Directory format ideas. 2

MAD will have three types of blocks of ten words each to make garbage collection easier. These blocks are user blocks (in fact groups of five user blocks of two words each), name blocks containing pointers to an attribute ring for the name and to the next name in the file ring for the user, and attribute rings containing special information for each dated version of a particular user file. 2a

Contents of a ten word user block. 2a|

Each block contains two-word user blocks for five users. 2a|a

First word-- TSS user number and a pointer to the user's name block (n-block). The last user name in the ring points back to the MAD file header. 2a|a|

Second word-- A pointer to the next individual user block in the ring. 2a|a2

Contents of a ten word name block (n-block). 2a2

First word-- Hash of name. 2a2a

When searching the directory for a particular file one computes the hash function value of the name (using the :UTILITY hash function). Upon being pointed to the user's n-block ring by the u-block, one goes through the ring checking the hash value until a match is found. If there is no match, the ring pointers return to the user level-- the file name does not exist in MAD. If a match occurs, we may make an additional check against the name string stored in this block. 2a2a|

Second word-- flag, pointer to next n-block in ring. 2a2b

If the flag is set, this is the last n-block in the ring; the n-block pointer then points to the user name u-block. 2a2b|

The pointer points to the next ten word n-block or the u-block. 2a2b2

Third word-- a-block pointer. (Maybe the number of versions-- number of a-blocks in ring.) 2a2c

Pointer to most recent attribute block (a-block) in attribute ring for this file name. 2a2c|

Fourth word-- name length. 2a2d

Number of characters (to |8 rather than the TSS permitted 30) in the file name. 2a2d|

Fifth through tenth words-- File name string. 2a2e

Up to |8 characters-- three eight bit characters to a word. 2a2e|

Contents of a ten word attribute block (a-block). 2a3

First word-- flag, pointer to next a-block in ring. 2a3a

If the flag is set, this is the last a-block in the ring; the a-block pointer then points to the file name n-block. 2a3a|

The pointer points to the next ten word a-block or the n-block. 2a3a2

Second, third words-- date, time. 2a3b

In format given by TSS BRS commands converted into numbers rather than characters. The date is in the second word in year, month, day (two decimal digits each). The time is in the third word in hour. minute, second. 2a3b|

Fourth, fifth words-- aging words. 2a3c

Would contain last date accessed and count record of number of times accessed if it were possible to get that information and still allow direct access to disc archive files without entering the system. The way TSS operates makes this unlikely. 2a3c|

Contains initial activity level estimate to decide whetner to leave a disc archive file. 2a3c2

How will we decide when to delete files from disc

archive? 2a3c3

Sixth word-- Tape location. 2a3d

Bits 0-11. Tape system number. (? ? ?) 2a3d1

Bits 12-23. Tape reel number. 2a3d2

These are set when the file is archived to the tape. 2a3d2a

Seventh word-- 2a3e

Bits 0-1. Location flag. 2a3e1

=0: Only on tape. 2a3e1a

=1: On disc. 2a3e1b

=3: Retrieval requested. 2a3e1c

(These numbers are used to compute locn in ARCQ along with tape number, accessibility flag.) 2a3e1d

Bits 2-3. Accessibility. 2a3e2

=0: Owner only. 2a3e2a

=1: General access. 2a3e2b

=2: Password access. 2a3e2c

Bits 4-6. Disc user number. 2a3e3

A mapping to the user names ARC1, ARC2, etc. (or similar names) giving the dummy archive user name location on the disc. Eight at first, but we have bits to permit more. 2a3e3a

Bits 7-12. Disc name number. 2a3e4

A mapping to the dummy disc name A1, A2, etc. Number limited by TSS. We take the number to be 64. 2a3e4a

Bit 13. File type coarse. 2a3e5

=0: Random. 2a3e5a

=1: Sequential. 2a3e5b

Bits 14-16. File type fine. 2a3e6

Core image, binary, dump, etc. Use TSS numbers. 2a3e6a

Bit 17. Durability flag. 2a3e7

=0: Removable. 2a3e7a

=1: Not removable. 2a3e7b

Bits 16-23. Unused. 2a3e8

Could be used as bit pattern to check validity of MAD. 2a3e8a

Eighth word-- Three character password. 2a3f

Ninth word-- Validity check. 2a3g

Could be a checksum for sequential file. What about random file? 2a3g1

Tenth word-- Size of file. 2a3h

Bits 0-7. Number of blocks in file. 2a3h1

Bits 8-23. Unused. 2a3h2

The user may request a file by name (e.g., :<filename> or (<user>):<filename> if the file was created by another user). The file accessed in the directroy will be the most recent version. He may also access a file in the same format followed by an asterisk (*) and a six (or twelve) figure date (or date and time). The file accessed will be the entry or, if no entry of the requested date exists, the closest succeding entry. 2b

As usual, a period affirms a filename, anything else aborts the request. 2b1

:4825, 08/24/70 1648:58 MGC ; :JRNL1, 08/24/70 0926:57 HAL ; .SINCE (70/08/20 00:00); .SCR=2; .HED="4825 HAL 24AUG70
FUNCTIONAL SPECIFICATION FOR PRIMARY TAPE ARCHIVE SYSTEM,
CONTINUED"; .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

```
.HED = "4825 HAL 24AUG70
FUNCTIONAL SPECIFICATION FOR PRIMARY TAPE ARCHIVE SYSTEM,
CONTINUED
;
```

4826 JCN 24AUG70
Journal Entry: Clerical Procedures

Clerical procedures for entry of files into the journal: |

These procedures will normally be carried out by the Journal Clerical staff, not by the individual user. |a

Enter System as Journal (password is ARC), setting Executivity to -| and change drum assignment to 600. |b

Run file :GETTER, This will find names of user's files awaiting Journal entry. |c

:GETTER asks for the name of a temporary file in which to put the file names it finds. |c|

After running :GETTER, go into QED and read from the temporary file, then examine by typing "|,$/". |c2

The following is representative of what you will get back: |c3

:jrn1| |c3a

:jrn12 |c3b

:jrn1p48|8 |c3c

This last example is mail that has ben partially processed as described in (mailentry) and is now ready for routine Journal processing, but with the Journal number already assigned. For a while, WSD will do the part of the procedure described in (mailentry). |c3c|

Each file found is now entered into the Journal with the following procedures: |d

Enter TODAS, using your own initials, unless entering mail-type Journal entries. In that case, initials are: "JNL". For rest of that sequence, see (mailentry) below. |d|

Load the first file awaiting entry, print statement 0, looking for existence of HED="xxxxx"; and other important data, such as distribution instructions |d2

If HED="xxxxx"; is found, proceed to next step, |d2a

If not, enter HED=""; no text is necessary in header for this purpose, just the directive |d2b

Execute viewchange Shift Case Off CA CA |d3

Execute merge after statement 0, merging from Journal :MJ, branch :mj, with viewspecs set at w (all/all) |d4

Execute text :mj |d5

This will ask for JJJJ iii DDMMMYY |d5a

You give next Journal number (by refering to (JO):NUMB for next Journal Number available for assignment. Change the file to reflect the next number available, after you take one, or some and write it out in scratch and KDF), Sender's initials and date such as: |7AUG70 then a CA |d5a|

If TODAS types a 2, it has not found your HED=""; or you forgot that step, if so, start over by reloading the file to be Journalized and merging, etc. |d5b

Next TODAS asks for the Journal Number again, which you offer. |d5c

Note that the filename that TODAS types to you is not really part of its message to you. It is trying to output to the indicated file. When you give it the Journal number, it takes that to be the file name, instead of the original filename. It types : just before the Journal number. All it wants from you is the number itself. |d5c|

Then TODAS does a file cleanup and leaves itself with the normal character set redefined. |d5c2

You may wish to do a file cleanup and output the file yourself for safety. |d5c3

At this point, go to the Executive level and set the new Journal file to permanent. private access Read Only. |d6

It is good practice to make a KDF copy under Journal now, bumping the oldest Journal file there if necessary..it is backed up in the Journal tape already, anyway. |d7

Note that distribution of hard copies, copying to magnetic tape, deletion of the :JRNL| type file, and notification of entry to the owner are yet to be accomplished. |d7a

At this point, however, we do have a new Journal file with the proper directives for hardcopy printout and archiving on the Journal tape. |d7b

Next you may process another Journal entry to the same stage, and others until the batch is done. Then, the hardcopies are made, to be sure we get the file out of the system before copying to tape. |d8

The tape copy may now be made for each file just processed, ending with dismount and remount tape to save directories. |d9

NOTE: THE TAPE COPY IS THE ONE "SECURE" COPY OF THIS NEW FILE. THIS STEP IS CRITICAL AND MULTIPLE COPY BACKUP IS NECESSARY AT VARIOUS STAGES UNTIL IT IS DONE. |d9a

Note: It may be necessary to set the Journal tape current, and when finished, to reset the archive tape current, using the same procedure, but giving the appropriate reel number. - see MGC |d9b

Now do a :RUNSTASH |d|0

This is done by advising an unused teletype, entering as HOPPER, setting Executivity to -|, and typing :RUNSTASH. It will save the current user directory, providing more security to the colon file copies just created. |d|0a

Note: When colon file :RUNSTASH is not there, try (HOPPER)RUNSTASH in kdf. |d|0a|

Next enter as each user affected and delete his old :JRNL files you just worked on, being careful not to delete any he might have added since you started. |d||

Next, send each sender a message, using the mail system, telling him that you have entered file :JRNL? in to the journal as: 48|?, etc. |d|2

Special procedures: Mail entry into the Journal

(WSD currently doing this part daily) |e

Enter as Journal, setting Executivity to -1. |e1

Copy Journal random file :JCF to another file temporarily for backup. |e2

Enter MAIL subsystem, using initials "JNL". |e3

These initials give you access to special Journal processing commands in the MAIL subsystem. |e3a

Type "c", and :MAIL will echo back. You add another temporary filename (eg. ':JUNK') and when asked, add a new Journal file number for subsequent messages, after referring to the log of numbers. |e4

MAIL feeds back the number for a check, so type a period, if correct. If not, type a ? and try again. |e5

Next go into TODAS, calling yourself a display .. regardless of the device you are using .., then execute viewchange to turn shiftcase off (evso CA CA CA) |e6

Insert QED branch after 0. Convert Case No Text from file :JUNK |e7

This will cause the mailfile to be entered into your working file |e8

The statement numbers in the file should match the numbers of the messages. |e8a

This may be easily checked by printing the last message in the file with the statement numbers on and comparing with the last message number. |e8b

If there is an error, try again or contact some one who knows about the mail system. |e8c

Now modify the origin statement, so that it has a "HED="Mail file " immediately after the ", dummy"; |e9

Exit from TODAS and copy the file to a file that will be picked up by the normal Journal procedure eg. :JRNLp4819 |e10

Also, back the file up in KDF until you know that it

has been entered into the Journal and a copy is on tape. The Journal clerk will let you know through the mail system when this has been done. |e|0a

From this point on, treat the file as a normal Journal entry |e||

Hard copy distribution 2

The following hardcopies are to be made for all Journal entries 2a

Control Master 2a|

Access Copy 2a2

Catalog copy - until other catalog conventions are developed 2a3

WSD copy - while closely following initial Journal developments 2a4

Other distribution - as indicated by the sender in the header statement of the Journal file or by other means.. verbal, mail system, memo, etc. 2a5

':4826', 08/24/70 1330:32 MGC ; ':JRNL1', 08/21/70 1745:18 JCN ;
.DPN=1;.DPR=1; .HED="4826 JCN 24AUG70
Journal Entry: Clerical Procedures";
.SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

4827 WSD 26AUG'70
Mail File

CHI $4827.1 WSD 08/25/70 1031:43 THE COUNT IS FOR THE NUMBER OF UNDELETED MESSAGES IN THE ENTIRE MAIL SYSTEM. IT IS SLIGHTLY WRONG IN CERTAIN CASES WHERE THERE WAS A BUG IN THE MAIL SYSTEM, BUT IT IWLL ALWAYS BE RESET BY DELETING ALL MESAGES. COUNTED OR NOT. IT IS ALSO WRONG IF ONE HAS NOT DELETED ALL MESSAFES SINCE IT WAS PUT IN.$ 1

MGC $4827.2 WSD 08/25/70 1039:11 PLEASE REMIND ME TO PICK UP MY COPY OF JOURNAL ON WEDS. THANX$ 2

WSD $4827.3 DGC 08/25/70 1040:02 I CAN'T DELETE (4824.5) -- CAN YOU HELP ME?$ 3

MEJ $4827.4 WSD 08/25/70 1042:03 I DIN'T GET MEMO COMPLETELY EDITED. BUT PUT IT ON-LINE ANYWAY, AND I WILL EDIT IT WHEN I COME DOWN ON WEDS (TOMORRWO). THANKS$ 4

DGC $4827.5 DGC 08/25/70 1053:42 TEST BY WSD$ 5

JNL $4827.6 DGC 08/25/70 1057:44 XX$ 6

DGC $4827.7 DGC 08/25/70 1058:23 HI$ 7

WSD $4827.8 MGC 08/25/70 1111:22 4824 MAIL JOURNALIZED. YOUR COPY IS IN NARROW RED NOTEBOOK ON BOTTOM SHELF IN MY ROOM LABELLED "WSD COPY"$ 8

JCN $4827.9 MGC 08/25/70 1512:12 (NORTON) FILES JOURNALIZED AS FOLLOWS: :JRNL1,:JRNL2,:JRNL3,:JRNL4,:JRNL5,:JRNL6,:JRNL7 ARE NOW RESPECTIVELY
(JOURNAL):4828,:4829,:4830,:4831,:4832,:4833,:4834 $ 9

WLB $4827.10 BLP 08/25/70 1536:51 RSVP TOYOUTOO -- YES I WOULD LIKE TO GO TO LUNCH $ 10

WSD $4827.11 CHI 08/25/70 1553:35 YOU NOW HAVE A NEW TODAS/NLS. THE KDF SPACE IS AS WE DISCUSSED WITH PASSWORD ACCESS TO THE KDF OBJECTS WHICH SUPPORT NLS/TODAS (THE PASSWORD IS NLS AND IS A SAFEGUARD ONLY).$ 11

WSD $4827.12 WLB 08/25/70 1610:26 I STILL GET CRASHED EVERYTIME I TRY TO WRITE A MAIL FILE TO SCRATCH. IS THIS A UNIQUE PROBLEM WITH ME OR AM I ANTICIPATING AN UNIMPLEMENTED FEATURE?$ 12

DGC $4827.13 WSD 08/25/70 1638:37 I'LL GET RID OF IT THIS EVE$ 13

WLB $4827.14 WSD 08/25/70 1639:45 YOU HAVE FOUND A TSS BUG (OR I HAVE). I'LL GET AROUND IT WHEN I HAVE TIME$ 14

CHI $4827.15 WLB 08/25/70 1710:06 RE (4824.26) I'M REALLY NOT INFORMED ENOUGH TO HELP WITH FIXING JUMP-TO-LINK AND CAN ONLY STATE A GENERAL BELIEF THAT WHAT ONE SEES ON THE DISPLAY SHOULD REFLECT AS ACCURATELY AS POSSIBLE THE INTERNAL STATE OF THE SYSTEM. IF THE INTERNAL STATE IS SCREWED UP, THEN THE DISPLAY SHOULD BE SCREWED UP IN THE SAME WAY (RATHER THAN A DIFFERENT WAY?)$ 15

WSD $4827.16 WLB 08/25/70 1713:43 RE (4827,14) WELL, THAT'S ANOTHER NOTCH IN MY RIFLE. THANKS FOR CHECKING.$ 16

WSD $4827.17 MEJ 08/25/70 1903:48 Your :MAILMEMO input, in your colon file space set to Permanent, and in your KDF space uunder MAILM. -- Mil$ 17

':4827', 08/26/70 ||||:|7 MGC ; ':MAIL', 08/25/70 2009:38 WSD ;
.HED="4827 WSD 26AUG70
Mail File"; .SNP=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F
A M

Search patterns:
All tasks and ESTIMATES: link:
(baseline:x4bjnD;/"&"/OR/"*"/;) |a
People: ESTIMATES and ACTUAL: (baseline:zx5bni;/"JCN"/AND
NOT/" Leader"/;) |b
People: ESTIMATES
only:(baseline:zx5bni;/"*J"/OR/"WSD"/AND/"*"/;) |c
People: ACTUAL only:
(baseline:zx5bni;/"*J"/OR/"WSD"/AND/"@"/;) |d
Link to people: (personnel:xbbnjD) |e
All tasks FEATURES: (baseline:zx5bniD;/"&"/OR/"Features"/;) |f
All tasks PUSHERS: (baseline:zx5bniD;/"&"/OR/"Pusher"/;) |g
ARC BASELINE PLAN - NEXT TWO YEARS: 2

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F
A M

2a

Year: * 1970 >< 1971 ><72 2b
Months + *| 2 3 4 5 6 7 8 9|0|1|2|3|4|5|6|7|8|9|20|21|
2324 2c
Month: *J J A S O N D J F M A M J J A S O N D J F
M A M

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

2d

SERVICE SYSTEM WKE JCN meeting 6/5am

Pusher: WKE 2e

Software and Hardware: 2e|

PDP-|O *xxxxxxxxxxF 2e2

Features: 2e2a

System acquisition and checkout (english,|Oacq,|:xbnD) 2e2a|

NLS transfer (englisn,|Otrn,|:xbnD) 2e2a2

Pusher: WKE 2e2b

Start 6/|/70 2e2c

Finish Stage x: |2/|/70 26 weeks 2e2d

People: 2e2e

WKE *22||||23333 2e2e|

WKE @ 2e2e|a

WHP *999999899999 2e2e2

WHP @8 2e2e2a

BLP * 542| 2e2e3

BLP @ 2e2e3a

CHI *||2222334568 2e2e4

CHI @ 2e2e4a

WSD * |2||22236 2e2e5

WSD @ 2e2e5a

JDH * 235700 2e2e6

JDH @ 2e2e6a

JTM *333344445555 2e2e7

JTM @ 2e2e7a

KEV *577869999999 2e2e8

KEV @ 2e2e8a

DIA *000098555522 2e2e9

DIA @ 2e2e9a

MSC *000000000000 2e2e|O

MSC @ 2e2e|Oa

RDB * 9900000074 2e2e||

RDB @ 2e2e||a

EKV *||||2234442| 2e2e|2

EKV @ 2e2e|2a

File handl *S|x2xxxxxx3F 2e3

Features: 2e3a

Plan for file space, reliability,.(|) (lentman,archi,:zxbn) 2e3a|

Overview of the whole storage problem WsD? 2e3a|a

Plan for the PDP-|O 2e3a|b

Remote storage UCSB - on the 940 (2) then the |O (3) 2e3a2

Pusher: WSD 2e3b

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Month:          *J J A S O N D J F M A M J J A S O N D J F M A M
```

```
   Start 6/15/70                                                    2e3c
   Finish Stage x:  12/15/70 26 weeks                               2e3d
   People:                                                          2e3e
      WSD        *88754311                                          2e3e1
         WSD     @                                                  2e3e1a
      HGL        *                                                  2e3e2
         HGL     @                                                  2e3e2a
      JTM        *3342|                                             2e3e3
         JTM     @                                                  2e3e3a
      JDH        *23341|                                            2e3e4
         JDH     @                                                  2e3e4a
Remote Displ     *  Sxxx|2xxxxx3F                                   2e4
   Features:                                                        2e4a
      Hardware access for remote display   (1)                      2e4a1
      Mouse and Keyset on IMLAC (2)                                 2e4a2
      NLS on IMLAC (3)                                              2e4a3
      Link: (english,rmdsp,:zxbnD)                                  2e4a4
   Pusher: WKE                                                      2e4b
   Start 7/1/70                                                     2e4c
   Finish Stage x:  1/1/70  26 weeks                                2e4d
   People:                                                          2e4e
      JMY        *2234                                              2e4e1
         JMY     @                                                  2e4e1a
      GKD        * 500005                                           2e4e2
         GKD     @                                                  2e4e2a
      WSD        *   455774433222                                   2e4e3
         WSD     @                                                  2e4e3a
Net Access       *xxxxxF                                            2e5
   Features:                                                        2e5a
      Link: (english, netac,:zxbnD)                                 2e5a1
      Access to ARC by Net users                                    2e5a2
      TODAS for Net users                                           2e5a3
   Pusher: JTM                                                      2e5b
   Start 6/1/70  going                                              2e5c
   Finish Stage x: 10/15/70  12 weeks                               2e5d
   People:                                                          2e5e
      JTM        *454432                                            2e5e1
         JTM     @                                                  2e5e1a
      JDH        *14542|                                            2e5e2
         JDH     @                                                  2e5e2a
      CHI        *  4531                                            2e5e3
         CHI     @                                                  2e5e3a
      DGC        *33552|                                            2e5e4
         DGC     @                                                  2e5e4a
Team Facil       *          Sxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>        2e6
   Features:                                                        2e6a
      Projection TV (%)                                             2e6a1
```

