line...	yes	yes	some
6K Computerized on-line search...	no	no	no
6L Library staff.....	2	1	2
7 Information acquisition means.....			
7A General sources.....	yes	no	yes

7B Similar centers.....	some	yes	yes
7C Unpublished reports.....	yes	yes	yes
7D Attendance to conferences.....	yes	yes	yes
7E Personal contacts.....			
7E1 colleagues within.....	yes	yes	yes
7E2 Friends outside.....	yes	yes	yes
7E3 Salesmen.....	yes	some	yes
8 Dissemination of information.....			
8A internal memoranda.....	no	yes	yes
8B Internal bulletin.....	no	yes	yes
8C Bulletin distribution.....			300
8D computerized info.file.....	yes	no	yes
8E Solicited visits.....	no	yes	yes
8F General marketing.....	no	yes	no
8G Professional publications.....	no	no	
8G1 How many in 1970.....			
8G2 How many in 1971.....			
8H Reports to sponsors.....	yes	no	yes

9 Description of 'ideal' support....

9A Future system is envisioned as a total information language with many specialized commands that will require extreme expertise in dealing with information sets. This language is seen to eventually cover most facets of human activity through the on-line interaction of "augmented teams" of businessmen, scientists, political leaders, etc.

9B An ideal system must permit fast updating and adequate query for operating system specifications. Logical analysis of documentation is also a prerequisite.

9C A need exists for documentation control and updating but is not viewed as high-priority item.

10 Experience with microforms.....

10A Executive I Reader-Printer is of little use as yet, partly because the collection of fiches is small and most documents are also available in hard copy.

10B Easamatic recordak reader with microfiche system. Major complaint is inability to quickly go back and forth among documents.

10C Systems programmers maintaining OS 360 use a Dioptrix 24X microfiche reader. No hard copy. User satisfaction is low.

11 Summary of findings.....

11A This organization has developed for ten years as a completely closed research system that genrates its own intelligence in the form of folklore. It has little need for contact with outside sources. System developers are believed to need at least one year of exposure to this environment before they have enough understanding

of it to make contributions. Intelligence is obtained exclusively from colleagues within the group. There is an adequate support library that is not used in system development.

11B The survival of this group depends upon its remaining well-informed of the current status of IBM's operating systems. Its intelligence needs are acute. The basic information acquisition process here is the hiring of extremely knowledgeable professionals. A specialized library covering IBM software is used to support this activity.

11C This Center has developed in a very active computer environment with emphasis on mathematical programming and social science applications. Its members have been somewhat isolated from the outside world, however, and information is not systematically gathered on developments elsewhere. Specialized library does not appear to be a primary resource except for OS maintenance.

JRP 9-AUG-72 15:28 11332

test message

this is just a test 1

JRP 9-AUG-72 15:28 11332

test message

(J11332) 9-AUG-72 15:28; Title: Author(s): John R. Pickens/JRP; Distribution: John R. Pickens/JRP; Sub-Collections: NIC; Clerk: JRP;

DVN 9-AUG-72 15:42 11333

How to Make the Journal Available More: A Meeting

Attendees: RWW JCP JDH CHI WRF DVN 1

On Monday the seventh, Dick returned from the East exclaiming that people there wanted very much to use the Journal but were frustrated because it is often "temporarily unavailable". He wanted to know what we could do to see that it is available more of the time. The six of us met at 1:30 in the afternoon to discuss the matter. We thought of two ways to increase the amount of time the Journal is up: 2

Bill Ferguson, Jeff, and Ralph Prather (the night operator) can learn techniques to bring it up when it has crashed in certain ways. 2a

Dave has been explaining those techniques to Jeff and Fergie; Fergie will pass them on to Ralph 2a1

We can make more pages available on the disc. 2b

Dave explained that the Journal needs about 1500 pages of working space to complete the online delivery. When fewer pages are available, various unfortunate malfunctions occur. We are handling these problems in four ways. 2b1

1. Until item two has been carried out we will run online delivery only when Dave is on hand personally to nurse the Journal through the operation. 2b1a