```
Month:          *J J A S O N D J F M A M J J A S O N D J F M A M
```

Switching faciility (#)		2e6a2
Software features (1)		2e6a3
Pusher: WKE		2e6b
Start 1/1/70		2e6c
Finish Stage x: x/x/x x weeks		2e6d
People:		2e6e
EKV	* 22222222222211111	2e6e1
EKV	@	2e6e1a
WKE	* 111221	2e6e2
WKE	@	2e6e2a
JCN	* 1111111111	2e6e3
JCN	@	2e6e3a
Transcr Facil	*x1x2xx3	2e7
Features:		2e7a
System design (1) (english, xxx?,:xbnD)		2e7a1
Mag tape-typewriters (2)		2e7a2
Tape input facilities (3)		2e7a3
Pusher: WKE		2e7b
Start 6/1/70		2e7c
Finish Stage x: 9/15/70 15 weeks		2e7d
People:		2e7e
DJO	*2441	2e7e1
DJO	@	2e7e1a
WKE	*112	2e7e2
WKE	@	2e7e2a
JMY	* 367421	2e7e3
JMY	@	2e7e3a
HGL	* 37	2e7e4
HGL	@	2e7e4a
DataBaseMgtSy	*Sx1xxxxx2xxxxxx3xxxxxxx4	2e8
Features:		2e8a
System design - selection (1) (parsley,xxx?,:xb)		2e8a1
Access negotiations (2)		2e8a2
Connection and use (3)		2e8a3
Interactive front end (4)		2e8a4
Pusher: DCE		2e8b
Start Stage 1: 6/1/70		2e8c
Start Stage 2: 7/15/70		2e8d
Finish Stage 1: 7/15/70 6 weeks		2e8e
Finish Stage 2: 10/1/70 10 weeks		2e8f
People:		2e8g
DCE	*11 112	2e8g1
DCE	@	2e8g1a
BLP	*9065221111111	2e8g2
BLP	@	2e8g2a
JTM	* 1223332 11	2e8g3
JTM	@	2e8g3a

```
Month:          *J J A S O N D J F M A M J J A S O N D J F M A M

    ppp         *          |233568888887655                      2e8g4
      ppp       @                                               2e8g4a
Measurement     *      Sx|xxxxxxxF                                 2e9
  Features:                                                       2e9a
    Design of requirements (|)  (norton,measu,:zxbn)              2e9a|
    NLS implementation                                            2e9a2
    TENEX implementation                                          2e9a3
  Pusher: WHP                                                     2e9b
  Start 8/15/70                                                   2e9c
  Finish Stage |:  x/x/x  x weeks                                 2e9d
  People:                                                         2e9e
    WHP         *      |2||     ||                               2e9e|
      WHP       @                                               2e9e|a
    JCN         *      ||||                                     2e9e2
      JCN       @                                               2e9e2a
    KEV         *      ||22||    ||                             2e9e3
      KEV       @                                               2e9e3a
LocHardCopyOut  *                                                 2e|0
  Features:                                                       2e|0a
  Pusher: xxx                                                     2e|0b
  Start x/x/x                                                     2e|0c
  Finish Stage |:  x/x/x  x weeks                                 2e|0d
  People:                                                         2e|0e
    xxx         *                                               2e|0e|
      xxx       @                                               2e|0e|a
OutputProc      *  ?  SxxxxxxxxxxxxxxxxxxxxxF                     2e||
  Features:                                                       2e||a
  Pusher: BLP                                                     2e||b
  Start x/x/x                                                     2e||c
  Finish Stage x: x/x/x  x weeks                                  2e||d
  People:                                                         2e||e
    BLP         *                                               2e||e|
      BLP       @                                               2e||e|a
Graphics        *                          SxxxxxxxxxxxxxxxxxxxxxxxF  2e|2
  Features:                                                       2e|2a
  Pusher: xxx                                                     2e|2b
  Start 5/17/71                                                   2e|2c
  Finish Stage x: x/x/x  x weeks                                  2e|2d
  People:                                                         2e|2e
    JCN         *                                               2e|2e|
      JCN       @                                               2e|2e|a
    ppp         *                                               2e|2e2
      ppp       @                                               2e|2e2a
Microform       *      Sxx|xxx23xxxxxxxxxx4xxxxxxxxxxxxx5xx>       2e|3
  Features:                                                       2e|3a
    System design (|)                                             2e|3a|
    COM service (2)                                               2e|3a2
```

```
Month:          *J J A S O N D J F M A M J J A S O N D J F M A M

      Output Processor (3)  (parsley,xxx?,:zxb)                  2e|3a3
      Frame-jumping here (4)                                     2e|3a4
      Network use (5)                                            2e|3a5
   Pusher: xxx                                                    2e|3b
   Start 9/1/70                                                   2e|3c
   Finish Stage 1:  10/15/70  6 weeks                             2e|3d
   People:                                                        2e|3e
      WKE       *                                                 2e|3e|
         WKE    @                                                2e|3e|a
      ppp       *                                                 2e|3e2
         ppp    @                                                2e|3e2a
      hhh       *                                                 2e|3e3
         hhh    @                                                2e|3e3a
Voice           *                              Sxxxxxxxxxx>        2e|4
   Features:                                                      2e|4a
      Voice blocks in NLS                                         2e|4a|
      Comunication system to the user                             2e|4a2
   Pusher: xxx                                                    2e|4b
   Start 9/1/71                                                   2e|4c
   Finish Stage x:  x/x/x  x weeks                                2e|4d
   People:                                                        2e|4e
      WKE       *                                                 2e|4e|
         WKE    @                                                2e|4e|a
      ppp       *                                                 2e|4e2
         ppp    @                                                2e|4e2a
      hhh       *                                                 2e|4e3
         hhh    @                                                2e|4e3a
NLS Features    *            Sxxxxxxxxxxxxxxxxxxxxxxxxxxxx>       2e|5
   Features:                                                      2e|5a
      940: (irby,xxx?,:zxb)
```

Month: *J J A S O N D J F M A M J J A S O N D J F M A

2e|5a|

WSD: Create display and reformatting on searched items 2e|5a|a

None 2e|5a|b

|O: 2e|5a2

Create display with windows 2e|5a2a

Multiple files 2e|5a2b

DSS related 2e|5a2c

Picture package 2e|5a2d

Pusher: WHP 2e|5b

Start |2/|5/70 2e|5c

Finish Stage x: x/x/x x weeks 2e|5d

People: 2e|5e

WHP	*	234555---	2e|5e|
WHP	@		2e|5e|a
CHI	*	357777788---	2e|5e2
CHI	@		2e|5e2a
MSC	*	5780000---	2e|5e3
MSC	@		2e|5e3a

2e|6

Month: *J J A S O N D J F M A M J J A S O N D J F
A M

2e16a

DSS
Pusher: WSD 2f
DSS * Sxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> 2f1
Features: 2f1a
Archiving 2f1a1
Journal 2f1a2
Link aids 2f1a3
Pusher: WSD 2f1b
Start 8/1/70 2f1c
Finish Stage x: x/x/x x weeks 2f1d
People: 2f1e
WSD * 22345555555555--- 2f1e1
WSD @ 2f1e1a
DCE * 1122333211--- 2f1e2
DCE @ 2f1e2a
JCN * 1122333211--- 2f1e3
JCN @ 2f1e3a

NIC
Pusher: WLB 2g
Stages 2g1
Stage 1: to 12/1/70? 2g1a
Collection 200 documents 2g1a1
NIC Catalogues, indices 2g1a1a
Facility guides 2g1a1b
NWG/RFC's 2g1a1c
Most pertinent XDOC items 2g1a1d
User's Guides 2g1a1e
Existing collection, reduced? 2g1a1f
Other citations as appropriate 2g1a1g
NLS used for all maintenance and storage of files 2g1a2
Hardcopy limited to essential, easily copyable ones 2g1a3
On-line versions limited to Cats, indices, NWG/NFC, Fac guides. 2g1a4
Microform requirements design for stage 2 ready 2g1a5
Some ARC use of microform for experience 2g1a5a
Newsletter 2g1a6
Stage 2: to 6/1/71?? 2g1b
Collection 1000 documents?? 2g1b1
NIC Catalogues, indices 2g1b1a
Special indices 2g1b1b
Facility guides 2g1b1c
NWG/RFC's 2g1b1d
Most pertinent XDOC items 2g1b1e
User's Guides many added more detail 2g1b1f
Many other citations as appropriate 2g1b1g

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

Some TODAS-created dialogue messages? 2g|b|h
Data base management system in operation 2g|b2
More sophisticted cataloging and indices 2g|b2a
Microform use for collection dissemination 2g|b3
Entire collection on microform 2g|b3a
Essential to provide useful frame movement facilities and other control 2g|b3b
NLS used for interaction with DBMS and for ARC use in viewing NIC files 2g|b4
Hardcopy only in parrallel with microform where necessary 2g|b5
On-line documents expanded, due primarily to growing message / dialogue? 2g|b6
Stage 3: to 2/7/72 2g|c
Collection 8000 documents?? 2g|c|
NIC Catalogues, indices 2g|c|a
Special indices 2g|c|b
Facility guides 2g|c|c
NWG/RFC's 2g|c|d
All XDOC items? 2g|c|e
User's Guides many added more detail 2g|c|f
Many other citations as appropriate 2g|c|g
Much TODAS-created message / dialogue? 2g|c|h
Data base management system in operation 2g|c2
More sophisticted cataloging and indices 2g|c2a
NLS used for interaction with DBMS and for ARC and increasing Network use in viewing NIC files 2g|c3

Staff summary: 2g2

2g2a

2g2a|

Stage |: 2g2a|a

WLB	40 hours	per week	level	xxx hours	2g2a|a|
JBN	30 hours	per week	level	xxx hours	2g2a|a2
MGC	30 hours	per week	level	xxx hours	2g2a|a3
JCN	5 hours	per week	level	xxx hours	2g2a|a4
DCE	8 hours	per week	level	xxx hours	2g2a|a5
DOC	30 hours	per week	level	xxx hours	2g2a|a6
BLP	xxx hours	per week	level	xxx hours	2g2a|a7
WKE	xxx hours	per week	level	xxx hours	2g2a|a8

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Month:        *J J A S O N D J F M A M J J A S O N D J F M A M

              CHI    xxx hours per week  level        xxx
             hours                                          2g2a|a9
              xxx    xxx hours per week  level        xxx
             hours                                          2g2a|a|0
              xxx    xxx hours per week  level        xxx
             hours                                          2g2a|a||
              Total                                 xxx =
             xxx                                            2g2a|a|2
          Stage 2:                                            2g2a|b
          Stage 3:                                            2g2a|c
Cats and inds  *xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2g3
   Features:                                                  2g3a
   Pusher: xxx                                                2g3b
   Start x/x/x                                                2g3c
   Finish Stage x:  x/x/x  x weeks                            2g3d
   People:                                                    2g3e
      Stage |:                                               2g3e|
      WLB       *                                            2g3e2
         WLB    @                                           2g3e2a
      JBN       *                                            2g3e3
         JBN    @                                           2g3e3a
      MGC       *                                            2g3e4
         MGC    @                                           2g3e4a
      JCN       *                                            2g3e5
         JCN    @                                           2g3e5a
      xxx       *                                            2g3e6
         xxx    @                                           2g3e6a
File maint     *xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2g4
   Features:                                                  2g4a
   Pusher: xxx                                                2g4b
   Start x/x/x                                                2g4c
   Finish Stage x:  x/x/x  x weeks                            2g4d
   People:                                                    2g4e
      Stage |:                                               2g4e|
      WLB       *                                            2g4e2
         WLB    @                                           2g4e2a
      JBN       *                                            2g4e3
         JBN    @                                           2g4e3a
      MGC       *                                            2g4e4
         MGC    @                                           2g4e4a
      DOC       *                                            2g4e5
         DOC    @                                           2g4e5a
      JCN       *                                            2g4e6
         JCN    @                                           2g4e6a
      xxx       *                                            2g4e7
         xxx    @                                           2g4e7a
Hardcopy dist  *  ?xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2g5
```

```
Month:          *J J A S O N D J F M A M J J A S O N D J F M A M
   Features:                                                    2g5a
   Pusher: xxx                                                  2g5b
   Start x/x/x                                                  2g5c
   Finish Stage x:  x/x/x  x weeks                              2g5d
   People:                                                      2g5e
      Stage |:                                                 2g5e|
      WLB       *                                             2g5e2
         WLB    @                                            2g5e2a
      JBN       *                                             2g5e3
         JBN    @                                            2g5e3a
      MGC       *                                             2g5e4
         MGC    @                                            2g5e4a
      JCN       *                                             2g5e5
         JCN    @                                            2g5e5a
      xxx       *                                             2g5e6
         xxx    @                                            2g5e6a
TODAS usage     *     ?xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>     2g6
   Features:                                                    2g6a
   Pusher: xxx                                                  2g6b
   Start x/x/x                                                  2g6c
   Finish Stage x:  x/x/x  x weeks                              2g6d
   People:                                                      2g6e
      Stage |:                                                 2g6e|
      WLB       *                                             2g6e2
         WLB    @                                            2g6e2a
      MGC       *                                             2g6e3
         MGC    @                                            2g6e3a
      JCN       *                                             2g6e4
         JCN    @                                            2g6e4a
      DCE       *                                             2g6e5
         DCE    @                                            2g6e5a
      CHI       *                                             2g6e6
         CHI    @                                            2g6e6a
      xxx       *                                             2g6e7
         xxx    @                                            2g6e7a
Message sys     *     ?XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX>     2g7
   Features:                                                    2g7a
   Pusher: xxx                                                  2g7b
   Start x/x/x                                                  2g7c
   Finish Stage x:  x/x/x  x weeks                              2g7d
   People:                                                      2g7e
      Stage |:                                                 2g7e|
      WLB       *                                             2g7e2
         WLB    @                                            2g7e2a
      MGC       *                                             2g7e3
         MGC    @                                            2g7e3a
      WKE       *                                             2g7e4
```

```
     Month:        *J J A S O N D J F M A M J J A S O N D J F M A M

            WKE    @                                                2g7e4a
         DCE       *                                                 2g7e5
            DCE    @                                                2g7e5a
         xxx       *                                                 2g7e6
            xxx    @                                                2g7e6a
   Node Liason     *      ?XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX>        2g8
      Features:                                                      2g8a
      Pusher: xxx                                                    2g8b
      Start x/x/x                                                    2g8c
      Finish Stage x:  x/x/x  x weeks                                2g8d
      People:                                                        2g8e
         Stage 1:                                                   2g8e1
         WLB       *                                                2g8e2
            WLB    @                                               2g8e2a
   DSS             *      ?xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>       2g9
      Features:                                                      2g9a
      Pusher: xxx                                                    2g9b
      Start x/x/x                                                    2g9c
      Finish Stage x:  x/x/x  x weeks                                2g9d
      People:                                                        2g9e
         Stage 1:                                                   2g9e1
         WLB       *                                                2g9e2
            WLB    @                                               2g9e2a
         WSD       *                                                2g9e3
            WSD    @                                               2g9e3a
         MGC       *                                                2g9e4
            MGC    @                                               2g9e4a
         JCN       *                                                2g9e5
            JCN    @                                               2g9e5a
         DCE       *                                                2g9e6
            DCE    @                                               2g9e6a
         xxx       *                                                2g9e7
            xxx    @                                               2g9e7a
   Microform dev   *   ?xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2g10
      Features:                                                    2g10a
      Pusher: xxx                                                  2g10b
      Start x/x/x                                                  2g10c
      Finish Stage x:  x/x/x  x weeks                              2g10d
      People:                                                      2g10e
         Stage 1:                                                 2g10e1
         WLB       *                                              2g10e2
            WLB    @                                             2g10e2a
         JBN       *                                              2g10e3
            JBN    @                                             2g10e3a
         MGC       *                                              2g10e4
            MGC    @                                             2g10e4a
         JCN       *                                              2g10e5
```

```
          Month:       *J J A S O N D J F M A M J J A S O N D J F M A M
                JCN    @                                                2g10e5a
             BLP       *                                                2g10e6
                BLP    @                                                2g10e6a
             DOC       *                                                2g10e7
                DOC    @                                                2g10e7a
             DCE       *                                                2g10e8
                DCE    @                                                2g10e8a
             xxx       *                                                2g10e9
                xxx    @                                                2g10e9a
        NLS usage      *         ?xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>    2g11
           Features:                                                    2g11a
           Pusher: xxx                                                  2g11b
           Start x/x/x                                                  2g11c
           Finish Stage x:  x/x/x  x weeks                              2g11d
           People:                                                      2g11e
              Stage 1:                                                  2g11e1
              WLB      *                                                2g11e2
                 WLB   @                                                2g11e2a
              CHI      *                                                2g11e3
                 CHI   @                                                2g11e3a
              MGC      *                                                2g11e4
                 MGC   @                                                2g11e4a
              JCN      *                                                2g11e5
                 JCN   @                                                2g11e5a
              DCE      *                                                2g11e6
                 DCE   @                                                2g11e6a
              xxx      *                                                2g11e7
                 xxx   @                                                2g11e7a
     RINS
       Pusher: DCE                                                      2h
        InfoNeedsAsses *      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2h1
           Features: (engelbart,rins,:zxbnD)                            2h1a
           Pusher: xxx                                                  2h1b
           Start x/x/x                                                  2h1c
           Finish Stage x:  x/x/x  x weeks                              2h1d
           People:                                                      2h1e
              Stage 1:                                                  2h1e1
              xxx      *                                                2h1e2
                 xxx   @                                                2h1e2a
        Info collect   *      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>      2h2
           Features: (engelbart,rins,:zxbnD)                            2h2a
           Pusher: xxx                                                  2h2b
           Start x/x/x                                                  2h2c
           Finish Stage x:  x/x/x  x weeks                              2h2d
           People:                                                      2h2e
              Stage 1:                                                  2h2e1
              xxx      *                                                2h2e2
```

```
    Month:       *J J A S O N D J F M A M J J A S O N D J F M A M

              xxx   @                                                   2h2e2a
       File maint   *     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>           2h3
          Features: (engelbart,rins,:zxbnD)                               2h3a
          Pusher: xxx                                                     2h3b
          Start x/x/x                                                     2h3c
          Finish Stage x:  x/x/x  x weeks                                 2h3d
          People:                                                         2h3e
             Stage 1:                                                    2h3e1
             xxx      *                                                  2h3e2
                xxx   @                                                 2h3e2a
       Collect maint  *   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>           2h4
          Features: (engelbart,rins,:zxbnD)                               2h4a
          Pusher: xxx                                                     2h4b
          Start x/x/x                                                     2h4c
          Finish Stage x:  x/x/x  x weeks                                 2h4d
          People:                                                         2h4e
             Stage 1:                                                    2h4e1
             xxx      *                                                  2h4e2
                xxx   @                                                 2h4e2a
       Analysis serv  *   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>           2h5
          Features: (engelbart,rins,:zxbnD)                               2h5a
          Pusher: xxx                                                     2h5b
          Start x/x/x                                                     2h5c
          Finish Stage x:  x/x/x  x weeks                                 2h5d
          People:                                                         2h5e
             Stage 1:                                                    2h5e1
             xxx      *                                                  2h5e2
                xxx   @                                                 2h5e2a
    MANAGEMENT SYSTEM        JCN 6/5
      Pusher: JCN                                                         2i
       Resource coord *xxxxx1        xxxxx2                               2i1
          Features:                                                       2i1a
             Design of task management-resource co-ordination
            framework                                                    2i1a1
                Stage 1:                                                2i1a1a
                   Off-line data collection by meetings and/or
                  MET "surveys"                                        2i1a1a1
                      Complete review of ARC plans each month         2i1a1a1a
                   On-line recording of estimates and actuals         2i1a1a2
                Stage 2:                                                2i1a1b
                   Improved formats and conventions                    2i1a1b1
                   On-line data collection                             2i1a1b2
                   On-line recording of estimates and actuals          2i1a1b3
                   On-line analysis of successive estimates            2i1a1b4
                Main elements                                           2i1a1c
                   Description of tasks with links to working
                  files                                                2i1a1c1
```

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

Significant milestones 2i|a|c|a
Relationship with other activities 2i|a|c|b
interdependency 2i|a|c|c
End result expected
-report-program-hardware? 2i|a|c|d
Date of estimated start and finish 2i|a|c2
People involved 2i|a|c3
Level of effort 2i|a|c4
Status commentary 2i|a|c5
Implementation of system to stage |: 2i|a2
Get agreement of ARC through participation in the development and in implementation with as little effort as possible 2i|a2a
Try initial steps, ready to modify after first try 2i|a2b
Evaluation of usefulness and modification as necessary 2i|a3
Gather meaningful comments from the users ARC, DCE etc 2i|a3a
Pusher: JCN 2i|b
Start Stage |: 6/|/70 2i|c
Start Stage 2: |/|/7| 2i|d
Finish Stage |: 9/|/70 |2 weeks 2i|e
Finish Stage 2: 4/|/7| |2 weeks 2i|f
People: 2i|g
JCN *444444 444444 2i|g|
JCN @ 2i|g|a
WKE *++++++ ++++++ 2i|g2
WKE @ 2i|g2a
DCE *++++++ ++++++ 2i|g3
DCE @ 2i|g3a
MET *222222 222222 2i|g4
MET @ 2i|g4a
BLP *222222 222222 2i|g5
BLP @ 2i|g5a
Record System * xxxxxx| 2i2
Features: 2i2a
Record system 2i2a|
Design 2i2a|a
Elements: 2i2a|a|
Baseline 2i2a|a|a
Description of ARC features at present 2i2a|a|b
Status of tasks 2i2a|a|c
Comments and altenatives to baseline 2i2a|a|d
Successive versions of Baseline and other records with ways to identify each 2i2a|a|e
Procedures for initial creation and

```
        Month:        *J J A S O N D J F M A M J J A S O N D J F M A M

                maintenance                                              2i2a|a2
              Implementation                                             2i2a|b
                 Decisions regarding what is on the Baseline
                 now                                                     2i2a|b|
                     June planning meetings ?                           2i2a|b|a
                  Collection of existing documents                      2i2a|b2
                  Producing others as needed                            2i2a|b3
                  Organization of records on shelves                    2i2a|b4
                  Organization as possible on-line                      2i2a|b5
              Evaluation                                                 2i2a|c
          Pusher: JCN                                                     2i2b
          Start 7/1/70                                                    2i2c
          Finish Stage |:  10/1/70  |2 weeks                             2i2d
          People:                                                         2i2e
             JCN        *  2222222                                       2i2e|
                JCN     @                                               2i2e|a
             DCE        *  |||||||                                       2i2e2
                DCE     @                                               2i2e2a
             WSD        *  |||||||                                       2i2e3
                WSD     @                                               2i2e3a
             MEJ        *  2222222                                       2i2e4
                MEJ     @                                               2i2e4a
       Interfaces       *xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>       2i3
          Features:                                                       2i3a
            Need/possbility identification and development with:          2i3a|
             Dialogue Support System                                     2i3a2
             Output processor                                            2i3a3
             New system features                                         2i3a4
             Intelligence system                                         2i3a5
             User systems                                                2i3a6
             Network Info Center                                         2i3a7
          Pusher: JCN                                                     2i3b
          Start 7/1/70                                                    2i3c
          Finish Stage x:  2/8/72 |00 weeks                               2i3d
          People:                                                         2i3e
             JCN        *|||||||||||||||||||||||||||||||||||||||||||||   2i3e|
                JCN     @                                               2i3e|a
             DCE        *++++++++++++++++++++++++++++++++++++++++++++   2i3e2
                DCE     @                                               2i3e2a
             MET        *++++++++++++++++++++++++++++++++++++++++++++   2i3e3
                MET     @                                               2i3e3a
             MGC        *++++++++++++++++++++++++++++++++++++++++++++   2i3e4
                MGC     @                                               2i3e4a
             xxx        *++++++++++++++++++++++++++++++++++++++++++++   2i3e5
                xxx     @                                               2i3e5a
       Organiz/roles    *      xxxxx|      xxxxx2     xxxxxx>            2i4
```

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        Month:        *J J A S O N D J F M A M J J A S O N D J F M A M

         Features: (norton,roles,:zxbbnD)                                  2i4a
            Identification of significant functions, roles, etc            2i4a|
            Making them visible                                            2i4a2
            Making better use of the concepts in our work                  2i4a3
            Re-examine periodically to adjust to changes in
           situation                                                       2i4a4
         Pusher: DCE/JCN                                                   2i4b
         Start 9/1/70                                                      2i4c
         Finish Stage 1:  12/1/70  12 weeks                                2i4d
         People:                                                           2i4e
            JCN       *      ++++++      ++++++     ++++++                2i4e|
               JCN    @                                                   2i4e|a
            DCE       *      ++++++      ++++++     ++++++                2i4e2
               DCE    @                                                   2i4e2a
            WKE       *      ++++++      ++++++     ++++++                2i4e3
               WKE    @                                                   2i4e3a
   USER SYSTEM              JCN 6/2
     Pusher: DCE                                                           2j
      Use measur      *     xxxxxxxxxx|xxxxxxxxxxxxxxxxxxxxxxx>            2j|
         Features:                                                         2j|a
            Measuring the users' use of the system                         2j|a|
               When, how often, now, operations, difficulties,
              improvement rates, tasks needing help                        2j|a|a
            Measuring the system  performance under various
           conditions and in relation to relevant service level
           standards                                                       2j|a2
         Pusher: xxx                                                       2j|b
         Start 8/1/70                                                      2j|c
         Finish Stage 1:  1/1/71  20 weeks                                 2j|d
         People:                                                           2j|e
            JCN       *       ++++++++++                                  2j|e|
               JCN    @                                                   2j|e|a
            DGC       *       ++++++++++                                  2j|e2
               DGC    @                                                   2j|e2a
      Measur analy    *             xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>        2j2
         Features:                                                         2j2a
            Numerical, textual, and graphical analysis of data
           looking for insight into further improvements need in
           the system                                                      2j2a|
         Pusher: xxx                                                       2j2b
         Start x/x/x                                                       2j2c
         Finish Stage x:  x/x/x  x weeks                                   2j2d
         People:                                                           2j2e
            xxx       *                                                   2j2e|
               xxx    @                                                   2j2e|a
      Feature design   *     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>       2j3
         Features:                                                         2j3a
```

```
      Month:       *J J A S O N D J F M A M J J A S O N D J F M A M

        Pusher: xxx                                                 2j3b
        Start x/x/x                                                 2j3c
        Finish Stage x:  x/x/x  x weeks                             2j3d
        People:                                                     2j3e
           xxx       *                                              2j3e1
              xxx    @                                              2j3e1a
           Total                               xxx = xxx            2j3e2
     Training        *    xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>       2j4
        Features:                                                   2j4a
           New ARC and Net user training                            2j4a1
           Developmental training of ARC users as they grow
          more proficient                                           2j4a2
           Flow of information about new and useful tricks of
          TODAS and NLS use                                         2j4a3
        Pusher: xxx                                                 2j4b
        Start x/x/x                                                 2j4c
        Finish Stage x:  x/x/x  x weeks                             2j4d
        People:                                                     2j4e
           xxx       *                                              2j4e1
              xxx    @                                              2j4e1a
      Month:       *J J A S O N D J F M A M J J A S O N D J F
 M A M                                                              2k
  Year:            * 1970        ><        1971        ><
 1972                                                               2l
```

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

2m

ARC People (7/24/70).....32 full time only .

(personnel:x2bjnzD) 3

Present: 26 3a

Bass, W.L. link
(baseline:winD;["&"]OR["WLB"];) 3a|

Bates, R.D. .
(baseline:winD;["&"]OR["RDB"];) 3a2

Baughman, V.R. .
(baseline:winD;["&"]OR["VRB"];) 3a3

Caldwell. M.G. .
(baseline:winD;["&"]OR["MGC"];) 3a4

Casseres, D.G. .
(baseline:winD;["&"]OR["DGC"];) 3a5

Church, M.S. .
(baseline:winD;["&"]OR["MSC"];) 3a6

Davidson, G.K. . Summer
(baseline:winD;["&"]OR["GKD"];) 3a7

Duvall, W.S. .
(baseline:winD;["&"]OR["WSD"];) 3a8

Engelbart, D.C. .
(baseline:winD;["&"]OR["DCE"];) 3a9

English, W.K. .
(baseline:winD;["&"]OR["WKE"];) 3a|0

Hardy, M.E. .
(baseline:winD;["&"]OR["MEH"];) 3a||

Hopper, J.D. .
(baseline:winD;["&"]OR["JDH"];) 3a|2

Irby, C.H. .
(baseline:winD;["&"]OR["CHI"];) 3a|3

Jernigan, M.E. .
(baseline:winD;["&"]OR["MEJ"];) 3a|4

Lehtman, H.G. . Summer
(baseline:winD;["&"]OR["HGL"];) 3a|5

Melvin, J.T. .
(baseline:winD;["&"]OR["JTM"];) 3a|6

North, J.B. .
(baseline:winD;["&"]OR["JBN"];) 3a|7

Norton, J.C. .
(baseline:winD;["&"]OR["JCN"];) 3a|8

Parsley, B.L. .
(baseline:winD;["&"]OR["BLP"];) 3a|9

Paxton, W.H. .
(baseline:winD;["&"]OR["WHP"];) 3a20

Ratliff, J. .
(baseline:winD;["&"]OR["JR"];) 3a2|

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

Row, B.E. .
(baseline:winD;/"&"/OR/"BER"/;) 3a22
Trundy, M.E. .
(baseline:winD;/"&"/OR/"MET"/;) 3a23
Van De Riet, E.K. .
(baseline:winD;/"&"/OR/"EKV"/;) 3a24
Victor, K.E. .
(baseline:winD;/"&"/OR/"KEV"/;) 3a25
Yarborough, J.M. .
(baseline:winD;/"&"/OR/"JMY"/;) 3a26
Additions:..... 4 3b
Typist .
(baseline:winD;/"&"/OR/"ttt"/;) 3b|
NIC operations .
(baseline:winD;/"&"/OR/"nnn"/;) 3b2
System Operations .
(baseline:winD;/"&"/OR/"ooo"/;) 3b3
User Systems .
(baseline:winD;/"&"/OR/"uuu"/;) 3b4
Others:..... 2 3c
Andrews, D.I. .
(baseline:winD;/"&"/OR/"DIA"/;) 3c|
Bosch, F.V.D. . to Feb 197|
(baseline:winD;/"&"/OR/"FVB"/;) 3c2
Notes: 4
By DCE: (engelbart,p3not,:xbn) 4a
By WKE: (english,xxx,:xbn) 4b
By JcN: (norton,jplan,planning:xbn) 4c
What about maintenance and the hardware people, Bill ? 4d
What about overhead..activities ? 4e
OVERHEAD NUMBERS 4f
7|05 1|,|2 Administration 4f|
7|05 2| Visitors 4f2
7|05 3| IR+D 4f3
7|05 4| Staff Development 4f4
7|05 5| Recruiting 4f5
7|05 7| Interim Technical Study 4f6
7|05 8|,82 Proposals 4f7
7|05 9| Program Development 4f8

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F M A

4f8a

ARC People (7/24/70) Names and initials only 5

Present: 26 5a

- Bass, W.L. 5a1
- Bates, R.D. 5a2
- Baughman, V.R. 5a3
- Caldwell. M.G. 5a4
- Casseres, D.G. 5a5
- Church, M.S. 5a6
- Davidson, G.K. 5a7
- Duvall, W.S. 5a8
- Engelbart, D.C. 5a9
- English, W.K. 5a10
- Hardy, M.E. 5a11
- Hopper, J.D. 5a12
- Irby, C.H. 5a13
- Jernigan, M.E. 5a14
- Lehtman, H.G. 5a15
- Melvin, J.T. 5a16
- North, J.B. 5a17
- Norton, J.C. 5a18
- Parsley, B.L. 5a19
- Paxton, W.H. 5a20
- Ratliff, J. 5a21
- Row, B.E. 5a22
- Trundy, M.E. 5a23
- Van De Riet, E.K. 5a24
- Victor, K.E. 5a25
- Yarborough, J.M. 5a26

Expected:..... 4 5b

- Typist 5b1
- NIC operations 5b2
- System Operations 5b3
- User Systems 5b4

Others:..... 2 5c

- Andrews, D.I. 5c1
- Bosch, F.V.D. 5c2

CONTENTS: Section 6

ARC BASELINE PLAN to May 1972: 1 6a
All TASKS and FEATURES 2 6b
All TASKS and PUSHERS 3 6c
All TASKS and ESTIMATES 4 6d
PEOPLE: Names and INITIALS 5 6e
PEOPLE: TASKS, ESTIMATES and ACTUAL ..6 6f
PEOPLE: all tasks and ESTIMATES 7 6g
PEOPLE: all tasks and ACTUAL 8 6h

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F M A M

Entire file:.....9 6i
Notes: 0 6j
Freeze initials: RDB WLB VRB MGC DGC MSC GKD WSD DCE WKE MEH JDH
CHI MEJ HGL JTM JBN JCN BLP WHP JR BER MET FVB EKV KEV JMY

4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F
A M

7

:4828, 08/25/70 |34|:33 MGC ; ':JRNL|', 08/25/70 |||9:35 JCN ; Summary view: (baseline:zx4bnpDi;/"&"/;) .DPN=|;.SCR=|;.PGN=0;.HED="4828 JCN 25AUG70
ARC BASELINE PLANS ..... 7/8/70 am

Month: *J J A S O N D J F M A M J J A S O N D J F M A M
";.HLN=|; .SNF=72; .MCH=65; .PGN=0; .DSN=|; .DPR=0;

System acquisition			
Costs			a
PDP-10 purchase (DEC quote)		544,800	a|
1	KA10 Central Processor	142,000	a|a
1	KA10 Fast Register	9,000	a|b
1	KT10A Mem. Pro. and Rel. Registers	9,000	a|c
3	DF10 Data Channels	36,000	a|d
1	TM10A Mag Tape Control	18,000	a|e
2	TU20B 7-channel tape units	12,000	a|f
1	TD10 DECtape control	15,300	a|g
2	TU55 DECtape units	4,700	a|h
1	DC10A Line Scanner Control	9,000	a|i
3	DC10B 8-line Group Units	15,000	a|j
4	MD10 Core Memory (32k each)	268,800	a|k
12	BS10A Memory Cable Sets	6,000	a|l
Maintenance for the above (per month)		2,056	a2
Additional for discs		129,000	a3
1	RP10 Disc Pack Controller	25,000	a3a
4	RP02 Disc Drives	104,000	a3b
Maintenance for discs (per month)		470	a4
Total including discs		673,800	a5
Total maintenance (per month)		2,526	a6
Other expected costs		121,000	a7

Paging box	65,000	1a7a
Bryant controller	35,000	1a7b
Xcore interface	26,000	1a7c
Remaining problems		1b
Paging box		1b1
Bryant drum		1b2
Disc interface		1b3
Computer room layout		1b4
Purchase order		2
To cover 4 year operating lease for dedicated PDP 10 computer system as described in the attached quote dated 14 May 1970.		2a
Monthly payments -- $13,920 per month	668,160	
Use tax -- 5%	33,408	
One shift maintenance -- $2,056 per month	98,688	
Total	$800,256	2a1
This lease is cancellable upon 60 days written notice any month following the first 12 months rental with the following cancellation penalties:		2a2
Between 1 year and 2 years 3 months rental		2a2a
Between 2 year and 3 years 2 months rental		2a2b
Between 3 year and 4 years 1 months rental		2a2c
After 4 years there is no penalty.		2a2d
We expect to cancel this order after 18 months unless a contract extension is negotiated. Therefore commitment should be for 18 months of rental, taxes, and maintenance plus cancellation charge of 3 months rental ($300,096).		2a3
This purchase order is conditional upon U.S. Government contract officer's approval.		2a4

No equipment is to be shipped to SRI without written confirmation of contract officer's approval. 2a5

Means of shipment is to be determined by SRI. 2a6

Insurance and property taxes are to be paid by DEC. 2a7

Modifications to system 2b

SRI may at any time upgrade the system by replacing equipment with higher performance DEC equipment or by adding equipment. 2b1

SRI may attach experiments to the PDP 10 system as long as that does not result in the physical alterations to the system, Other than the Paging Box installation described below other alterations or changes may be made only with written approval from DEC. 2b2

Delivery and installation 2c

DEC will deliver and install the equipment in room K 2079, building 30, 333 Ravenswood, Menlo Park, Calif. 2c1

Initial acceptance of the system (see below) shall be no later than 1 October 1970. If through no fault of SRI, DEC is unable to complete acceptance tests by this date DEC shall grant to SRI an ammount equal to one month's rental for each month the system is late up to a maximum of 6 months rental. 2c2

Acceptance and Paging Box installation 2d

Acceptance tests will be run to confirm operation of the PDP-10 system to the mutual satisfaction of DEC and SRI. 2d1

After acceptance of the system SRI personnel will install a BB&N Paging Box and make the necessary modifications to the KA10 processor. This Paging Box has been successfully installed on 2 PDP-10 systems at BB&N, Cambridge. Complete instructions for installation and modification of the processor will be supplied by BB&N. 2d2

Following installation of the Paging Box, acceptance tests will again be run. When the system successfully passes these tests DEC will accept the system (excluding the Paging Box itself) under the maintenance contract and rental will begin. 2d3

In any case rental of the system will begin within 30 days after initial acceptance in the event that installation of the Paging Box requires more than 30 days. 2d4

Maintenance 2e

In addition to the provisions of the standard DEC maintenance contract, rental credit for down time shall be granted as follows: 2e1

If any part o the system remains inoperative due to a malfunction through no fault or negligence of SRI or through no cause external to the system for a total of 12 hours or more during any 24 hour period, DEC shall grant a credit in rental to SRI for each such hour in the amount of 1/480th of the basic monthly rental for the inoperative portion of the system, provided the system is made available to DEC upon arrival, and that maintenance, if outside the Principal Period of Maintencace is authorized. 2e1a

Downtime for each incident shall start from the time that SRI makes a bonafide attempt to conact DEC's designated representative at the prearranged contact point and terminate when the system is returned in good operating condition. 2e1b

':4829', 08/25/70 13:8:40 MGC ; ':JRNL2', 08/25/70 ||25:22 JCN ;
.HED="4829 JCN 25AUG70
PDP-10 Acquisition"; .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

4830 JCN 25AUG70

1

2

Note---16 July 1970. 3

This was written before a discussion at which the relation between the Archive and Journal/Catalogue systems was well defined. We now expect to have two systems fairly well separated. The Archive system will be responsible for Archival and Retreival of files on storage devices. The Journal/Catalogue system will operate as a user of the Archive system and will handle cataloguing, linking, commenting, directory display. The section of this report on User commands is incomplete and dated anyway; the discussion of linking would be irrelevannt if new features such as set handling routines were implemented on the PDP-10. The report on implementation concepts is more closely related to what we plan to implement as the first Archive system. 3a

Link to Implementation document---(archi,:) 3b

Link to file directory---(fd,:) 3c

Introduction. 4

The Archive System could serve as the first step in the development of the Dialogue Support System proposed by D. Evans. (See Appendix B of the Rome Report.) 4a

It would serve as a safe repository for user files which would never be modified, but which conceivably would be referred to after their completion. It would also serve as the location of the Journal, a collection of public access, read-only files which, through the use of some specially developed NLS-features, would permit a flexible team dialogue by permitting annotations and links to some of its other entries, and which would serve as a record of activity for the group. Journal entries could never be deleted from the archive although they may be added to through the use of comments. Personal archive files may be deleted if desired. 4b

The Archive subsystem would permit the entry of both on-line and hard-copy items into the catalogues for the NIC, XDOC and other specialized collections of material. It could serve as the location of commands to eventually retrieve microform

information. The special collections would appear to be subsets of the Journal; the Master Journal catalogue would be a sequential numerical listing of all of these items in the order of their entry. A person attempting to enter an item into the Journal or one of its specialized subsets will be asked interactively for textual information required by the catalogues. 4c

Capabilities: 5

Archive Description. 5a

The personal archive will serve as a backup facility for files of individual users. Although read-only in nature, they could be set to public or private status and could be deleted if desired. A personal archive catalogue would be maintained for each user. Special features described below, such as linking, commenting and catlogue information retrieval in NLS would be available to individual users as well as to the more formal, officiAL Journal. It is not inconceivable that an individual (or group of individuals) would decide to maintain a type of journal apart from that of the main group. Individual Archive files may be deleted. 5a|

Journal. 5b

The journal and its more specialized subsets (e.g.,NIC and XDOC) would operate as users of the archiving system. Successive versions of Journal entries could be linked through its directory entries. (See below.) One could add comments to existing Journal entries, creating links between the original file and its comments. A type of information retrieval system in NLS will facilitate the accessing of entries from the Journal. One could use the content analyzer to filter the information retrieved. 5b|

Multiple names would be created for Journal entries--a sequential numerical name indicating its order of entry into the Journal catalogue and other, perhaps more descriptive file names created by the user or the subset collections. This would permit direct accessing of an entry listed in various catalogues under different names and permit compatability of the various subsets. Each name would generate an entry in the Master File Directory used for internal manipulation and linking. 5b|a

Journal files would be read-only and have public access;

comments could be added to Journal files and links to other Journal files created. Upon retrieval of a Journal file from storage, the entire entry including all of its linked comments and files would appear in colon space. Journal files could never be deleted. 5b2

Archiving a file. 5c

The file is placed on a storage device and its name and other pertinent information entered into a Master File Directory. 5c|

A user should not be directly involved in the choice of device upon which his file is to be written. Among the information to be entered in the Master Directory will be an estimated activity level. 5c|a

If this level is above a level to be determined by system capabilities and use, the file will be written on one of the faster devices (e.g.,disc.) 5c|a|

The actual activity level, contained in the directory in the aging word, will be checked periodically by the execution program. If the activity is below the level for the device on which the file is stored, it will be rewritten on a slower device and the space on the faster storage device released. 5c|a2

Linking. 5d

Related items in the Journal or an individual's personal archive would be linked in a two-way ring structure representing a tree-structure. Directory entries would contain pointers to the location of the listing of the most recent sub-element (perhaps a comment) and its first successor (perhaps a new version of the file) as well as pointers to predecessors and super-elements. Upon entering a file into the Journal one would also enter information which would generate those links in the file directory. Retrieval of a particular file would bring all of its related files into colon space; these related files would be considered an entry. 5d|

Because of the existence of a MFD listing for each pseudonym of a particular file there would be the possibility of a file being an element in several different entry rings. 5d|a

Retrieving a file and its comments from storage device. 5e

One retrieves a file from an archive device by giving an archive file name and other information to the system. 5e|

The file and its related files (all the elements in its entry ring) are loaded into colon space. At the same time some portions of the Catalogue entries of each element are copied into an Entry Directory. This Entry Directory could be loaded into NLS and viewed to see directly the linked arrangements of the entry (how many comments there are for particular files, how many versions of each entry there are,) 5e|a

We must be capable of generating portions of NLS files in the subsystem in order to create catalogue entries for those archive files requiring NLS catalogues. (Should we differentiate between "official" Journal entries with NLS catalogues and private user's archives?) We must also be able to append these new catalogue entries to the ends of the pre-existing NLS catalogue files. Thus it would probably not be an appreciable extension to these functions to generate entry directories upon retrieval by copying parts of catalogue entries into a newly generated NLS file. 5e|a|

We must be able to get from a pointer to a file to its entry in the catalogue in order to get information to be copied. Thus we need pointers to catlogue entries or something like that. 5e|a2

We must be careful. Links will not exist between individual files in an entry--they will exist only in the MFD and will be displayed in the Entry Directory generated on retrieval. 5e|b

A user should not be concerned with which medium his file is on when requesting the retrieval of an archive file. 5e2

After his command has been parsed by the execution program, the file directory is searched for its listing. 5e2a

A message is returned informing the user of the possible lack of existence of the file in the archive. If the file exists, the message informs the user of his position in the queue and an estimated time required for retrieval. 5e2b

If the file is on tape, a message is transmitted to the operator to mount the necessary tape. 5e2b|

Deleting an archive file. 5f

A user may delete one of his personal archive files at will. Journal files may never be deleted from the archive. Upon deletion the entry is removed from the Master Archive Directory and from the user's personal catalogue. If the file is linked to other files in an entry, by convention, all files below it in the heirarchy would be deleted. 5f|

Commenting on Archive entries. 5g

Comments to existing Archive entries, whether on-line or, for example, XDOC files, would form the basis for a beginning dialogue support system. Upon entering a comment, links will be established in the MFD to the chain of files making up the entry (e.g., various versions of the main file in the entry and all of its earlier comments.) One could examine either the entire entry or selected portions of it--all of the main versions, all of the comments on the entry by a particular user or other combinations. 5g|

Directory Print and Display. 5h

***Multifile catalogues...Display on line...content analysis. 5h|

There is a master file directory containing the identification of each archived file and other pertinent information. Most information in the master file directory is not directly set by the user. 5h2

The possible contents of a master file directory entry follow (total size---20 words): 5h2a

|. Name---|0 words. 5h2a|

The name would be one by which the entry is listed in a particular catalogue. If the entry is listed in several catalogues under different names, ther would be a separate MFD entry for each name. If, for example, a file is in the Journal, it will nave a Journal number. One of its names woulld be this number; another would be its original file

name or any other user assigned name. Special forms of names would be generated by other subsets of the Journal. 5h2a|a

2. Aging (last date used and count record of use.)---2 words. 5h2a2

This is not directly set by the user. It would give information concerning the activity level of a file and would perhaps imply copying the file onto another device if the actual activity level is above or below the system limit. 5h2a2a

3. Description words---2 words. 5h2a3

Device---disc, tape or other. 5h2a3a

Access mode---public or private file. 5h2a3b

One could set this flag only for personal archive files. 5h2a3b|

Activity level estimate. 5h2a3c

File type---sequential, random, NLS, etc. 5h2a3d

4. Size flags---| word. 5h2a4

Physical size. 5h2a4a

Access time. 5h2a4b

5. Linking space---3 words. 5h2a5

This would contain information for the chaining of files into an entry of comments, versions, etc. in the Jornal. It would be generated upon the execution of comment or link commands. 5h2a5a

6. Status. (is the file presently in use in the system, i.e., is it being read out or in someone's space already? If so tell the user. It would be unnecessary to write the file out twice.)---| word. 5h2a6

7. Directory work space---| word. 5h2a7

If we have comments on hard copy Journal entries, we may want master file directory entries for hard copy

items...flag could appear in MFD under device. We could then link comments--reviews, requests for distribution, etc.,to catalogue items. 5h3

Information to be provided by the user upon archiving a file includes estimated activity level, file links, specialiized information for XDOC or NIC catalogues, optional bibliographic information, key-words... 5h4

It may be useful to be able to display some parts of the catalogues on NLS. At first only hard-copy catalogue print-outs may be available because of implementation difficulties. 5h5

One could then use some parts of an information retrieval system (perhaps the content analyzer) on the archive directory to filter the information accessed. Since the XDOC catalogues are already on-line it would not be much more difficult to implement on-line Journal catalogues and use the existing manipulation routines on the archive system catalogues in NLS. 5h5a

There will be at least two catlogue display capabilities: 5h6

Journal Catlogue. 5h6a

Lists all of the files in the Journal. 5h6a|

Journal Subset Catalogues. 5h6b

These would include, for example, catalogues for specialized collections such as XDOC and NIC. Bibliographic information could be included. 5h6b|

These catalogues would be generated from information entered interactively by the user in response to machine queries at archival time. Optional information for some files (special comments, etc.) may also be entered. 5h7

****But what of the catalogues for the private archives? Should there be an inconsistency between these and the Journal catalogues or should we retain the notion of the Journal as a user of the Archive system? 5h8

The directories of individual user files would not be as elaborate as the catalogues; they would be comparable, for example, to KDF directories. 5h9

The Entry Directory would be generated upon an attempt to retrieve a particular file. Information on all files linked to the particular file would be copied from the catalogues and the NLS file Entry Directory for the entry would be created. It would contain information on the structure of the entry and would contain links for jumping to particular files in the entry. Content analysis on the Entry Directory could be carried out and various filters on information could be made (e.g.,only the comments of a particular user could be displayed.) 5h|0

Miscellaneous. 5i

At each run of the execution program, data indicating the status of the files manipulated, and the outcome of he run is summarized as necessary. 5i|

User Commands and System Responses. 6

Entering Archive system. 6a

Syntax : a . 6a|

Explanation : One may enter the Archive System (ARS) by typing the character a while in the EXEC mode. The letters ARS will be displayed. A period (.) will put the user into the system; a number sign (#) will be displayed in the feedback line. The system awaits the user's command. 6a2

Submission of entry. 6b

Archive File. 6b|

Syntax: a (sp / j / n / x / c) 6b|a

User file. 6b|b

Syntax: sp <filename> . 6b|b|

Journal file. 6b|c

Syntax: j <filename> . 6b|c|

NIC file. 6b|d

Syntax: n <filename> . 6b|d|

XDOC file. 6b|e

Syntax: x <filename> . 6b|e|

Comment file. 6b|f

Syntax: c <filename> <filename> . 6b|f|

Retrieval of entry. 6c

From archive. 6c|

From journal. 6c2

Deletion of entry. 6d

Commenting on Journal entries. 6e

Link Jumping. 6f

Directory Viewing. 6g

Parts specified by user. 6g|

Filtering by NLS. 6g2

For hard copy. 6g3

Miscellaneous. 6h

':4830', 08/25/70 |356:|8 MGC ; ':JRNL3', 08/25/70 ||28:56 JCN ;
.HED="4830 JCN 25AUG70
"; .PGN = 0; .SCR=2; .SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;

PLANS FOR THE REMOTE SITE EXPERIMENT

This document describes the current plans for the remote site experiment in Occidental. 1

Terminals 2

The Imlac display on order will be used initially by Bill Duvall. 2a

Delivery is expected by 10 August. An interface for the mouse and keyset is being constructed and the system should be ready for use by mid September. 2a1

A second display terminal of some kind will be obtained for Don Andrews. There are several possibilities: 2b

A second Imlac system could be used. 2b1

The obvious advantage is that we already know how to use it and have the software to drive it. Disadvantages are delay in getting it and the cost (about $17,000). 2b1a

A more simple display terminal could be bought or leased. Many of these are on the market, most with upper case characters only. We will have to survey the possibilities again. Two are: 2b2

Executerm 2 -- This is a high-quality display with upper and lower case and a reasonable keyboard. It is not available on a rental plan and must be leased for one year at a price of approximately $340 per month. Purchase price is approximately $3500. It has local display storage with simple single-character local editing and a stepping-type curser. 2b2a

Textronix Storage Tube -- This is similar to the ARDS terminal. It has storage on the display tube with no local editing. Lease prices are not yet announced but will probably be on the order of $300 per month with no month-to-month rental option. Purchase price is approximately $10,000. 2b2b

Communications 3

Communications will be over a private, 4-wire circuit (full duplex) with terminations at both remote sites. This line is scheduled for installation by 24 August 1970. 3a

Data to the displays will be transmitted on Bell system type 201A modems operating at 2000 baud. Three of these will be required, one here and one at each location in Occidental. Data will be transmitted to both locations simultaneously with a control code to indicate which display in being addressed. 3b

Details of this control scheme have not yet been worked out. 3b1

Return data will be transmitted on Rixon type FM300 modems operating at 300 baud. Four of these will be used, one at each remote location and two here. These modems will operate in pairs on two different frequencies providing two independent 300 baud channels. 3c

Interfacing 4

The modems will be interfaced to the 940 as follows: 4a

The Rixon modems will connect directly to two of the teletype OTE channels and operate as a 30 cps teletype inputs. 4a1

The 201A modem will interface to XCORE via the dataset interface that was constructed for communication with UC Berkeley some time ago. 4a2

The modem interface is included in the Imlac display and will peobably be available in whatever other display is used. 4b

Voice communications 5

An off-premise local will be installed at Bill Duvall's house, giving him access to our phones through the SRI exchange. This too is scheduled for installation by 24 August. 5a

The phone company will not install an extension on this local at Don Andrew's house since that is in a different exchange area. There are several possibilities for getting Don on this circuit. 5b

We could order a private line from Bill's house to Don's house and "bootleg" a connection to the local at Bill's house. 5b1

We could modify the arrangement to a private line insdead of an off-premise local -- this the phone company will do.

It would give us one or two separate phones here for communications over a single circuit to both remote locations but they would have no access to the SRI or local exchanges. 5b2

The phone complay recommends that to avoid a long delay we do not make any changes until the currently ordered service is installed. 5c

Costs 6

Communications and modem costs are as follows: 6a

Off-premise local to Bill's house	327.40 per month	6a1
Full duplex data line to both locations with channel terminations	366.25 per month	6a2
201A modems (3 at $70)	210.00 per month	6a3
Total monthly	903.65	6a4
		6a5
Rixon modems (purchased)	1685.00	6a6
Phone equipment installation	380.00	6a7
Total one time	2065.00	6a8