2. In Monitor 1.29, which should be in regular use within a week or two (?), there is a JSYS which allows the Journal to check whether enough pages are available and to omit online delivery unless enough pages are available. 2b1b

3. We agreed to run the archive program (kjournal, 11317,) that evening to free pages and to run it every Monday from now on until item four is implemented. 2b1c

4. Dick and Charles urged us to consumate the long-standing plan to order another disc drive. In fact, the paper work for that began on Tuesday. 2b1d

DVN 9-AUG-72 15:42 11333

How to Make the Journal Available More: A Meeting

(J11333) 9-AUG-72 15:42; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Richard W. Watson, Jeffrey C. Peters, J. D. Hopper, Charles H. Irby, William R. Ferguson, Barbara E. Row/RWW JCP JDH CHI WRF BER; Sub-Collections: SRI-ARC; Clerk: BER;
Origin: <ROW>JJRNLUP.NLS;1, 9-AUG-72 15:39 BER ;

To: Bob Wing 1

From: Dirk van Nouhuys 2

Subject: Justification for Lease of the Single RPO2 Disc Drive 3

CC: George Kasolas 4

The longer attached memo (kudlick,disc/drum,) reports our recent study of our needs for increased computer memory capacity. 5

The study recommends leasing two new disc drives to provide additional needed space. At present we are ordering only one, because we are hoping to obtain additional space from the existing discs by establishing a routine program of deleting old files (the archive system mentioned in the shorter attachment). 6

```
(J11335) 9-AUG-72 16:35;  Title:  Author(s): Dirk H. van Nouhuys/DVN;
Distribution: Michael D. Kudlick, James C. Norton/MDK JCN;
Sub-Collections: SRI-ARC; Clerk: BER;
Origin: <ROW>RPO2DISCDRIVE.NLS;1, 9-AUG-72 16:33 BER ; .DIR=1;
.HED=
"Justification for Lease .SPLIT;RPO2 Disc Drive .GDATM;";
TC( LevClip=1; Trun=1; SCR=1; PLEV=1; / .SCR=2;)
.MCH=65; .SNF=72; .DLS=0; .PGN=0; .PES;
.HRM=72; .F=".SPLIT;Page .GPN;"; .FRM=72;
```

ARPA 9-AUG-72 17:10 11337

FTPSERVER

FROM DEBROSSE: I'LL RESUME THE TEST OF MY SERVER ON THURSDAY MORNING. THE LISTENING SOCKET IS 10300015(OCTAL).OR 21299 33(DEC).THANKS

1

FTPSERVER

(J11337) 9-AUG-72 17:10; Title: Author(s): Advanced Research Projects Agency/ARPA; Distribution: Abhay K. Bhushan/AKB; Sub-Collections: ARPA; Clerk: ARPA;

Jeanne-- The Network Analysis Corp. (NAC) will shortly connect to the Network, probably via the TIP at RADC. We probably should expand, at least slightly, the NAC access to the NIC.
You already show Howard Frank as the PI. I suggest that

Dick Van Slyke, (516) 671-9580

be identified as Technical Liaison. When convenient, would you contact him for the name of a Station Agent, etc? Tnx.. Bruce.

1

(J11339) 10-AUG-72 7:04; Title: Author(s): Bruce A. Dolan/BAD;
Distribution: Jeanne B. North/JBN; Sub-Collections: NIC; Clerk: BAD;

PMK 10-AUG-72 9:30 11342

Comments on Proosal Outline for Analysis, Design, and Evaluaton of a Packet]Switching Telecommunications Network for the Military

To: D. Falconer 1

From: P. M. Karp 2

Subject: Comments on Proposed Outline for Analysis, etc. 3

I. Introducton and Summary 4

1. Change the introduction to reflect the 6 month rather than 2 year time frame for an initial effort. For example, the last statement should read something like "A funding level on the order of $200,000 for six months will be required to carry out the proposed initial research and development efforts." 4a