```
':483|', 08/25/70 |4|7:04 MGC ;  ':JRNL4', 08/25/70 ||34:|6 JCN
;.HED="483| JCN 25AUG70
PLANS FOR THE REMOTE SITE EXPERIMENT";
.SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;
```

Network access to system |

Three users at a time |a

Limit due to buffer space - could be increased if really needed |a|

User directory will include one name for each site (site name) |b

The special version of KDF for network users (NDF) will be implemented. This NDF system will have the following features: |c

It will be a regular subsystem, meaning that after entering NDF, users will not be able to continue any other subsystem they might have been using. This will eliminate the bug that causes crashes on rubbing out of KDF. |c|

All file space available to NDF will be under a single fictitious name. This name will be transparent to the actual user of NDF. |c2

This means that all network users will store files in a single KDF space. In the documentation distributed to network TODAS users, we will urge users to attach passwords to files stored in NDF. At least, passwords should identify the individual sites in the network allowing us or other network users to see who in the network is taking up all of the space in NDF. |c2a

In the documentation we will explain the nature and purpose of the system and warn people that it is experimental and file security is not guaranteed, show one in particular that files without passwords may be deleted at any time. |c2b

Special features will be provided to protect our files and limit subsystem use |d

A flag will identify users as logging in over the Network (independent of user name). |d|

This flag will be used to: |d2

Limit subsystem access (what systems yet to be decided) |d2a

Possibly prohibit permanant files (we may just discourage these) |d2b

Prohibit tape files. |d2c

A password feature will be provided so that users logging in over the Network can use only Network names unless they have the local "group" password. |d3

This should be as automatic as possible so that all local users need not give the password whenever they login |d3a

If this is too much work forget it - we can put up with some password requirements for 5 months |d3a|

Would be nice if a prefix" to the password could be provided by the exec whenever login is local. Users could then add their own individual part of the password. |d3b

Needs 2

Finish Network operating system 2a

Modify system for protection features described above and NDF 2b

Provide space for 3 more teletypes (or let the Network system attach some of the 20 that we have). 2c

Attaching current teletype channels may be very inconvenient since specific locations will be attached. 2c|

Be sure suitable documentation is available 2d

':4832', 08/25/70 1422:25 MGC ; ':JRNL5', 08/25/70 1135:58 JCN ;
.HED="4832 JCN 25AUG70
NETWORK ACCESS TO SYSTEM"; .SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;

4833 JCN 25AUG70
DCE 19 AUG 70
NOTES ON ARC's RESEARCH INTELLIGENCE SYSTEM (RINS)

I would like record my general plans and assumptions about this activity -- which is initially being funded from the $40K ONR project (SRI Project nnnn). 1

As I see it, the role of RINS in our ARC activity represents a sort of parallel or dual to that of the Management System that we are developing. 2

This dualism stems from the analogy I favor of a human organization as a "social organism," where for human organizations we bootstrapping augmenters seek improvements in perception, awareness, learnability, intelligence, coordination of resource application, etc. to lift human organizations up the evolutionary scale as from the stage of the worm towards those of a cat, a dolphin or a human, 2a

Our Management System can be viewed as a first step in the direction of improving our ability to: know the internal state of our organism -- where our limbs are, whether we're off balance, depleted, doing conflicting things, etc.; have a well-developed set of reflexive and deliberative processes that improve the coordination with which we perceive needs (and possibilities) for change, reformulate our configuration of goals and resource commitments, and then quickly coordinate our resources (dollars, equipment, drive, brains, imagination, knowldge, skills, good will, ...) toward the new goals. 2b

The Research INtellitence System represents in this model the organism's important function of perceiving (thoroughly, quickly and accurately) those things about its external environment that are important to its existence and development. 2c

A great deal of an organism's goal structure has to do both with changing the state of its external world (acquiring things from it, making it safer or more comfortable for itself and for fellow organisms) and with responding to perceived changes -- so the adequacy of this external-perception function is of basic importance. 2c1

Perception here is meant to include: looking, detecting, preliminary processing to arrange input into useful patterns and forms, and the processes of making the organism aware, at its different levels, of the existence of important patterns. 2c2

It is assumed that overt actions are often taken for the sole purpose of supporting this process (of external-world perception) -- e.g. as an organism may pause, turn its head to search out a sound, scan with its eyes for any correlative visual inputs, interrupt its other activity to go investigate, etc. 2c2a

So our RINS Activity would assimilate and digest external-world information, organizing it to support the setting and pursuinng of our goals; also it would carry out certain kinds of filtering, integration, reformulation, etc. to provide continually for our different activites a special perception of relevant material regarding the outside world; and further, would expect to initiate overt actions for the purpose of acquiring information. 2c3

I assume that the ONR money will be used for developing the system, and for initially supporting it until it begins to perform usefully for other activities. For the eventual operation on the fairly ambitious scale implied herein, the RINS costs would be apportioned in some mix as below: 3

Development costs, for evaluating and improving service -- by special direct contract (e.g. as the ONR contract) from some party interested in the development of suc systems as a R&D investment. 3a

Special acquisition and integration costs, to serve the special interest of given activities -- these activities can be billed for the incremental costs incurred. 3b

General operating costs -- carried by miscellaneous billing of different activities for special services, and by general taxation of the activities according to some burden-sharing algorithm. 3c

Note: I expect that a considerable share of the future burden (like beginning within a year) of developing the system, keeping it well filled, etc., will be carried by SYDIA participants, since the services of such an intelligence system would be among the more visible and valuable things we can provide in return for their contributions. 3d

The general course I see for RINS development in the first year: 4

It will build upon our current XDOC -- considering the latter

to be a most primitive intelligence system (but with a non-trivial collection base) to begin working with. 4a

It will share the master-catalog sequence with NIC and the Journal, and it is probable that a fair proportion of the NIC collection will serve simultaneouly as a special subset of the RINS collection. (I assume that the other RINS information would be available to NIC users as a basic "favor," since the cooperative use of ARC, NIC, RINS and SYDIA resources in such areas would generally be to everyone's advantage -- but I'm deferring particular conditions for such shared usage until we learn more about Network, Nic, RINS, etc.) 4b

In the areas where its retrieval needs and possibilities are different from those of NIC, RINS will contribute to special system developments -- but always within a total-compatibility sense wherein any common functions are served by the same subset of techniques, and any extended special functions are served by techniques in complete harmony with the over-all augmentation system. 4c

The "System" of RINS is assumed to include a people system that is doing things like the following: 4d

Actively pursuing an asessment of our information needs viz-a-viz the outside world. 4d1

Actively seeking information about the outside world. 4d2

Besides pursuing the answers to specific needs, RINS should be getting certain journals, it should know about certain R&D activities and keep up to date on their progress, etc, When we are going to conferences, RINS should help us be aware of special information needs and provide us with special systematic aids for the seeking and gathering, RINS should acquire reference material (books, bibliographies, manuals, abstracting publications, etc.). 4d2a

Ingesting the worthwhile information into our common system (of shelving, cataloguing, indexing, abstracting, archiving or etc.) by which we manage the basic storage, control and access of the "frozen" articles we are keeping around. 4d3

Supporting special studies and analyses by personnel wearing the hats of other ARC-SYDIA activities. 4d4

Providing study and analysis services for other of our ARC activities, either of a special one-shot nature or of continuing (special or general) nature. 4d5

Some of this may be simply doing special indexing and abstracting (or annotating). 4d5a

Some could be in generating and maintaining special bibliographies. 4d5b

Some could be in doing complete studies on a given topic (e.g. state of the art in data-base management systems).. 4d5c

Longer-term features seen for RINS: 5

A very close tie will exist between the special-technique development of RINS and that of the DSS (Dialogue Support System). 5a

For one thing, the DSS facility for managing NLS-generated memoranda would be very useful in the interactive processes between an intelligence analyst and his client. 5a1

But further, as DSS develops techniqus for using back-link hooks on dialogue entries, and for set-manipulation techniques to support the studying and analysis of a dialogue network, RINS should be able to interface its catalogs, indices, abstracts, and annotative notes into such dialogue nets. This will make for a very powerful means of integrating outside information into a working group, and reaching this stage should provide a very good exploration contribution to the "Information Science" world.. 5a2

I am counting on incorporating into the ARC facility (for our everyday use) a "Frame-Jumping Microfiche" system, with which we have planned to experiment within the NIC framework. This will require funds that we don't have yet, but I want to develop RINS in anticipation of our later getting the money. This envisioned micro-fiche system would include a large central store of microfiche, with a computer-controlled accession system that positions specific frames in front of a TV camera -- where computer-controlled video switching will put the resulting image on the monitor at a specified work station. The following types of NLS-integrated usage are

envisioned: 5b

A user who does a Jump Link on a reference embedded within an NLS file, where the reference happens to be to a pasage in some non-computerized hard copy, can thus automatically be presented with the appropriate TV-microfiche view of that hard copy. 5b1

A user who is reading some hard copy this way, at a work station, can insert DSS-type comments (into NLS files) that become linked to the viewed material. 5b2

Assumedly, video mixing of the computer-graphic video (such as we now use on our work-station monitors) with the microfiche-video, can let the computer superpose back-link indicator flags to tell the person reading a particular passage of microfiche material that there are comment links to that passage. 5b3

```
':4833', 08/25/70 |430:39 MGC ;  ':JRNL6', 08/25/70 ||37:5| JCN ;
.DPR=|;  .SCR=2;  .HED="4833 JCN 25AUG70
 DCE |9 AUG 70
NOTES ON ARC's RESEARCH INTELLIGENCE SYSTEM (RINS)"; .SNF=72; .MCH=65;
.DSN=|;  .PGN=0; .DPR=0;
```

4834 JCN 25AUG70
ARC ROLES ..... 6/30/70 am

(roles) ARC role development 2
Notes after DCE JCN talk 6/9/70 pm 2a

Configuration - facet interaction 2a|a
Pusher for each activity project task subtask, etc, etc. 2a2
(Implementation coordi) Implementation coordinator 2a2a
Supervision 2a2a|
(Resource coordinator) Resource coordinator 2a2b
(User features) User features coordinator 2a2c
(Hardware) Hardware coordinator 2a2d
(Software) Software coordinator 2a2e
(Servicesystem arch) Servicesystem designer 2a2f
Coordination of resource use to produce Aug service 2a2f|
(Overall designer) Overall designer 2a2g
Strategy 2a2g|
Promotion 2a2g2
Goals 2a2g3
Investments gambles 2a2g4

2a2h

Notes from JAF JCN talk 6/24/70 am 2b

Visibility of ARC roles is needed to effectively fulfill critical ones 2b|

Roles identify points of view 2b2

User produces needs 2b2a

Architect produces designs 2b2b

Pusher accepts contracts and produces products 2b2c

Coordinators integrate product building for effective progress 2b2d

Implementation 2b2d|

Hardware 2b2d2

Software 2b2d3

User Feature 2b2d4

Resource 2b2d5

Implemeter builds products 2b2e

User uses products 2b2f

Where is Manager if not above in pieces ?? 2b2g

ARC task plans are now becoming more clear. This makes the need for role responsibility more apparent. 2b3

Why we need to change what we do 2b4

Many of our roles are not well identified or understood. 2b4a

Many of us do not know how to perform specific roles. 2b4b

Some of us are unwilling to take on certain roles. 2b4c

Some of us are unwilling to perform after we agree to take on certain roles. 2b4d

Many of us are inconsistent in the way we do perform the roles. 2b4e

Notes from DCE WKE JCN talk 6/26/70 am 2c

Roles identify points of view 2c|

User: helps produce needs 2c|a

Pusher: makes contracts and produces products 2c|b

Architect: produces designs 2c|b|

Implemeter: builds products 2c|b2

Coordinators: integrate product building for effective progress 2c|c

Hardware 2c|c|

Software 2c|c2

User Feature 2c|c3

Resource 2c|c4

(dceplan) DCE's planning and MS considerationsfrom: (engelbart,p3not,|:zxbnD) 2d

Develop ARC working framework 2d|

Define objectives, resources, constraints, policies, principles of strategy and tactics, etc. 2d|a

Define kickoff state and vector for ARC as a whole. 2d|b

Get service facility into position where we can expand the service relatively easily (i.e. by adding or replacing commercial hardware with mainly money). 2d|b|

Dimensions along which we seek such openess are: 2d|b|a
Program space, for freely developing large programs, 2d|b|a|
User space, capacity for supporting more users. 2d|b|a2
Transaction-scheduling space, for developing and operating scheduling algorithms aimed at maximizing the value of the service-system's operation to its user ommunity. 2d|b|a3
Assuming several important dimensions to the transactions to be serviced: 2d|b|a3a
The resource requirments -- on transfer channels, storage devices, processors. 2d|b|a3a|
xxxx for allowing more users to be supported 2d|b|a3b
Assuming a spectrum of services with a demand distribution whose probabilities will vary dynamically. and whose service requirments are dymanically disributed over a specturm from hih-priority high-demand real-time to mixed-priority batched background. 2d|b|a3c
Assuming a spectrum of services with a demand distribution whose probabilities will vary dynamically. and whose service requirments are dymanically disributed over a specturm from hih-priority high-demand real-time to mixed-priority batched background. 2d|b|a3d
Usage-measuement space, for developing and operating measurement processes on user and system dynamics. 2d|b|a4
Develop framework of Activities, Projects, Roles for pursuing objectives under current situation. 2d|c
MSR, 2d|c|
RINS, 2d|c2
USR 2d|c3
SS, 2d|c4
NIC, 2d|c5
--- Development projects --- 2d|c6
DSS, 2d|c7
DGS, Display Generation System 2d|c8
Formulate role framework for DCE (ARC Pusher, Manager, Director, Aug ARchitect), 2d|d
Organize eacn major ACTIVITY and PROJECT

Push development of working framework for each top-level Activity and Project (Kickoff and vector), which includes framework for setting up subordinate projects and tasks. 2d2
Develop necessary formulations to support the above. 2d3

4834 JCN 25AUG70
ARC ROLES ..... 6/30/70 am

Candidate topics for attention: 2d3a
CMS Design 2d3a|
dialogue system, Design kickoff 2d3a2
Net-user features, Formulate framework for settin up 2d3a3
User-Feature role, Set up 2d3a4
DCE roles, Analyze 2d3a5
Publish NICLETTER| 2d3a6
NIC plan, formuulate framework 2d3a7
NET-DBMS issue, formuulate framework 2d3a8
RINS, formuulate framework 2d3a9
Pusher 2d3a9a
Early plan (framework for) 2d3a9b
--- --- 2d4
Future meetings: set up Monday 6/29 cancelled 6/30 meeting 2e
Tuesday 6/30: 2e|
WSD 2e|a
WHP 2e|b
CHI 2e|c
EKV 2e|d
WKE 2e|e
DCE 2e|f
JCN 2e|g
JAF 2e|h

2e|i

Concept of role hierarchies 3

It appears that a basic relationship between several critical roles exists for each ARC endeavor, whether at the "overall ARC" level or at the smallest sub-project level, Some of these roles are formally designated at times. At other times they more or less automatically filled out of habit or reflexive action based on internal structure and task level. 3a

The usual task development sequence goes like this: 3a|

Identification of needs and possibilities (requiring tasks to meet) 3a|a

Decision on which tasks to undertake 3a|b

Selection of a pusher 3a|c

Development of a plan 3a|c|

Selection of an designer 3a|d

Development of a design 3a|d|

Selection of builder(s) 3a|e

Implementation of a design 3a|e|

Testing and debugging 3a|f

Acceptance of the task as completed 3a|g

Introduction into use 3a|h

Role scopes: 3b

Overall ARC 3b|

Activity 3b2

Project 3b2a

Task 3b2a|

Subtask 3b2a2

Cross ARC roles 3b3

Role definitions: 4

General: 4a

Pusher: makes contracts and produces products 4a|

Designer: produces designs 4a2

Builder: builds products 4a3

Coordinators: integrate product building for effective progress 4a4

Hardware 4a4a

Software 4a4b

User Feature 4a4c

Resource 4a4d

Specific: Discussion of pusher , since it appears to be the key role, present in each of the other sub-roles 4b

Responsibilities: 4b|

A pusher operates under an AGREEMENT or contract with another pusher for whom the particular product is being developed. 4b|a

The pusher supplies the NEEDED ENERGY to get the task done, with continuing RE-EVALUTATION of design, timing, resource costs, and relationships to other ARC. developments. 4b|b

He see that needed information is DOCUMENTED for his

own and others future use. This includes documenting plans, designs, and final details of use or construction. 4b|c

When appropriate, his plans include strategic ALTERNATIVE COURSES or stopping points to effectively react to unforseen changes in the situation as time progresses. 4b|d

ARC evolves through the combined effect of a NETWORK OF pusher ROLES continually being created and fulfilled, each with as much reference to all other pusher roles as appropriate and necessary. 4b|e

Relationships: 4b2

The pusher usually needs the services of a designer and one or more builders to carry out his role. The designers and builders also operate in the pusher role in conduct of their tasks, and may also make agreements with others for help. 4b2a

The design and resource cost of the task must be compatible with those of other tasks. This is facilitated by interaction with those who have the role of coordinator for various aspects of the ARC operation. 4b2b

Such as: Hardware. Software, User Features, Resources, DSS,RINS,Overall ARC coordinators 4b2b|

The pusher may carry out several of the roles relating to his task. This can make his overall job more difficult due to the need for him to look at all situations from more than one viewpoint. 4b2c

Techniques: 4b3

UNDERSTAND ROLE as related to the specific task 4b3a

When appropriate, make a PLAN for conduct of the task and have it VISIBLE for others to see. 4b3b

Determine significant POINTS expected to occur during the task and make a plan for reviewing progress at each point. 4b3c

Get agreement with appropriate DESIGNERS 4b3d

Goals and other parts of the agreement should be made clear, so that designs are started pointing toward the goals originally set out 4b3d|

REVIEW DESIGN during development and when completed. 4b3e

Arrange with BUILDER(S) to begin implementation of the design 4b3f

INTERACT with builders as their work proceeds. 4b3g

Continually REVIEW STATUS of the task and evaluate in light of other developments at ARC 4b3h

COMMUNICATE status of work and other details to rest of ARC through appropriae media. 4b3i

Maintain AWARENESS of other ARC developments through attention to baseline configurations and other details of existing and planned developments in ARC. 4b3j

ACCEPT final result of task work when considered

complete and coordinate with others directly concerned with the end result of the task. 4b3k

4b31

Glossary of terms 5

Baseline 5a

The approved and defined point of departure for control of future changes in system or equipment performance or design. A baseline is documented by a specification ans other documents and is technically defined by formal approval of the specifiation. 5a|

Activity 5b

Project 5c

Development or task 5d

Client 5e

Pusher 5f

Contract or agreement 5g

Pusher hierarchy 5h

Notes oe the game 6

What if a contract is refused? 6a

No contract must be accepted by any potential pusher. 6a|

Grounds for refusing: 6a|a

Agreement not clear 6a|a|

Scope not appropriate for specific pusher 6a|a2

Not enough time of pusher still uncommitted 6a|a3

However, the refusing pusher needs to note that rejecting a contract that appears to fall naturally to him may result in some other developments that he should weigh before rejecting the proposal. 6a2

This would include missing opportunities for other contracts that he may really wish to undertake. 6a2a

It might also include withdrawl of all future proposed contracts by the pusher offering this one or by the whole of ARC if the situation is critical enough. 6a2b

What if a contract is broken? 6b

If a contract is broken i.e. .. stopped before completion or changed in nature without agreement with the client, there may well be aftereffects. 6b|

It might include withdrawl of future proposed contracts by the pusher offering this one or by the whole of ARC if the situation is critical enough. 6b|a

It might result in third party intervention to help make a new agreement about what to do next. 6b|b

Who documents contracts or agreements? 6c

Appears that mutual agreement will decide this ... either can 6c|

Sometimes one party or the other may ask that a proposed agreement be recorded even if being refused . 6c2

No contract need be accepted until both parties feel agreement is complete and/or recorded to the satisfaction of each. 6c3

DCE: Role notes 6/26/70 pm 6d

In the nested roles,, e.g.designer,, pushers, 6d|

if role x wants to interact with designer of task y, does he have to start at top of designer hierarchy? 6d|a
No. Seems best to go down to lowest appropriate level 6d|a|
The approached designer sends him up if it seems appropriate 6d|a2
and, the approached designer automatically keeps record of significant NP's. 6d|a3

MSR "BASELINE AND ROLES" meeting planned: 7
Who: WSD WHP CHI EKV WKE DCE JAF JCN (facilitator) 7a
When:Tues 7/7 am? 7b
Where: ARC Conference room ...set up with available console 7c
Agenda: 7d
DCE: Set the stage of why the meeting, recognizing agenda briefly 7d|
JCN: 7d2
1. Baseline as it now is developing 7d2a
2. Pusher defined as key role 7d2b
3. Network of pushers concept 7d2c
4. Other roles and concepts as they relate to the previous items 7d2d
5. How do the particular people in meeting relate to all of this? 7d2e
6. Discussion 7d2f
DCE: 7d3
Review foregoing and value to ARC in meeting future needs. 7d3a
Notes: 7e
Preparations: 7e|
Agenda in advance 7e|a
Baseline example two levels? 7e|b
Roles: Pusher defined and some comments in advance? 7e|c
Recording of ideas during meeting 7e2
On-line NGC? 7e2a
Tape record? 7e2b
Pencil notes 7e2c

```
':4834', 08/25/70 |436:|2 MGC ;  ':JRNL7', 08/25/70 ||39:02 JCN
;.SCR=|;.MCH=68;.SNF=75;.PGN=0;.HED="4834 JCN 25AUG70
ARC ROLES    ..... 6/30/70 am";.HLN=|;
.SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;
```

4835 WSD 27AUG70
Mail File

DCE $4835.1 JBN 08/26/70 0904:42 I have material by Guttman on nonmetric breakthrough in social s sciences, including conceptual analysis of content by facet theory$ 1

WSD $4835.2 JCN 08/26/70 0923:02 PLEASE GET XDOC 4935 FROM MIL AND GIVE ME YOUR REACTION .. ITS FROM UCSB ON FILE STORAGE. DCE IS INTERESTED IN THE PRESENT STATUS AS FAR AS YOU ARE CONCERNED$ 2

WLB $4835.3 CHI 08/26/70 0925:18 RE 4827.15 I WILL FIX JUMP TO LINK, BUT THE PRICE WILL BE THAT JUMP TO NAME FAILURES WILL CAUSE A RECREATE DISPLAY$ 3

WSD $4835.4 MGC 08/26/70 1252:59 P4827 NOW (JO):4827$ 4

WSD $4835.5 BLP 08/26/70 1321:12 TABS DON7T SEEMTO WORK SHTE SAME IN TODAS AS IN NLS. IN NLS THE CHARACTER PRINTS IN THE COLUMN FOLLOWING THE COLUMN NUMBER TO WHICH A TAB IS SET -- IN TODAS IT PRITS8(PRINTS9) IN THAT COLUMN. ALSO, WHEN A STATEMENT IS PRINTED WITH THE PRINT COMMAND, ONE BLANK IS PUT OUT FIRST (EVEN THOUGH THE VIEWSET SAYS INDENTATION IS 0) -- THIS CAN SCREW UP TABS. $ 5

JBN $4835.6 DCE 08/26/70 1427:18 RE. 4835.1 ON GUTTMAN MATERIAL: THANKS. I'D LIKE ANY RELEVANT MATERIAL PUT INTO XDOC -- AND THEN SOMETIME TELL ME WHAT IT ALL SEEMED TO MEAN TO YOU. DOUG. $

6

```
':4835', 08/27/70 ||02:27 MGC ;  ':MAIL', 08/27/70 0932:00 WSD ;
.HED="4835 WSD 27AUG70
Mail File";  .SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;
```

4836 WSD 27AUG70
Colector Sorter Flow Charts...Hard copy attatched (5 pgs)

Page 1: Logic for collector sorter entry and return from/to NLS/TODAS. This may be changed by Super Processor concept. 1

Page 2: Logic for command parsing and execution (high level) 2

Page 3: Logic for input phase of colector/sorter execution 3

Page 4: Logic for sort phase of colector/sorter execution 4

Page 5: Logic for output phase of colector/sorter execution 5

```
:4836, 08/27/70 0930:01 MGC ;  ':COLSORT--FLOW CHARTS', 08/26/70 1158:39
WSD ; .HED="4836 WSD 27AUG70
Colector Sorter Flow Charts...Hard copy attatched (5 pgs)";
.SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;
```

4837 WSD 27AUG70
Colector Sorter command syntax

How enter from NLS/TODAS

Abort 1

'Abort CA\ 1a

Cause colsort to b exited, and all information released. 1b

Continue 2

'Continue CA 2a

Causes the execution of COLSORT to be continued at last restart point. 2b

Delete keys\d 'Delete keys ('Y/CA/'N/') 3

Sets a flag which cause the sort keys to be (not) deleted during output phase. 3a

Execute Text 4

'Execute text ADDR CA 4a

Like execute text in TODAS 4b

File list 5

'File list (', FILNAME/ADDR) CA 5a

Allows user to specify list of input files from statement text or input file (which may be teletype) 5b

GO 6

'Go CA 6a

Cause execution to be initiated 6b

Initialise 7

'Initialise CA 7a

Causes all parameters to be initialised 7b

Output prefix 8

'Output file name prefix: (', FILNAME/ADDR) CA 8a

Allows user to specify string to be used as prefix in naming output files from statement text or input file (which may be teletype) 8b

Return 9

'Return CA 9a

Returns user to NLS/TODAS. Parameters are not lost 9b

Sort 10

'Sort? ('Y/CA/'N/') 10a

Sets (resets) a flag which determines whether or not the collected file is to be sorted. 10b

Viewspecs. 11

'Viewspecs: STRING CA 11a

Same as TODAS... allows user to specify viewspecs for collect phase 11b