2. What impact on manning is the cutback to six months going to have on the program? 4b

3. Most of the rest of my comments have to do with expected output from each of the five segments. 4c

II. Military Communicatons Requirements 5

1. Does 'data communication' include facsimile transmission for picture and document transmission? 5a

2. Include requirements for mobile and transportable facilities. 5b

3. A typo: don't you need a comma between antijam requirements and transmission visibility? 5c

4. For my own information, does transmission visibility mean security requirements for traffic analysis? 5d

5. Include reliability requirements. 5e

III. RF Technology 6

1. Are you planning to include any consideration of the ALOHA scheme as discussed in the ARPA Satillite System (ASS) Notes? Do you have a set of the notes? If not, let me know and I'll get you on the distribution list and send you a set of those already distributed. 6a

IV. Packet-Switching Communications Techniques 7

1. You may want to include a review of the packet-switching techniques used in TYMNET, MERIT, Pierce loops, the ring

network of Farber at U of Calif. Irvine, and Collins Radio Direct Switching Network. 7a

2. Is it appropriate in this subproject to investigate the feasibility of introducing a fixed delay for interconnecting existing constant rate systems and devices? This is Larry's Channelizer scheme. 7b

V. Network Synthesis 8

1. This seems to me to be the most important segment of the program. I would like to see it structured so that input from other ARPA contractors can be incorporated in the synthesis (e.g., output from topology studies performed by NAC, measurements taken by Kleinrock's group at the NMC at UCLA, approaches taken in the satellite studies, output from the secure sppech compression program, security studies on end-to-end encrytion schemes, other studies of RF technology, future hand held terminal device studies ...). How would such consideratons effect this project? 8a

2. At what stage of development will this be in 6 months? 8b

VI. Network Evaluaton 9

1. Seems fine. No comments except to get an idea of where this will be in 6 mos. 9a

I will be setting up a group consisting of the various contractors that will be working on the many aspects of this whole area. The purpose will be to exchange working notes (via the NIC?) and to coordinate the various efforts. A subgroup is already being formed for those involved in satellite studies. We should probably set up subgroups for packet-switching technology and for RF technology. You may want to consider this type of arrangement when estimating your travel budget. 10

I hope these comments communicate my concerns about the program which are mainly feeling comfortable about what can be accomplished in the first 6 mos. and keeping the synthesis portion of the program open ended for additional inputs. What is your estimate on the time required for a final past on the proposal? 11

PMK 10-AUG-72 9:30 11342
Comments on Proosal Outline for Analysis, Design, and Evaluaton of a Packet]Switching Telecommunications Network for the Military

(J11342) 10-AUG-72 9:30; Title: Author(s): Peggy M. Karp/PMK; Distribution: Barbara E. Row/BER; Sub-Collections: NIC; Clerk: PMK; Origin: <ARPA>FALCONER.NLS;3, 10-AUG-72 8:35 PMK ;

EW2 10-AUG-72 9:37 11344

sample journal session

hello there mark. how's the display? 1

EW2 10-AUG-72 9:37 11344

sample journal session

(J11344) 10-AUG-72 9:37; Title: Author(s): Evelyn Walton/EW2;
Distribution: Mark A. Kampe/MAK(fyi); Sub-Collections: NIC; Clerk: EW2;

FAM 10-AUG-72 9:41 11345

sample

this is a sample message 1

FAM 10-AUG-72 9:41 11345

sample

(J11345) 10-AUG-72 9:41; Title: Author(s): Frances A. (Toni) McHale/FAM; Distribution: Richard W. Watson/RWW; Sub-Collections: NIC; Clerk: FAM;

LSC 10-AUG-72 9:40 11346

stece coles sample message

this is a sample message

1

LSC 10-AUG-72 9:40 11346

stece coles sample message

(J11346) 10-AUG-72 9:40; Title: Author(s): L. Stephen Coles/LSC; Distribution: Richard W. Watson, Dirk H. van Nouhuys, Beauregard A. Hardeman, L. Stephen Coles, L. Stephen Coles/RWW DVN BAH LSC LSC; Sub-Collections: NIC; Clerk: LSC;

MAK 10-AUG-72 9:44 11347

message to people

hi there bubala 1

MAK 10-AUG-72 9:44 11347

message to people

(J11347) 10-AUG-72 9:44; Title: Author(s): Mark A. Kampe/MAK; Distribution: Ari A. J. Ollikainen, Mark A. Kampe, James Peppin/ARI MAK JP; Sub-Collections: NIC; Clerk: MAK;