```
':4837', 08/27/70 0936:09 MGC ;  ':COLSORT SYNTAX', 08/26/70 |2|5:3| WSD
; .HED="4837 WSD 27AUG70
Colector Sorter command syntax";
.SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;
```

4838 WSD 28AUG70
Comments regarding File use at UCSB..re-4935 (xdoc)

The following considerations seem to me to cast a shadow on the usefulness of a file system at UCSB via the network on the 940. |

(1) Much of the impact of using the network is now past since we have been loading files at UTAH. |a

(2) We have not, at present, implemented the network protocol. There is some question as to whether this is worthwhile on the 940. |b

If we decide to implement it regardless of the file storage, then the picture becomes much more favorable. |b|

(3) UCSB will not guarantee us 24 hour access, and using their system is likely to be fairly expensive. |c

(4) We are getting rid of the 940 in 5-6 months, and we could not be ready to use and rely on a file system at UCSB for at least 2-3 months. |d

(5) I tend to doubt that the available 940 storage will not be adequate for its life-time. |e

(6) If we do need outside storage, UTAH is a more logical candidate based on our already running connection with them. |f

':4838', 08/27/70 0950:42 MGC ; ':UCSB FILE COMMENTS', 08/26/70 1238:19
WSD ; .HED="4838 WSD 28AUG70
Comments regarding File use at UCSB..re-4935 (xdoc)"; From WSD To DCE
JCN WKE JTM .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

4839 WSD 27AUG70
Impressions of Early Mail System Use and Suggestions for a Preliminary 'Needs and Possibilities System'

The Mail System seems to be initially fulfilling four functions: |

Two of the uses are the intended ones: |a

It is used for notes passed between various persons in ARC. |a|

It is used as a bulletin board for making announcements. |a2

It is additionally, however, used as: |b

A "Needs and Possibilities" file, where these needs and possibilities are addressed to the persons who are obviously concerned with the function they to which they relate. |b|

A mechanism whereby a brief or relatively brief note or memo may be entered into the journal. In some cases these memos may be not so brief and the Mail System is simply used as a handy mechanism for entering memos into the journal. |b2

The fact that the Mail System is being used for entering memos directly into the journal and as a "Needs and Possibilities File", seems to suggest that a mechanism similar to the Mail System could be provided specifically for these functions. 2

With regard to a journal memo entry system, my feeling is that although we could simply modify the Mail System a bit and allow persons to send messages to the journal, we haven't at this time sufficient experience with the current journal entry system to justify the effort involved and we probably have not adequate insight to determine if this would be profitable. 2a

I definitely feel it will be necessary in the future, however, to provide a very automated and virtually instantaneous journal entry mechanism. Certainly one of the advantages that the Mail System has when used as a journal entry system is that the submitted document immediately has a number and may be referenced. 2a|

The needs and possibilities use of the Mail System, however, might be worth exploring a 2b

bit. One can make essentially trivial modifications to

the current Mail System and provide a system whereby one may record suggestions and needs directed towards specific roles. 2b1

We could have a specific set of roles which should presumably be the ARC-defined roles. These needs and possibilities could then be distributed to the proper person in charge of the role when entered into the journal. 2b2

The Needs and Possibilities File can be entered in the journal just as the Mail file is. 2b3

There should not be an automatic retrieval of needs and possibilities when one enters NLS and TODAS, rather one would specifically call out the Needs and Possibilities System and interrogate it as to entries related to the desired role or subject. 2b3a

An immediate advantage to such a Needs and Possibilities System would be to reduce the mail going through the Mail System. On Monday 17AUG70 there were over 65 messages passed back and forth; the total length of the Mail file at the end of the day was 18,000 characters. This clearly and demonstrably causes a fair delay when searching through the mail file for messages. 2b4

A Needs and Possibilities System as described here has the advantage of automatically recording in the journal all needs and possibilities on all subjects. 2b5

This, of course, is the function now being fulfilled by the Mail System. With the Needs and Possibilities System, the entries would be cataloged under appropriately-headed files and, again, not be intermixed with the mail. 2b5a

Sending needs and possibilities through the mail tends to have a somewhat adverse psychological effect on persons responsible for certain roles in the sense that they may begin to feel badgered. 2b6

I estimate that the implementation of a Needs and Possibilities System as described herein would be a relatively trivial task. It would be essentially a modification of the Mail System so that, rather than initials, roles would be used to identify messages as to the destination of the messages and possibly to identify the senders. I would be surprised if the implementation

time turned out to be longer than one day, once the roles had been decided.

':4839', 08/27/70 0955:34 MGC ; :MAILMEMO, 08/26/70 1254:57 WSD ; To DCE, JCN, WLB, CHI

From: WSD

.HED="4839 WSD 27AUG70
Impressions of Early Mail System Use and Suggestions for a Preliminary 'Needs and Possibilities System'";

.SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

CHI MSC WHP $4840.1 WSD 08/27/70 0935:04 I THINK THAT BY TURNING NOWRIT ON AND OFF WITH THE CONTENT ANALYSER (i and j) WE COULD ELEMINATE MUCH OF THE CONFUSION IT IS LIKELY TO CAUSE. THEN THE USER WOULD HAVE TO EXPLICITLY CHANGE HIS FILE WITH AN 'R VIEWSPEC.$ 1

CHI MSC WHP $4840.2 WSD 08/27/70 0936:19 ALSO, I THINK THAT WE NEED LITTLE LETTERS IN THE VIEWSPEC AREA REFLECTING STATUS OF O/P AND Q/R. MAYBE FLASHING FOR NOWRIT WHEN IT IS ON.$ 2

ARG BER BLP CHI DOC DIA DCE DGC EKV HAL JMY JBN JCN JDH JMH JNL JTM JRX KEV LSL MGC MEH MEJ MET MSC NDM VRB VDB WHP WKE WLB WSD $4840.3 WSD 08/27/70 0938:35 I WOULD LIKE TO CHANGE QUICKPRINT SO THAT WHEN NUMBERS ARE ON, IT ACTS AS THOUGH THE DIRECTIVES HAD BEEN USED (IN PASS4). I PLAN TO DO THIS EARLY NEXT WEEK, SO DISSENT BEFORE THEN IF YOU ARE SO INCLINED.$ 3

WSD $4840.4 CHI 08/27/70 0958:58 RE: 4840.3 WE WILL MAKE A SIMILAR CHANGE TO CDSPLY WIT VEIWSPECS (OR VIEWCHANGE) CONTROL OVER WHERE THE NUMBER IS DISPLAYED. DO YOU THINK THE NUMBER SHOULD BE RIGHT JUSTIFIED TO A COLUMN POSITION OR LEFT JUSTIFIED TO A COLUMN POSITION? I SUGGEST THAT THE RIGHT COLUMN BOUND BE A FUNCTION OF THE NUMBER SIZE IF THE NUMBER IS DISPLAYED ON THE RIGHT SIDE.$ 4

WSD $4840.5 CHI 08/27/70 1002:34 RE 4840.1, I LIKE TURNING NOWRIT OFF WITH THE J VIEWSPEC, BUT I DONT KNOW IF WE SHOULD TURN IT ON WITH I. I WILL HAVE TO THINK ABOUT IT SOME MORE.$ 5

WSD $4840.6 CHI 08/27/70 1008:33 RE 4840.2, I CONCURE$ 6

BLP $4840.7 WSD 08/27/70 1117:21 IN FACT, THE TRUTH IS TAT TAABS DON'T WORK THE SAME IN NLS AS TODAS. I HAVE FOR MANY MOONS WANTED TO HAVE A TAB SEMINAR TO DECIDE HAW TABS SHOULD WORK, AND STILL THINK TAT THIS SHOULD BE. I'LL CHEC ABOUT SPACE, BUT I THINK THAT CDSPLY MAY DO IT TOO, SINCE I TRIED TO DUPLICATE IT 'S FORMAT IN PRINT.$ 7

CHI $4840.8 WSD 08/27/70 1119:56 MY REASON FOR TURNING NOWRIT ON WITH CONAN IS THAT IT ALOWS EXPERIMENTATION AND DEBUGGING. OTHERWISE A PERSON GETS OONE CHANCE TO WRITE A CORRECT PATTERN, AND A GOOF MEANS RELOADING THE FILE TO TRY AGAIN$ 8

WSD $4840.9 WSD 08/27/70 1122:14 BUG IN MAIL CAUSES COUNTER TO NOT BE INCREMENTED WHEN CRASH OCCURS IN SENDING OF MESSGE$ 9

WHP $4840.10 WSD 08/27/70 1123:33 TWO THINGS WOULD HELP IMMENSLY IN READING UTILTY: (1) BLOCK DIAGRAM OF DATA AREAS (2) AN EQUATION OF OLD NAMES TO NEW, E.G. RSVST IN OLD IS ???? IN NEW. $ 10

WSD $4840.11 CHI 08/27/70 1139:34 RE: 4840.8, WHAT IF HE TRIES TO EDIT THE FILE WHILE CONAN IS ON?? ALSO, NONE OF THIS SHOULD HAPPEN UNLESS CDCSTF IS SET.$ 11

WSD $4840.12 DGC 08/27/70 1236:25 QUICKPRINT CHANGE OK BY ME$ 12

WSD $4840.13 WLB 08/27/70 1428:12 RE 4849,3. I ASSENT. MAY I MAKE A SUGGESTION FOR CONSIDERATION WHEN APPROPRIATE: I FIND THAT HAVING THE ORIGIN STATEMENT PRINT AT A DIFFERENT LEVEL FROM FIRST LEVEL STATEMENTS IS A NUISANCE, BOTH IN TERMS OF SPACE LOST AND IN TERMS OF HAVING ONLY THAT SINGLE STATEMENT APPEAR ON THE LEFT PAGE MARGIN. POSSIBLE "SOLUTIONS": -HAVE ORIGIN STATEMENT PRINT AT SAME LEVEL AS FIRST LEVEL STATEMENTS ALWAYS -- THIS IS SOMEWHAT UGLY AS IT MAKES PRINTOUT LOOK DIFFERENT CONCEPTUALLY FROM INTERNAL STRUCTURES. -CHANGE STRUCTURE SO ORIGIN IS HEAD OF LEVEL ONE STATEMENTS. (I DON'T REALLY PROPOSE THIS TOO SERIOUSLY). -HAVE A VIEWSPEC (AND PASS4 DIRECTIVE),CHECKED WHEN BRANCH-ONLY OR PLEX-ONLY ARE ON, WHICH SETS LEFT PAGE/DISPLAY MARGINJUSTIFIES DISPLAY START LEVEL TO LEFT MARGIN OF PAGE OR DISPLAY. (I LIKE THIS IDEA BEST).$ 13

BLP CHI $4840.14 WLB 08/27/70 1429:31 PLEASE SEE (4840,13). I HAD STARTED SENDING IT TO BILL D. BEFORE I REALIZED THAT IT WOULD BE OF INTEREST TO YOU ALSO.$ 14

CHI $4840.15 WSD 08/27/70 1523:09 ok...so we turn nowrit on if connan and cdcstf are on, and off when conan off, and on when cdcstf on, and off when cdcstf off$ 15

BLP $4840.16 DCE 08/27/70 1832:28 NP OP : Let CEN: (with leading period,of course) be available for centering its line -- i.e., to obviate having to do the .CEN=1 and .CEN=0 pair. Except for poetry, have never seen multi-line sequences centered, so maybe the ON-OFF directives aren' worth keeping--. If they don't cost anything, I'd vote to keep them. If costly, I'd prefer the this-line version.$ 16

WSD $4840.17 DCE 08/27/70 1833:38 cf (4840.3) -- quickprint(m) equivalent to SNF, etc. --OK with me. Doug$ 17

WKE JDH $4840.18 WSD 08/27/70 1835:59 I'VE SUGGESTED THIS BEFORE, BUT HERE GOES AGAIN. IT WOULD NOT BE MUCH OF A BURDEN TO RUN :RUNSTASH BEFORE DOING TSS SYSTEM WORK, AND IT MIGHT SAVE

SOME WORK.$ 18

WKE WSD HAL JTM $4840.19 DCE 08/27/70 1837:15 USCB (Dave Harris) has vvery interesting offer to us regarding helping implement the remote file- storage system, see my journal entry 4841. If we are reasonably interested, three of them (Dave Harris, Jim White, plus one) would like to visit. They like Friday 4 Sept. I want to call back on this tomorrow (28 August, Friday). Please look at 484| (or JRNL| in my KDF) and get in touch with me ASAP. Doug.$ 19

WSD HAL JTM $4840.20 DCE 08/27/70 1903:25 UCSB (Dave Harris) has very interesting offer to us regarding helping implement the remote file- storage system, see my journal entry 484|. If we are reasonably interested, three of them (Dave Haris, Jim White, plus one) would like to visit. They like Friday, 4 Sept. I want to call back on this tomorrow Friday 28 August. Please look at 484| (or JRNL| in my KDF) and get in touch with me ASAP. Doug.$ 20

DCE $4840.21 WSD 08/27/70 1907:41 DOUG..IT DOES INDEED SOUND INTERESTING, AND I AM PONDERING. MEANWHILE, YOU SHOULD BE GETTING A MEMO FROM ME WHICH I WROTE YESTERDAY IN RESPONSE TO LETTER FROM J. WHITE. IT IS NOT CURRENT (CONSIDERING LATEST DEVELOPMENTS), BUT IT SHOWS WHERE MY HEAD WAS AT THEN.$ 21

WKE $4840.22 WKE 08/27/70 2206:02 CALL LARRY STEINER$

22

':4840', 08/28/70 1032:04 MGC ; ':MAIL', 08/27/70 2219:48 WSD
;.HED="4840 WSD 28AUG70
Mail File"; .SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;

484| DCE 28AUG70
Notes on phone call from Dave Harris, UCSB

Note: The call is of the same pursuit as the recent letter to John Melvin from Jim White, see(4935,), |

About developments to their system: 2

They have just finished with several major system projects: 2a

Installing a new operating system, 2a|

It has settled down now to like one error per eight hours. 2a|a

This will be running every day (?? or just week days, better check) from 0600 until (nominally) 2400 -- which means network access and operator availability during these periods. 2a|b

Getting the NCP up (Network Control Program) with the full new protocol -- Jim White's project. 2a2

Within 4 weeks they will add another 23|4 disk system with the full 8 transports. 2b

NOW they are anxious to get some action going on the ARPA Network. 3

In this regard, we discussed our tentative study of remote file storage (WSD had looked into this). I mentioned the two considerations that a the moment seemed critical: 3a

Accessibility periods -- which seem quite reasonable (particularly if it is |8 hrs/day or all seven days per week. 3a|

(I'd assume we would have a lower-level collecton replica stored locally on mag tapes, upon which we could reasonably depend during their blankout periods.) 3a|a

Response time for access to a shelved disk pack, assuming we paid for one transport to be accessibble at all times -- 3a2

We (Duvall) had some notion that disk-stopping time was very long (like five minutes). Harris says that it is really quite fast. With rasonable operator responsiveness, a demand disk-pack change could typically take place in less than a minute. 3a2a

Notes on phone call from Dave Harris, UCSB

Further, their operators aren't very heavily loaded, and could likey be quite attentive to the system's calls for disk-pack changes. 3a2b

I responded to these answers by saying that it would seem quite attractive to us -- 3b

Among other things, we'll be short on cash and this would appear to offer very effective open-end archive support at a rather reasonable cost. 3b|

Our experience in transmitting files to Utah gives us a good subjective feeling about file transfer through the Network. 3b2

Our ARCH system apparently would be able to accommodate such a file-storage facility with relative ease (??hope I'm right there). 3b3

I told him, though, tht we were very pressed for time these days, with our IO-transfer commitments, and we'd probably disappoint him by not being able to snap up their service very quickly. 3c

He responded with an interesting and generous offer: 3d

He'd pay for Jim White to move up here for a month or so (Jim is a bachelor, apparently), to work with us and give us as much help as possibile in implementing some Network thing (of which this file-storage thing seems to be the most interesting to us). 3d|

He wants to come visit soon, bringing White and on other guy. Friday, Sept 4 would be their first preference. 3e

I agreed to look into our interest and availability and call him back by tomorrow (Fri 28 Aug). 3f

Miscellaneous: 3g

They'd like to begin using TODAS, and wondered about trying to patch up some sort of NLS. 3g|

Wondered if we wouldn't like to try harnesing their on-line (Culler-Fried ??) System. Would be willing to help us. 3g2

':484|', 08/26/70 |642:30 MGC ; :JRNL|, 08/27/70 |620:50 DCE ;
.HED="484| DCE 26AUG70
Notes on phone call from Dave Harris, UCSB ";
.SNF=72;.MCH=65;.PGN=0;.DSN=|;.DPR=0;

4842 jcn 04sep70
Mail File

WSD $4842.1 JBN 08/28/70 0751:56 UNABLE TO DELETE 4835.6. CAN YOU HELP US?$ 1

WSD $4842.2 MGC 08/28/70 1043:57 YESTERDAY'S (DUV):JRNL1 THROUGH (DUV):JRNL4 ARE COMPLETELY PROCESSED AS (JO):4836 THROUGH (JO):4839 -- THE (DUV):JRNL1 AND (DUV):JRNLP4840 ON HAND TODAY ARE NOW (JO):4840 AND (JO):4843. /LAST NIGHT YOU HAD A$ 2

WSD $4842.3 MGC 08/28/70 1046:45 YESTERDAY'S (DUV):JRNL1,:JRNL2,:JRNL3,:JRNL4 ARE COMPLETELY PROCESSED AND BACKED UP AS (JO):4836 - (JO):4839 RESPECTIVELY. THE (DUV):JRNL1 AND (DUV):JRNLP4840 I FOUND TODAY ARE NOW (JO):4843 AND (JO):4840 BUT HAVE NOT YET PRINTED OR TAPED. THIS AFTERNOON. ((ASSUME TODAY'S :JRNL1 IS WHAT YOU REFERRED TO LAST NIGHT AS :JRNL5?))$ 3

WLB $4842.4 WLB 08/28/70 1105:41 THIS IS A TEST OF THE MAIL SYSTEM.$ 4

CHI $4842.5 WLB 08/28/70 1339:09 SUGGESTION FOR EXTENSION OF THE ENTITY NAME IN COMMAND SPECS. -IT WOULD BE USEFUL TO BE ABLE TO SPECIFY JUMP TO NAME LAST, OR MORE GENERALLY JUMP TO THE I-TH OCCURRENCE OF A NAME. -ONE WAY OF DOING THIS WOULD BE TO ALLOW NAMES TO BE "SUBSCRIPTED". -E.G. NAME[1], NAME[2], ETC. WHERE, PERHAPS, NAME WOULD BE EQUIVALENT TO NAME[1], AND NAME[] WOULD REFER TO THE LAST OCCURRENCE OF NAME. -WHATEVER SYNTAX IS USED SHOULD BE COMPATIBLE WITH USE IN LINKS.$ 5

CHI $4842.6 WLB 08/28/70 1343:51 BUG IN JUMP-FILE-RETURN. -THE FILE RETURN MECHANISM IS GETTING SCROD SO THAT AFTER EXECUTING (OR EVEN JUST SPECIFYING) CERTAIN COMMANDS AFTER A JUMP-FILE-LINK, "JUMP FILE RETURN" IS RECOGNIZED AS AN "ILLEGAL ENTITY". IT SEEMS POSSIBLE TO (TEMPORARILY -- I.E. UNTIL ANOTHER JUMP COMMAND HAS BEEN SPECIFIED)CLEAR THIS UP BY SPECIFYING JUMP-FILE-AHEAD AND THEN SPECIFYING AND EXECUTING JUMP-FILE-RETURN. I HAVEN'T TAKEN THE TIME TO EXPLORE ALL THE PARAMETERS OF THIS BUG. W a P SAYS THAT HE IS AWARE OF THE BUG BUT NOT OF ITS CAUSE.$ 6

WLB $4842.7 CHI 08/28/70 1544:45 RE 4842.5, GOOD IDEAS. WE MAY HAVE TIME TO PLAY WITH NAME DEFINITIONS AND NEW NAME FEATURES ON THE 940, BUT PROBABLY NOTHING WILL BE DONE ABOUT THIS UNTIL WE ARE ON THE TEN.$ 7

WKE WSD HAL JTN $4842.8 DCE 08/28/70 1559:39 regarding the UCSB proposal, cf(4841,): after talking with wsd I asked Dave Harris to hold off the visit. we need to firm up three things

first: (1) our ARCH transition to TENEX and the place in our development sequence that this remote-storage system should have, (2) a bit of real analysis regarding utility to us, e.g. response time versus collection size versus disk/tape tertiary (assuming they could as well give us an operator-supported mag-tape system), and (3) our budget picture and the cost/payoff priority that this 1000 to 1500 dollars/mo would have for us relative to other uses (particularly between now and next July). I said that some of you might be dialoguing with Jim White with secific questions, otherwise I would let him know when we're ready for serious talk. $ 8

DCE $4842.9 DGC 08/28/70 1649:54 (ENGE):JRNL| IS NOW (JO):484|$ 9

WSD $4842.10 NLS 08/31/70 1006:25 I WOULD LIKE TO SEE A WAY OF JOURNALIZING AN INTERLINKED SET OF NLS FILES (A "PLEXDOC", IF YOU WISH) SO THAT ALL THE FILE LINKS ARE CONVERTED FROM SCRATCH FILE NAMES TO JOURNAL ENTRY DESIGNATORS (JOURNAL NUMBERS, I GUESS). WE MIGHT WANT TO EXPERIMENT WITH MANUAL PROCEDURES (COORDINATED BY J C N) FIRST, ALTHOUGH IT SEEMS THAT DEVISING AN AUTOMATIC PROCESS (A LA NOTILITY) WOULD BE "RELATIVELY EASY". IT SEEMS THAT INPUT TO THIS AUTOMATIC PROCESS SHOULD BE EITHER AN NLS OR QED FILE LISTING THE SCRATCH FILES TO BE JOURNALIZED (EVENTUALLY, MAYBE, WITH OTHER DESCRIPTIVE MATERIAL TO AID IN AUTOMATIC CATALOGING) AND THAT "OUTPUT" MIGHT BE IN THE FORM OF A SIMILAR FILE RELATING THE OLD FILE NAMES TO NEW JOURNAL NUMBERS. OOPS, I JUST NOTICED THAT THIS MSG HAS GOTTEN TOO LONG.$ 10

WLB $4842.11 WSD 08/31/70 1010:18 WE ALL WOULD LIKE TO SEE WHAT YOU SUGGEST IN 4842.10. IT IS, IF YOU HAVE READ ANY OF THE JOURNAL PLANS, ON OF THE INTEGRAL FEATURES OF THE JOURNAL, BUT WILL NOT BE MADE AUTOMATICALLY AVAILABLE FOR SOME TIME. YOU MAY GET A BLOCK OF JRNL NUMBERS AND DO YOUR INTERLINKING UPON CREATION IF YOU LIKEE.$ 11

CHI WHP $4842.12 DGC 08/31/70 1023:07 NLS BUG: WHEN I DO REPLACE VISIBLE USING A POINTER TO SELECT ONE OF THE VISIBLES, SOMETHING GETS SMASHED -- THEREAFTER, ANY ATTEMPT TO CALL THAT POINTER BLOWS NLS WITH STCHF=10. $ 12

CHI MSC WHP $4842.13 WSD 08/31/70 1718:00 IOCTL CHANGED FOR SPROC...NOT COMPILED$ 13

CHI MSC WHP $4842.14 WSD 08/31/70 1729:48 STRMNP UPDATED FOR SPROC$ 14

CHI MSC WHP $4842.15 WSD 08/31/70 1739:47 TODAS CHANGED FOR

4842 jcn 04sep70
Mail File

SPROC$

15

CHI WHP MSC $4842.16 WSD 08/31/70 1913:06 MNCTRL UPDATED FOR SPROC$

16

CHI $4842.17 WSD 08/31/70 1914:20 GREAT ABOUT TODAS CHANGES...TODAS NEEDS THEM, AND THEY SHOULD HAVE BEEN DONE SOME TIME AGO. SORRY ABOUT BEING DEFENSIVE ABOUT IT ON PHONE. I THINK THAT I HAVE BEEN AROUND TODAS TOO LONG TO BE HONESTLY OBJECTIVE ABOUT IT$

17

CHI MSC WHP $4842.18 WSD 08/31/70 1926:24 INPFBK CHANGED FOR SPROC$

18

CHI WHP MSC $4842.19 WSD 08/31/70 1939:04 UTILTY CHANGED FOR SPROC$

19

```
:4842, 09/04/70 1529:21 MEJ ;  :FMAIL, 09/04/70 1059:25 JCN ; .HED="4842
jcn 04sep70
Mail File";  .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;
```

4843 WSD 28AUG70
Notes form meeting with HAL, WKE, JCN DCE, and WSD on 26AUG70

The archive sytem discussed. agreed that implemenation of designed should be done by sept 16. we should look at what will be available on PDP10 in the way of file handling machinery. 1

A call to BBN...probably Ted Strollo..seems to be in order. 1a

The needs to be a little planning done to devise an orderly way to get files onto the 10 from the various places where they may be left on the 940. 2

A suggestion was made by DCE, which leads to the possiblity of saving te vector from he colsort working file, and then using it to update the resultant output files at a later time. the vector could be saved as the zeroth file of the output series. 3

The concept of user programmed processors (implemented via super processors) needs to be explored. 4

':4843', 08/28/70 1037:48 MGC ; ':MEET NOTES', 08/27/70 1207:02 WSD ;
.HED="4843 WSD 26AUG70
Notes form meeting with HAL, WKE, JCN DCE, and WSD on 26AUG70";
.SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

4844 jcn 04sep70
Mail File

CHI MSC WHP $4844.1 WSD 09/01/70 0950:26 UTILTY CHANGEED SOME MORE FOR SPROC$ 1

WSD $4844.2 MGC 09/01/70 1000:40 NUMBER KEEPS CHANGING IN (JO):NUMB BUT I AM NOT RECEIVING MAIL FILES$ 2

MGC $4844.3 WSD 09/01/70 1005:30 i took number for next mail file, but cannot make up journal entry for last until insert QED is fixed...sandy$ 3

CHI MSC WHP $4844.4 WSD 09/01/70 1039:09 TDATA CHANGED FOR SPROC$ 4

```
:4844, 09/04/70 1536:25 MEJ ;  , dummy ; .DPR=1; :MAIL, 09/04/70 1101:55
JCN ;.HED="4844 jcn 04sep70
Mail File"; .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;
```

4845 WSD 08SEP70
Mail File

WLB $4845.1 BLP 09/02/70 1413:42 I JUST TALKED TO A FELLOW FROM MITRE CORP. HE WANTED TO MAKE SURE THAT THEY ARE ON THE NIC MAILING LIST. $ 1

ARG BER BLP CHI DOC DIA DCE DGC EKV HAL JMY JBN JCN JDH JMH JNL JTM JRX KEV LSL MGC MEH MRJ MET MSC NDM VRB VDB WHP WKE WLB WSD $4845.2 WKE 09/02/70 1725:07 SYSTEM DOWN FROM 6:00 PM TO 8:00 PM THURSDAY, 9/3 FOR MAINTENANCE$ 2

CHI MSC $4845.3 WSD 09/02/70 1828:47 SYSTEM NEEDS TO BE LOADED BEFORE USE..LOAD WAS WRONG LAST NIGHT$ 3

MSC $4845.4 WSD 09/02/70 1829:23 I DON'T KNOW WHAT E RIGHT PTCH IS...THE ONE I TOLD YOU DIDN'T WORK (WITH OUTNUM)$ 4

$4845.5 BER 09/04/70 1637:31 MEH -- ITEM #2 ON THAT WEATHERFORD ORDER WON'T BE SHIPPED UNTIL OCTOBER 6, 1970. SORRY.$ 5

WSD $4845.6 JCN 09/04/70 2334:34 THANKS FOR YOUR HELP WITH THE JOURNAL CATALOG MAKER. IT IS UNDER JOURNAL :CATALOG NOW AND SEEMS TO WORK. IT GETS ABOUT 26 ZERO LEVEL STATEMENTS AND RESTRUCTURES THEM TO MAKE A CATALOG FOR THE JOURNAL. NOW ILL INCORPORATE IT INTO AN UPDATE PROCEDURE. SEE YOU TUESDAY OR SO? $ 6

WLB $4845.7 JCN 09/04/70 2338:52 THE NIC DISCUSSION WITH JEANNE SEEMED USEFUL TO ME, YOU TOO I HOPE. LETS PLAN TO MEET AS EARLY TUESDAY AS YOU FEEL IS OK TO SEE WHERE WE ARE OVERALL. PLEASE CALL ME 851-0569 IF I CAN HELP SAT OR MONDAY ..OK?$ 7

DCE $4845.8 JCN 09/04/70 2345:09 THE ONR PROPOSAL FROM JACK GOLDBERG IS READY FOR YOUR REVIEW. THEY WANT TO SEND A DRAFT TO ONR TUESDAY IF POSSIBLE. CAN WE TALK ABOUT IT FIRST THING TUESDAY 9/8?$ 8

JCN $4845.9 WLB 09/05/70 2042:57 OK.$ 9

WLB $4845.10 JCN 09/05/70 2136:39 HI I GOT IT SEE YOU TOMORROW I GO TO TOMALES TO SILA. EVER WANT TO TRY AT REDWOOD CITY? $ 10

WLB $4845.11 JCN 09/05/70 2139:59 "TO SAIL" $ 11

JCN $4845.12 WLB 09/05/70 2230:26 YES (IF THE QUESTION IS WHAT I THOUGHT) BUT NOT TOMORROW FOR I HAVE A PLEASURE DATE AT THE

FAIRE -- RATHER A DATE AT THE PLEASURE FAIRE. BY THE WAY, THERE IS A NEAT ARTS AND CRAFTS FAIR AT KING'S MOUNTAIN (ON SKYLINE ABOUT 1 MILE NORTH OF KING'S MTN ROAD) THRU MONDAY; ALSO THE WEATHER AT THE BEACH WAS B-UTIFUL TODAY, MAYBE TOMORROW ALSO (?).$ 12

WLB $4845.13 JCN 09/05/70 2235:23 I GOT TIFUL, ASSUME IT MEANS BEAUTIFUL.... GOOOD HAVE FUN. WE'RE OFF TO GET A GIRL FROM MUSIC CAMP NOW , THE KING'S MT.A/C ARE NEET, BUT NOT ON SCHED. SEE YOU JIMS 13

JCN $4845.14 WSD 09/06/70 1159:59 I WOULD LIKE TO SEE THE CATALOGE...I WILL BE COMING DOWN TUESDAY$ 14

':4845', 08/08/70 1416:37 MGO ; ':MAIL', 09/06/70 1506:33 WSD ;
.HED="4845 WSD 08SEP70
Mail File"; .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;

ENTRY POINTS	LOGIC	EXIT POINTS	COMMENTS
			Collector/SORTER ENTRY
EXECUTE COLSORT →	RELABEL OUT MAINT/TODAS ↓ RETURN W.S. TO TTY ↓ GET COLSORT Processor ↓ BRANCH TO STARTING POINT		CALL RLISON - 940 ONLY initially, until people bitch. Includes setting NLS input machinery up for todas (TTY) if from W.S. BRS 100 into overlay table - NOT OUTOV but regular entries I think for EQU'S) Now colsort is main fork, CSP is old colpsid melbee. Types identifying character. Colsort initializes if this is 1st call
			collector/SORTER RETURN
RETURN →	RELEASE SOME PAGES ↓ RETURN TO W.S. IF NLS ↓ GOTO command RESET		SAVE DATA PAGE IF NORMAL CALLS A ROUTINE ~~SP~~ Super proc. Return, which does this & other stuff
ABORT →	RELEASES ALL PAGES →	RETURN AS ABOVE	

ENTRY POINTS	LOGIC	EXIT POINTS	COMMENTS CO/SORT Commands
File list	IF NEXT CHR = 's THEN →	INPUT FILE LIST	READ LIST OF FILE NAMES FROM INPUT FILE SPECIFIED
	↓ STMTAD		get address of statement
	↓ SET STMT sub file		set up a subroutine file to read Stmt (branch?) sequentially
readflist	→ Read file list	→ RETURN	Reads file list from file "listin" which may be Sub. file. enters names & name pointers into fnlist & fplist. (size??) closes "listin"
INPUT File list	open input seq. file	→ readflist	store number into listin
SORT	GET ANSWER	→ RETURN	Accepts yes/no answer & stores in sortfg.
Viewspecs	AS TODAS	→ RETURN	EXACTLY LIKE TODAS - FOR convenience
Output Prefix	PARSE AS 'File list' for input file,		maybe ', should BETTY?? (NOT for CUTTLTY)
	↓ READ ALPHA FOR NAME PREFIX	→ RETURN	STORE INTO OUTNAM[0:3], & OUTNMB[0:3] (??)
CO	CHECK PARMS	→ input phase	Make sure we have everything we need to run, & Abort with message if not
	↓ Close curfn & rfln	→ input phase	save off names???
EXECUTE	ASK EXECUTE TEXT TO TODAS	→ RETURN	Like todas
Continue	Reset parms from saved state	→ input phase	may additionally get parms from TTY - flag set, no parms have been altered??
RETURN	RETURN TO NLS/TODAS (See super Proc Return)		saves data page (may be hard to do)
ABORT	AS RETURN, BUT DOESN'T SAVE PAGE		
DELETE KEYS	Accept answer	→ RETURN	sets Delete keys flag (deletK)
INITIALISE	INITIALISE ALL PARMS		may do by getting new data page

ENTRY POINTS	LOGIC	EXIT POINTS	COMMENTS MAIN INPUT PHASE
START	GET NEXT SDB ↓ WRITE TO SDB LIST ↓ ENTER SDB HANDLE INTO VECTOR	→ START	BRANCH TO END INPUT IF NONE. CALLS APPROPRIATE INPUT MECHANISMS & RETRIEVES STATE. RETURNS ADDR. OF SDB INDXR — copies SDB to temporary collection file. Maintains status of file, & state for restarts. RETURNS HANDLE FOR SDB takes care of backing up vector for restarts. Updates state on file for restart among delta-restart SDB's
END INPUT	UPDATE STATE ON DRUM & CLOSE INPUT FILES & finish writing & cleanup working file	→ SORT PHASE	

ENTRY POINTS	LOGIC	EXIT POINTS	COMMENTS
			SORT PHASE
START	SORT FLAG ?!	NO → OUTPUT PHASE	DON'T SORT IF FLAG OFF
	CALL VECTOR SORT	→ OUTPUT PHASE	USES treesort, & SORTS vector. Provides restart points & is non-destructive in cases RETURNS (WITH SORTED VECTOR IN TREE FORMAT(?) ON WORK FILE
~~LOOP~~:			

4846 WSD 17SEP70
Mail File

VDB $4846.1 WSD 09/06/70 2203:12 FRED..I RELOADED NLS, AND I AM AFRAID THAT YOUR CALCULATOR DIDNT MAKE IT. WHY DON'T WE PUT IT AS THE NORMAL CALCULATOR, SO HAT IT WILL GET INCLUDED IIN LOADS$ 1

$4846.2 MSC 09/06/70 1240:51 MSC $ 2

MSC $4846.3 MSC 09/06/70 1242:38 MSC$ 3

$4846.4 MSC 09/06/70 1244:32 MSC$ 4

MSC $4846.5 MSC 09/06/70 1247:04 THIS IS A TEST$ 5

WHP CHI MSC VDB $4846.6 WSD 09/06/70 2156:04 I HAVE PATCHES IN THE EXPERIMENTAL VERSION OF NLS (N1NLS,N2NLS). PLEASE DO NOT RELOAD WITH OUT TALKING TO ME...THANX$ 6

WSD $4846.7 MEJ 09/09/70 0806:15 YOUR DICTATED TAPES FOR ON-LINE FILE ":MAILDOC" ARE IN YOUR COLON SPACE AS ":DOCMAIL" AND IN YOUR KDF SPACE AS "DOCML". COULD NOT USE YOUR CHOSEN NAME BBECAUSE YOUR FLES "MAIL" AND "MAILMEMO" INTERFERRED WITH ENTRY AS "MAILMEMO".$ 7

DCE $4846.8 MEJ 09/09/70 0820:54 RE: VISITOR-TO-BE, CONGRESSMAN JOHN BRADEMAS. ON FRIDAY, 9/4/79/4/70, MR. DAVID LLOYD-JONES TELEPHONED FOOR YOU. HE IS THE ASSISTANT TO CONGRESSMAN JOHN BRADEMAS (STATE, DISTRICT, AND POLITICS UNKNOWN), ADDRESS 2138 RAYBURN BLDG., WASHINGTON, D.C. 20515, PHONE (202) 225-3915. CONGRESSMAN BRADEMAS HAS SOME CONNECTION WITH A CONGRESSIONAL INVESTIGATING COMMITTEE WHICH WWILL PAY OFFICIAL VISITS TO CALIORNIA, AMONG OTHER PLACES, COMING TO SAN FRANCISCO SOME TIME IN NOVEMBER. THEY ARE INVESTIGATING RESEARCH, (APPARENTLY) EFFICIENCY OF INSTRUCTION IN THE SCHOOLS, OR SOME SIMILAR CONCEPT. BRADEMMAS IS INTERESTED IN COMPUTERIZED INTRUCTION, MODERNIZATION OF TEACHING METHODS AND THE USE OOF MODERN-DA Y TOOLS IN THE LEARNING/TEACHING FIELD. CONGRESSMAN BRADEMAS HEARD OF OUR FILM THROUGH SOME OF THE OTHER CONGRESSMEN WHO HAVE SEEN IT AND IS QUITE EXCITED ABOT OUR PROJECT. HE WANTS TO FAMILIARIZE HIMSELF WITH OUR PROJECT. WHEN HE IS IN SAN FRANCISCO IN NOVEMBER, HE WANTS TO PAY US A VISIT AND FIND OUT MORE AT FIRST HAND. I MAILED HIM THE FILM ON SEPT. 8. ALSO, OSR-1, RADC-TR- 70-62, THE FJCC PAPER, AND A BIBLIOGRAPHY SHEET. YOU WILL HEAR MORE FROM CONGRESSMAN BRADEMAS.$ 8

CHI $4846.9 WSD 09/09/70 2210:45 I HAVE A FILE WHICH CRASHES NLS WHEN I ATTEMPT TO LOAD IT. IF YOU ARE INTERESTED IN SEEING

IT, IT WILL BE AROUND AS (SASS) :CRASHES NLS WHEN LOADED.$ 9

JDH $4846.10 WLB 09/09/70 2233:59 DAVE, PLEASE SEE THAT JEANNE NORTH GETS DEFINED AS A USER.$ 10

WLB $4846.11 DAI 09/10/70 0700:53 YOUR FILE UNDOUBTEDLY HAS A BAD HEADER. I AM AFRAID THAT THERE IS NOTHING IS NOTHING THAT I CAN DO.$ 11

WSD $4846.12 JCN 09/10/70 0756:26 :JRNL1 (MAILLOAD) IS NOW (JOURNAL):4850.$ 12

BLP $4846.13 JCN 09/10/70 0800:18 :OPLAN IS IN THE JOURNAL AS YOU ASKED UNDER (JOURNAL):4849$ 13

DIA $4846.14 RMJ 09/10/70 1012:03 Mr. Tom Moers, phone 328-8080 would like for you to call him.$ 14

ARG BER BLP CRT DDC DIA DCR DGC EKV HAL JMY JBN JCN JDH JMH JNL JTM JRX KEV LSL MDC MEM RMJ RMT MSC NDM VRB VDB WHP WKE WLB WSD $4846.15 WSD 09/10/70 1655:17 COLLECTOR/SORTER NOW AVAILABLE IN EXPERIMENTAL SYSTEM. SEE WSD OR JCN FOR DETAILS$ 15

WSD $4846.16 RMJ 09/10/70 1721:08 Your two printouts, :CCOLSRT and :COLSRT, took a beating in the three computer crashes we had during the print run. Suggest you output again.$ 16

DCE $4846.17 RMJ 09/10/70 1740:54 Re: Literature Request fromDr. Robert C. Noel. On 9/3/70 while you were out of the office, Dr. Robert C. Noel, Polis Laboratory, Dept. of Political Science, University of Califonia at Santa Barbara, Santa Barbara, Calif. 93106, phoned to talk to you about the systems. He knows David Harris and has heard about our program. He had to give a seminar in the Dept. of Political Science this week (about 9/11 or 9/14) and wanted to discuss the use of computers in some phase of sociology.

At his request I sent him OSR-1, FJCC paper, "Augmenting Your Intellect", and the biblio.

Dr. Noel will be teaching at Stanford this Fall -- is moving up here very shortly. He is intending to call you again after he gets settled and ask for a visit. He will be teaching Political Science.$ 17

WLB JBN $4846.18 DCE 09/10/70 1750:41 I just entered :4938 and 4939 into XDOC -- both mostly for future reference. JBN: I'd like to get some future entry (Journal, XDOC) in AFIPS Public

Information Program, cf. 4936; and the categorization in 4939 seems of possible future value.$ 18

DCE $4846.19 MSG 09/11/70 0902:22 (ENGELBART):JRNLA IS NOW (JOURNAL):4851$ 19

DCE $4846.20 MSG 09/11/70 0939:06 (ENGELBART):JRNLC IS NOW (JOURNAL):4852$ 20

CHI $4846.21 MSG 09/11/70 1517:12 THE FOLLOWING THING HAPPENS IN TODAS WHEN I INSERT A STATEMENT WITHA CONAN PATTERN, EXECUTE THE CONAN, CHANGE VIEWSPEC TO I, PRINT BRANCH O, AND THEN TRY TO CHANGE VIEWSPEC TO J. WHEN CA IS GIVEN TO THE COMMAND VIEWSPECS: J, I EITHER GET I>> AND BOMB OUT TO EXEC OR IT JUST HANGS UP$ 21

JCN $4846.22 MSG 09/11/70 1803:49 (NORTON):JRNL1 THROUGH (NORTON):JRNL11 ARE NOW ABSPECTIVELY (JOURNAL):4853 THROUGH (JOURNAL):4863 -- (NORTON):JRNL12 CAUSES ERROR IN PROCESS$ 22

MSC $4846.23 MSG 09/12/70 1546:44 TEST$ 23

MSC $4846.24 MSG 09/12/70 1705:23 TEST AGAIN$ 24

ARG BER BLP CLI DOC DIA DCS DGC EKV HAL JMY JBN JCN JDH JMH JNL JTM JRX KEV LSL NGC MEN MEJ MET MSC NDM VRB VDB WHP WKE WLB WSD
$4846.25 KEV 09/12/70 1622:46 THERE NOW EXISTS IN THE MACHINE ROOM ON THE WALL, A SET OF PROCEDURES TO BE FOLLOWED TO RECOVER A FILE FROM KDF DUMPS. IF YOU CAN'T GET SOMEONE FAMILIAR WITH THE PROCESS TO GET YOUR FILE, THEN FOLLOW THESE DIRECTIONS CAREFULLY$ 25

ARG BER BLP CHI DOC DIA DCS DGC EKV HAL JMY JBN JCN JDH JMH JNL JTM JRX KEV LSL NGC MEN MEJ MET MSC NDM VRB VDB WHP WKE WLB WSD
$4846.26 MSC 09/12/70 1653:43 YOU CAN GET RID OF THIS (AND ALL OTHER MESSAGES) BY SAYING DA. (FOR DELETE ALL). YOU COULD HAVE PRINTED ALL MESSAGES FOR YOU AND HAD THEM THEN GO AWAY BY SAYING XA. (FOR WRITE AND DELETE ALL). $ 26

CHI MSC WHP $4846.27 WSD 09/14/70 1935:37 SDBMNP BAD FILE, BUT USABLE$ 27

WSD $4846.28 BLP 09/15/70 1040:59 IT IS VILE SLANDER AND CALUMNY THAT PASSE LOOPS IF THERE ARE BAD CHARACTERS IN A FILE. I TRIED ONE OF NORTON'S FILES CONTAINING BAD CHARACTERS AND EVERYTHING CAME OUT FINE $ 28

BLP $4846.29 WSD 09/15/70 1111:13 MMMMMMMM$ 29

BLP $4846.30 WSD 09/15/70 1112:33 OUR CORRESPONDENT REPORTS

THAT PRICES ARE ZOOMING ALONG WITH THE INCREASED DEMAND FOR OLD CHESTERFIELD LIGHTERS, WHILE REQUESTS FOR WORLD WAR II FLYING HELMETS HAVE DROPPED OFF SHARPLY$

30

MSC $4846.31 DGC 09/15/70 1323:49 HOW DOES WRITE ALL WORK? I TRIED IT BUT JUST GET A QUESTION MARK. $

31

DCE $4846.32 WSD 09/15/70 1437:56 I CALLED TED STROLLO ABOUT FILES. A BRIEF DESC IS UNDER MY NAME (DOV):FILENOTE, AND IT WILL BE AVAILABLE IN THE JOURNAL. SORRY IT IS SO MESSY, BUT TIME IS SHORT RIGHT NOW, AND I THOUGHT IT EXPEDIENT TO SUBMIT IT AS IS. WE NEED TO TALK ABOUT IT...MAYBE NEXT WEEK??$

32

JDH WKE ABV WSD DHI WHP JTM BLP EKV MEH $4846.33 JDH 09/15/70 1723:45 I PLAN TO CHANGE SYSDEBUG TO USE DDT INSTEAD OF ODDT. IF THIS INCONVENIENCES ANYONE, LET ME KNOW. THE ONLY DIFFERENCE TO MOST USERS WILL BE THAT EXECUTIVITY IS NEEDED TO LOOK AT THE MONITOR WITH SYSDEBUG 13. $

33

VDB ARG $4846.34 JDH 09/15/70 1741:59 I PLAN TO CHANGE SYSDEBUG TO USE DDT INSTEAD OF ODDT. IF THIS INCONVENIENCES ANYONE, LET ME KNOW. THE ONLY DIFFERENCE TO MOST USERS WILL BE THAT EXECUTIVITY IS NEEDED TO LOOK AT THE MONITOR WITH SYSDEBUG 13. $

34

DIA $4846.35 JDH 09/15/70 1746:00 I PLAN TO CHANGE SYSDEBUG TO USE DDT INSTEAD OF ODDT. IF THIS INCONVENIENCES ANYONE, LET ME KNOW. THE ONLY DIFFERENCE TO MOST USERS WILL BE THAT EXECUTIVITY IS NEEDED TO LOOK AT THE MONITOR WITH SYSDEBUG 13. $

35

WSD $4846.36 MSC 09/15/70 1750:32 I'M IN THE PROCESS OF CHANGING SDBMNP AND IT WON'T BE DONE THILL TOMORROW MORN; SO IF YOU COMPLIE NOW, IT MAY SHIT ALL OBER YOU...SORRY$

36

':4846', 09/17/70 1305:45 MGC ; ':MAIL', 09/15/70 1857:27 WSD ;
.HED="4846 WSD 17SEP70
Mail File"; .SNF=72;.MGN=65;.PGN=0;.DSN=1;.DPR=0;

4847 MGC 17SEP70
Procedure to enter text into NLS via Punched Paper Tape

Before starting |

Get wooden spool from BLR |a

Make sure no one is using mag tapes (trying to read/write paper tape and mag tape at the same time is self-defeating) |b

Make sure 33 TTY next to paper tape reader in computer room turned on.: |c

If no one is visibly using it and if the last character printed at the TTY is a @, assume TTY is available. |c|

Note: Username SYSTEM is usually logged in on terminal #| and #| is usually the TTY by the tape reader. If another username is logged in, instead, follow the same procedure, substituting the appropriate username where the instructions say "SYSTEM" |c2

Do one rubout |c3

If the TTY does not return an @, or @ENTER, it is unavailable. Come back later. |c3a

If the TTY has no user logged in, it will respond with @ENTER. Proceed to set up tape on reader. |c3b

If the response is @ but not @ENTER, type the characters lo -- DO NOT ENTER A PERIOD. |c3c

You are not ready to log out -- this is only to determine what username is logged in at the TTY |c3c|

After the system has responded you will see |c3c2

@LOGOUT SYSTEM |c3c2a

Note: It is best to use the username to whom the file on the tape belongs when reading the tape, BUT LOGGING OUT SYSTEM when SYSTEM IS NOT LOGGED IN ELSEWHERE WILL CRASH THE SYSTEM. |c4

So now determine whether SYSTEM is logged in elsewhere by doing |c5

@WHERE IS SYSTEM . |c5a

The number(s) of the terminal(s) where SYSTEM is logged in will be typed in response. |c5b

If SYSTEM is logged in on more than one terminal, log SYSTEM out on the TTY next to the tape reader and proceed to set up your tape on the reader. |c6

If SYSTEM is logged in on only one terminal, find a terminal where no one is logged in and log SYSTEM in there before logging SYSTEM out on the TTY next to the tape reader. |c7

1d

Set up paper tape on reader: 2

Make sure that the reader is turned off, by pressing down on the run/load lever so that the word "load" is visible (see Figure 1). 2a

Remove system recovery tape from read head, being careful to note how it is set up. Move it up out of the way far enough that it will not get broken or mangled. 2b

Feed beginning of tape to be read under read head so that first punched holes on tape are right before head and so that the narrow side of perforation is inward (see Figure 1). 2c

Turn tape reader on, by pressing up on the run/load lever so that the word "run" is visible (see Figure 1). 2d

Place rest of tape on wooden spool and place spool on floor. Unwind about 2 feet of tape so there is some slack to prevent the jerk when reading begins from breaking the tape. (see Figure 2). 2e

FIG 1

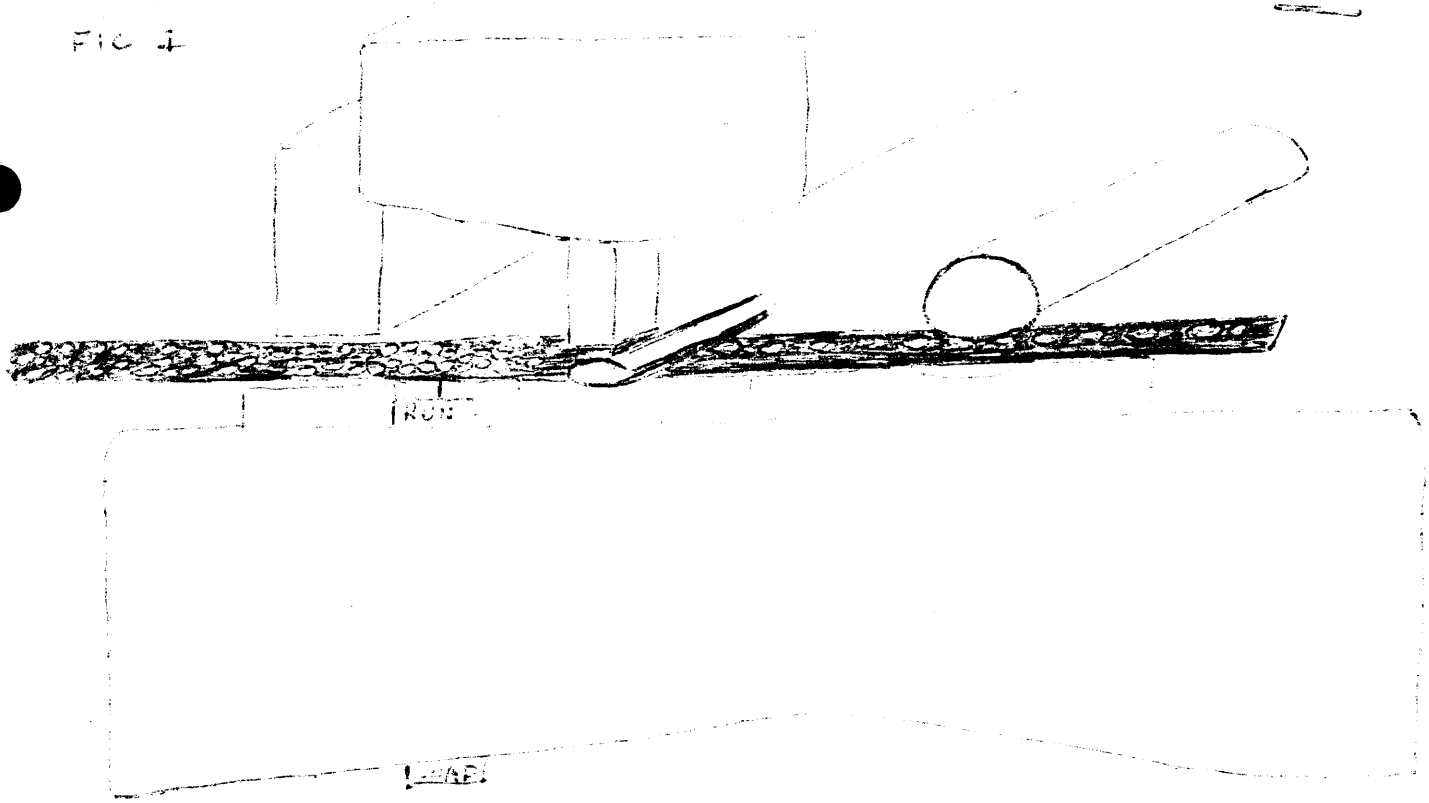
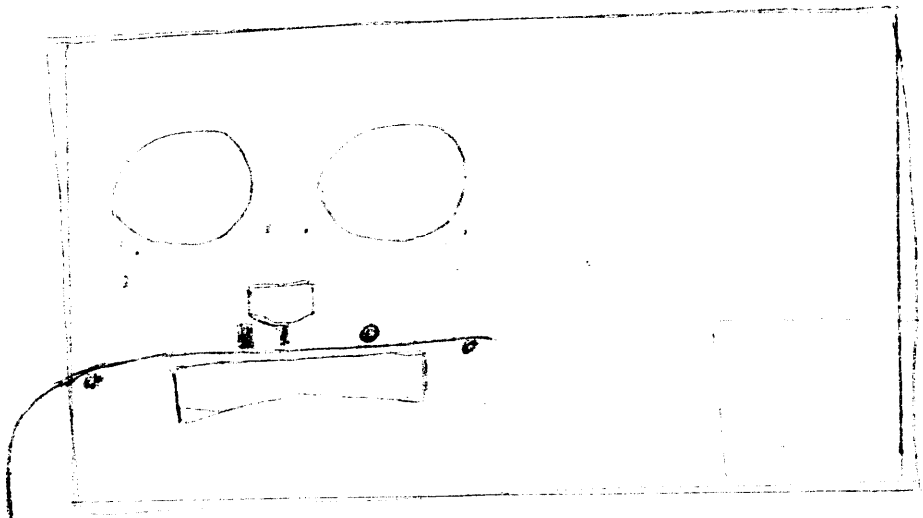
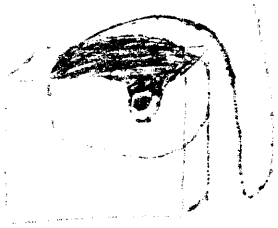


FIG 2.





3

(read) Log in as the user to whom the file on the paper tape will belong and change drum assignment to 600. Proceed as follows: 4