REF 10-AUG-72 9:40 11348

first journal message

here we are, students again. 1

REF 10-AUG-72 9:40 11348

first journal message

(J11348) 10-AUG-72 9:40; Title: Author(s): Richard E. Fikes/REF;
Distribution: L. Stephen Coles/LSC; Sub-Collections: NIC; Clerk: REF;

JAKE 10-AUG-72 9:40 11349

Achtung

Hi Dick This is my first journal message. Please note that I am typing without mistakes. (This statement is by way of an in joke in case I am being too obtuse.) See you full time Monday morning.

1

JAKE 10-AUG-72 9:40 11349

Achtung

(J11349) 10-AUG-72 9:40; Title: Author(s): Elizabeth J. Feinler/JAKE; Distribution: Richard W. Watson/RWW; Sub-Collections: SRI-ARC; Clerk: JAKE;

message to me

this is a message for me from me. 1

EW2 10-AUG-72 9:46 11350

message to me

(J11350) 10-AUG-72 9:46; Title: Author(s): Evelyn Walton/EW2;
Distribution: Evelyn Walton/EW2; Sub-Collections: NIC; Clerk: EW2;

REF 10-AUG-72 9:45 11351

hello to hal

hi hal. i'm in a course learning about nls. first lesson: sending
journal messages. 1

REF 10-AUG-72 9:45 11351

hello to hal

(J11351) 10-AUG-72 9:45; Title: Author(s): Richard E. Fikes/REF; Distribution: Harold R. Van Zoeren/HRVZ; Sub-Collections: NIC; Clerk: REF;

HWEWI A THIRD SIMPLE MESSAGE
HAVING TWO LINES BY STEVE COLES

(J11352) 10-AUG-72 10:01; Author(s): L. Stephen Coles/LSC;
Distribution: L. Stephen Coles, L. Stephen Coles/LSC LSC;
Sub-Collections: NIC; Clerk: LSC;

User Costs for ARPANET and TYMNET.

What follows is a brief summary of the expenses that would be incurred by an installation using either ARPANET or TYMNET. 1

ARPANET 2

One-Time Costs: 2a

316 TIP ... $92K, incl 1 yr maintenance 2a1

316 IMP ... $45K, incl 1 yr maint and 1 local host 2a2

plus, HOST-IMP interface hdw ... $10K and up 2a2a

syst progr on host ... 4 to 12 man-months 2a2b

Recurring Costs: 2b

Maintenance ... TIP @ $5K/yr
IMP @ 7K/yr 2b1

Communications ... $0.30 per 1000 packets per month (a packet may have up to a million bits) 2b2

Note: Presently, there is a minimum monthly charge for 4500 thousand packets, whether they're sent or not. This amounts to an annual minimum charge of about $16,500. If the monthly minimum of 4500 thousand packets is exceeded, charges are at the rate of $0.30 per 1000 packets per month. 2b2a

TYMNET 3

TYMSHARE's communications network is presently implemented for low-speed terminals (110 or 300 Baud now, 1200 Baud later). Transmission between nodes of the network is at 2400 Baud mostly, though some lines are at 4800. 3a

Basic Costs: 3b

To use TYMNET with your own computer at the other end (rather than one of TYMSHARE's computers), the costs are as follows: 3b1

$ 3. per hr connect time
0.50 per log-in
0.125 per 1000 characters transmitted 3b1a

$2150. per month for communications controller (Varian 620) that handles up to 32 users. 3b1b

User Costs for ARPANET and TYMNET.

To use TYMNET connected to one of TYMSHARE's computers, the costs are: 3b2

$13. per hr connect time
0.04 per CPU-second
0.00 for communications costs. 3b2a

These costs are not the only charge schemes that TYMSHARE uses, however. They will vary their price structure where warranted for individual customers. They also have one or more 940's on which the charges are $5 / hr connect time plus $0.05 per "resource-unit" used, where the resource-unit is a combination of disc, memory, and time. 3b2b

MDK 10-AUG-72 10:09 11353

User Costs for ARPANET and TYMNET.

(J11353) 10-AUG-72 10:09; Title: Author(s): Michael D. Kudlick/MDK; Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>NETCOSTS.NLS;3, 10-AUG-72 10:03 MDK ;

AMO 10-AUG-72 13:17 11355

DEAR LARRY,

I DON'T KNWHAT TO MAKE OF YOUR PROBLEMS SUBMITTING A MESSAGE. I AM SENDING YOU THIS MESSAGE TOEE IF YOU ARE RIVING MESSAGES. IF THIS MESSAGE IS HARD TO READ, IT IS BECAUSE I HAVE A NOISY PHONE LINE. YOU ARE STILL HAVINROBLEMS WITTHE JOURNAL SYSTEM, I WILL TRY TO LINK TO YOU SOMETIME WHEN WE ARE BOTH RUNNING AT NIC. CALL ME OR STAN IF YOU WANT TO TRY THAT. I AM ANXIOUS TO SEE YOUR SCENARI. BY THE WHO WERE YOU SENDING THE MWE COULD CHECK AND SEE IF THEY HAD GOTTEN YOUR MESSAGE. GOOD LUCK.

ARNIE 1

AMO 10-AUG-72 13:17 11355

(J11355) 10-AUG-72 13:17; Title: Author(s): Arnold M. Ostebee/AMO; Distribution: Larry McDaniel/LM; Sub-Collections: NIC; Clerk: AMO;

JBL 10-AUG-72 14:18 11363

First Message

Pete: This is what it looks like to receive a message on the NIC. You might try sending one to me if you have a NIC book with you. You will probably find it easiest to use the Submit Message way of sending it. Pax. 1

JBL 10-AUG-72 14:18 11363

First Message

(J11363) 10-AUG-72 14:18; Title: Author(s): Joel B. Levin/JBL;
Distribution: Peter M. W. Bliss/PMB; Sub-Collections: NIC; Clerk: JBL;

KEV 10-AUG-72 15:57 11367

seminars at arc

this document describes the seminar pusher role within PARSLEY as i see and some tentative plans

seminars at arc

This document will describe what I see as my role as seminar pusher of PARSLEY and some initial plans. 1

Due to the fact that a seminar program has not yet risen out of LINAC and due to my personal belief that techical seminars contribute to an individual's personal development, (this belief is apparently shared by others at ARC), the PODAC seminar program will include technical, as well as non-technical, seminars. 2

I would like to hear from others who have feelings regarding this subject, both pro and con. 2a

I have asked Mike, who has had a great deal of experience in running seminar programs, to work with me, and I would like to ask anyone else who is interested to help us. 3

The role of the seminar pusher, as I see it, is as follows: 4

to solicit topics from the group for possible seminars 4a

to select topics from this group of collected topics that have a wide enough appeal to warrent a seminar 4b

to select a speaker or speakers for these topics 4c

to assist the speaker(s) in any way possible in the preparation of the seminar 4d

to ensure that the speaker(s) is well prepared for the seminar and will not just ramble on 4e

to schedule a time and place for the seminar and to co-ordinate obtaining whatever additional audio/visual aids that will be required 4f

to notify the publicity chairman of upcoming seminars 4g

to notify ARC of any seminars that may be of interest that are being given elsewhere 4h

As a possible first seminar I would like to suggest the following topic: 5

ARC hardware, its history, its current state, how it is maintained, and plans for future development and acquisitions. 5a

Probable speakers for this seminar would be Ed , Martin, and Don L. 5a1

Future seminars could do the same for PSO, software, etc. 6

I have also heard a request for a seminar on the use of the content analyzer. 7

All seminars will probably be held at the same time of the week, when they do occur, e.g., 2pm tues. 8

I would like to hear from others about possible topics and any comments on this document. 9

KEV 10-AUG-72 15:57 11367

seminars at arc

(J11367) 10-AUG-72 15:57; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, Ralph Prather, James E. White, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Don Limuti, William R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: KEV;
Origin: <VICTOR>SEMINARS.NLS;3, 10-AUG-72 15:52 KEV ;