@EXecutivity = -1. 4a

@KDF. 4b

&Read (CALDWELL)G-TOD. 4c

&TO '/G-TOD' (NEW FILE). 4d

@GO TO FILE: /G-TOD. S. A. = 240. 4e

INPUT: 6-LEVEL. 4f

OUTPUT: ':NEWFILENAME' (NEW FILE). 4g

BEGIN TRANSLATION 4h

END TRANSLATION 4i

@SET MODES FOR FILE: :NEWFILENAME 4j

-DURABILITY: F (control D) 4k

@LOGOUT USERNAME. 4l

DELETE SCRATCH FILES. 4m

Now log SYSTEM back in on the TTY and log SYSTEM out on the TTY where you logged SYSTEM in for the interim. 5

Turn paper tape reader off by pressing down on the run/load lever until "load" is visible (see figure 1). 5a

Rewind paper tape 5b

Replace system recovery tape on read head 5c

Return spool to NSW 5d

6

At a Display Console, insert the QED file :NEWFILENAME into an NLS file:

7

Log in as user to whom file belongs, change drum assignment to 300; go into NLS

7a

If paper tape contained a branch to be inserted into an existing file, load that file -- otherwise, insert after NLS Dummy --

7b

INSERT QED BRANCH (address) (CA) (CA) FILE :NEWFILENAME (CA)

7b1

Note: An extra command accept after giving file name will bomb you out of NLS. You must then enter @RESET. from EXEC, before re-entering NLS to begin again.

7b2

When NLS returns control to you, output file and take appropriate measures to back it up. The file :NEWFILENAME can now be deleted.

7c

At this writing, the final step (inserting QED file as a QED branch into an NLS file) can only be done at the console. Presumeable you can eventually use the Insert QED Branch command from TODAS to do it at a TTY.

8

':4847', 09/17/70 1445:22 MGC ; :PATAE, 09/17/70 1418:25 MGC ;
.HED="4847 MGC 17SEP70
Procedure to enter text into NLS via Punched Paper Tape"; Hard Copy
attachment: Figure 1 and Figure 2 (one page)
.SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPN=0;

4849 BLP 09SEP70

The following is a fairly complete outline of what I intend to do to PASS4 before the coming of the 10. There are several stages:

0) This is the current running PASS4. There are some changes that don't appear in the current PASS4 Users' Guide.

1) The addition of several new directives, a couple of bugs removed, a few directives working a bit differently, and a radical reorganization of PASS4.

This stage should be the running version of PASS4 by around the first of September.

2) The addition of several more directives and the rewriting of the Directive Recognizer/Executor with an expanded syntax for directives (probably written in a more or less modified version of Tree-Meta). This last will be attended by some further reorganization of PASS4, but perhaps not very much will need to be done.

This stage should be debugged before the 10 was ready for it.

3) Make necessary changes to PASS4 code for SLAP?-10 (and probably 10-Tree-Meta)

This stage should be debugged before the 10 was ready for it.

Stage 0 2

Recent Directives 2a

DPN: Don't Print statement Names 2a|

SNF: Statement Number Format 2a2

see (Tomlin, SNFDL,) for a detailed description of how to use the current form of SNF 2a2a

GRB: GRaB 2a3

paginate if first line of next statement is within n+| lines of the bottom 2a3a

Other Recent Changes 2b

there is the Output Device Teletype command available in TODAS 2b|

Bugs That Have Been Removed 2c

when two conditions, e.g., page full and a RES, that would each cause a page break occur too close together, two new pages were produced with the first having only one line on it 2c|

this bug has been corrected by a patch in the current running version 2c|a

subscripted directives didn't work 2c2

this bug has been corrected by a patch in the current running version 2c2a

Stage I 3

Reorganization 3a

PASS4 will be radically reorganized. To a degree it will be subroutinized -- mainly with a view to the purposes of the later Output Processor when it works with something like "areas" and it will do something like page formatting rather than the current line or statement formatting. 3a|

there are mainly two subroutines that were not there before: 3a|a

a line formatter that is used independently by the parts of PASS4 that output the "areas" of the body, header, and page number 3a|a|

there is the routine that outputs the results left by the line formatter and takes care of all the device dependence things involved in outputting characters to the device/file 3a|a2

(this means that almost all device dependence is now localized in one routine -- which was not true before) 3a|a2a

This is just an interim reorganization. 3a2

Because the Directive Recognizer/Executor won't be rewritten for this stage, the control mechanism is still badly screwed up, but most of PASS4 won't know it, so the Stage II reorganization should be relatively easy. 3a2a

PASS4 will look a lot more like a page formatter (at least there is a controlling routine that acts sort of like one), but it isn't really because there is no backup beyond one line. 3a2b

This all means that PASS4 will be a lot closer to a "page/area" formatter where new "areas" can be added easily and each "area" can have an independent set of directives that govern its formatting within the area and its placement on the page. 3a3

New Directives 3b

HLT: HalT 3b|

(existed previously, but now it'll do it) 3b|a

IST: Ignore this Statement 3b2

IRS: Ignore Rest of Statement 3b3

PES: Paginate at End of Statement 3b4

LMS: Left Margin Setting 3b5

IBR: Ignore BRanch 3b6

PNO: Page Numbering Option 3b7

IPN: Increment Page Number 3b8

a slightly nicer way to increment the page number than the present method using an expression in the directive PGN 3b8a

LCP: Level Clipping 3b9

will work similiar to NLS except that it will be ineffective if the current L Viewspec in NLS is lower than the setting of this directive 3b9a

PSH: Page Show 3b|0

this would be nearly equivalent to beginning the file with a TYP=0 and having a TYP=| immediately before the specified page and a TYP=0 immediately after 3b|0a

note that there could be several PSH's in a file and if put in the right places, one could get any number of single pages as output 3b|0b

TLN: Truncate to n LiNes 3b||

will work same as in NLS 3b||a

SGF: SiGnature Format 3b|2

its setting will have a similiar meaning to that of SNF 3b|2a

HJB: Horizontal Justification of the Body lines 3b|3

don't format the lines 3b|3a

i.e., maybe make a line break in the middle of a word 3b|3a|

set lines flush left 3b|3b

set lines flush right 3b|3c

set lines centered 3b|3d

set odd/even numbered pages lines flush right/left 3b|3e

set odd/even numbered pages lines flush left/right 3b|3f

set lines "right justified 3b|3g

if can't: set lines flush left 3b|3g|

set lines "right justified 3b|3h

if can't: set lines flush right 3b|3h|

set lines "right justified 3b|3i

if can't: set odd/even pages lines flush right/left 3b|3i|

set lines "right justified 3b|3j

if can't: set odd/even pages lines flush left/right 3b|3j|

HJH: Horizontal Positioning of the Header lines 3b|4

(same options as with HPB) 3b|4a

HJP: Horizontal Positioning of the Page number lines 3b|5

(same options as with HPB except no right justification) 3b|5a

Modifications of current directives or what they do 3c

on the following items, make the initial settings of the corresponding directives be the viewspecs or viewchange parameters in force at the time the file is output to PASS4 3c|

L setting 3c|a

LCP (Level ClipPing) 3c|a|

T setting 3c|b

TLN (Truncation to n LiNes) 3c|b|

statement numbers on/off 3c|c

DSN (Delete Statement Numbers) 3c|c|

statement names on/off 3c|d

DPN (Don't Print statement Names) 3c|d|

blank lines on/off 3c|e

means SCR (Carriage Returns between Statements) = |/2 3c|e|

indenting on/off 3c|f

IND (INDentation on/off) 3c|f|

signatures on/off 3c|g

SGF (SiGnature Format) 3c|g|

tab stops 3c|h

TST (Tab SeTtings) 3c|h|

number of columns 3c|i

MCH (Maximum number of printing CHaracters to a line) 3c|i|

indentation amount 3c|j

INS (Indent N spaces per Statement Level) 3c|j|

There may be other changes is default values 3c|k

DTS = | 3c|k|

for TTY (connm) 3c|k2

SNF = 72 3c|k2a

NCH = 64 3c|k2b

PEL: Paginate at End of Line 3c2

a directive name change from the current REL which was never used. The old form was .REL=| -- the new form is .PEL; 3c2a

SNF: Statement Number Format 3c3

This will be straightened out so that the statement number will always go on the same page as its statement. Also a blank line will be forced, if necessary, to accomodate the statement number (before the statement number was not printed if SCR=| and the statement number overlapped the last line of text). 3c3a

If the statement number is printed on the line following the statement, the directive LMS (Left Margin Set) will not be effective for that line so that it will be possible to get the statement number printed in the left margin. 3c3b

SGF: Signature Format 3c4

a convention will be followed that if SCR > |, then the signature will be forced onto a blank line following the last line of its statement -- it will not go on the same line as the last line of its statement 3c4a

(see note under SNF for other aspects of the algorithm that outputs the signature) 3c4b

PGP: verticle Position of the PaGe number 3c5

will be lines down from bottom of text body area rather than lines up from the page bottom -- this will allow the changing of the text body size without having to also change PGP 3c5a

PLO: Paginate for each Level One statement 3c6

PLO can be set to any number -- which means that all statements of that level or higher will cause a page break to occur if the statement is not the head of a plex (which I think means that the right thing happens if you think about it a bit) 3c6a

TAL: Tab ALgorithm 3c7

this will combine the old directives TAL and TSP (SPace fill Tabs) and straighten it out 3c7a

the four possible settings will be: 3c7b

space fill tabs 3c7b1

device acts like a tty or Dura 3c7b2

device acts like NLS 3c7b3

replace tabs by a single space 3c7b4

several directives will take effect at different times than before (??? these should be listed and included in the new Users' Guide) 3c8

Other Changes 3d

the widow line algorithm will be changed and hopefully improved 3d1

it may be noted that some of the new directives could replace one or more of the currently existing directives (see Stage III for which ones) 3d2

the plan is to have only one internal variable that is used by the formatting algorithms and have the directive recognizer set the appropriate variable whenever it sees any of the applicable directives 3d2a

after the change to the IO, the superseded directives would be dropped. this should be about the right time to change any mention of the old directives in NLS files 3d2b

whenever a non-explicit pagination, i.e., because the text area is full or because of the Widow Line algorithm, occurs, PASS4 will make sure that the first thing it does on the next page is not another page restore 3d3

Bugs that will be removed 3e

SCR=0 3e1

centering doesn't always work correctly 3e2

page numbers aren't centered correctly 3e3

tabs on the Dura don't work correctly 3e4

Deleted Directives 3f

VALUE 3f1

FIG 3f2

NIN 3f3

USP 3f4

CSW 3f5

IGS 3f6

DTY 3f7

DVL 3f8

DMX 3f9

DEV 3f10

SOV 3f11

ICR 3f12

TCR 3f13

QBS 3f14

New Names 3g

ICR 3g1

ISP 3g2

ITB 3g3

IUB 3g4

OBS 3g5

OSU 3g6

OSD 3g7

OSC 3g8

ODS 3g9

TAB 3g10

TBD 3g11

UBP 3g12

UBD 3g13

DIR 3g14

GTB 3g15

GCP 3g16

SNB 3g17

PEL 3g18

IOV 3g19

OVB 3g20

OVD 3g21

PIC 3g22

SNA 3g23

SGF 3g24

Superseded Directives 3h

FNC 3h1

NCH 3h1a

NLN 3h1b

TSP 3h2

DUB 3h3

FLN 3h4

RTJ 3h5

RSW 3h6

NSW 3h7

ROM 3h8

CEN 3h9

DOV 3h|0

New Type (7) 3i

NCH 3i|

NLN 3i2

New Default Values 3j

DIR NAME	VARI NAME	TYPE	VAL	MAX PRINT	DURA	CON	TTY FILM	FLEX	
									3j2
==========	==========	==========	==========	==========	==========	==========	==========	==========	3j3
*	dvalue	6	0	|50<	|50<	|50<	|50<	|50<	3j4
DTS	dtspsw	2	|	|<	|<	|<	|	|<	3j5
MIN	mino	2	|3|<	48	48	48	48	48	3j6
TAB<	tabsw	2	2<	|	|	|	|	|	3j7
NCH	nch	7<	*	0<	0<	0<	0<	0<	3j8
MCH	mschar	2	|32<	72	72	64	72	72	3j9

INS	insteg	2	131<	3	3	3	3	3j10
MSP	mspid	2	131<	15	15	15	15	3j11
NLN	nline	7<	*	0<	0<	0<	0<	3j12
PGP	pgp<	2	140<	5	5	5	5	3j13
HLN	nln<	2	148<	3	3	3	3	3j14
DIR<	dprin	2	1	0<	0<	0<	0<	3j15
NDH	ndasn	2	132	0	0	9<	0	3j16
DNM	* 1	150<	dname	dname	dname	dname	dname	3j17
SNB<	snb<	2	1	0<	0<	0<	0<	3j18
SCR	scr	2	146<	2	2	2	2	3j19
LSP	lsp	2	131<	0	0	0	0	3j20
WLN	wln	2	148<	2	2	2	2	3j21
PEL<	pel<	2	1	0<	0<	0<	0<	3j22
PLO	plosw	2	37-7b<	0	0	0	0	3j23
PIC<	pic<	2	1	1<	0<	0<	0<	3j24
IGD	igosw	2	1	0	0	0	0	3j25

SNA<	sna<	2	1	1<	1<	1<	1<	1< 1< 3J26
SGF<	sgf<	2	132<	0<	0<	0<	0<	0< 0< 3J27
SNF	snf	2	132	0	0	72<	0	0 0 3J28

Stage II 4

Reorganization 4a

This will be effected by the Directive Recognizer/Executor being put in an entirely new place in the control scheme. 4a|

The control scheme will look like (highest control level first): 4a2

1) a routine that interfaces with NLS for initialization and stopping 4a2a

2) a routine that initializes the output file (device dependence here), has a 4 statement loop that gets the next statement from NLS and invokes the 3) level routine, and finally puts the end on the output file (again some device dependence) 4a2b

3) a routine that is (unfortunately) both the thing that looks a bit like a page formatter and is the statement formatter 4a2c

at a nearly parallel level is a routine that handles page breaks -- including page numbers and running heads. 4a2c|

at a nearly parallel level is a routine that outputs pictures. 4a2c2

both routines use the level 4) routine as a line input routine -- it is invoked only once to get an entire line. Both routines set up a separate environment (including the ultimate (Level 7) input character routine) for the the line input routine. 4a2d

this level will eventually be replaced by two levels: 4a2e

a higher level that is a page formatter, and 4a2e|

a level that contains one routine for each of the "areas" 4a2e2

4) the line input routine. It uses the Directive Recognizer/Executor (Level 5) as its input character routine. 4a2f

Also sort of on this level is a routine that

actually formats a line (centered, "right justified", etc.) and outputs the formatted line thru the output character routine (which handles almost all device dependence in PASS4). 4a2f|

5) the Directive Recognizer/Executor. This will probably be a "compiler" generated by Tree-Meta. It always uses the same routine (Level 6) as its input character routine. 4a2g

The Directive Recognizer/Executor will think it is a controlling routine. Its output character routine will probably have to be a coroutine or a hoked up thing to make the Directive Recognizer/Executor look like a coroutine to the levels above. 4a2g|

6) a routine which knows about which level 7 routine to invoke to get the next character. This routine is actually in the library of the Directive Recognizer/Executor compiler. 4a2h

7) there are at least the following routines on this level 4a2i

i) read a character from a file (used to initialize the compiler at PASS4 load time) 4a2i|

ii) get next character from the current SDB 4a2i2

iii) get next character from the buffer that holds the string from the last NED directive 4a2i3

iv) get the next character of the page number 4a2i4

v) get the next character of the statement number 4a2i5

vi) get the next blank for the LSP (Leading SPaces) directive 4a2i6

Alterred Directives 4b

TST: Tab SeT 4b|

parameters are a list of numbers which will be the columns in which tab stops occur -- any previous tab settings will disappear 4b|a

this will be a new syntax for this directive 4b|b

the directive names "upr", "usp" and "pov", "sov" are not consistant with respect to each other. This may be changed. 4b2

change all the directive mnemonics (and their meanings) that are of the "don't print" variety to a positive sense (see below) 4b3

New Directives 4c

some set of directives that would ennable the verticle positioning of the body, page number, and header any place on the page and independently of each other; also included would be the minimum spacing that would be allowed between the specified "area" and any other "area" 4c1

I don't know what is a nice way to specify this, but the coding shouldn't be too hard 4c1a

some set of directives that would specify the width of the areas of the body, page number, and header independently of each other 4c2

one directive having to do with pictures 4c3

see a thing written by Chuck for a full specification -- it does most everything 4c3a

TBA: Tab stops Add 4c4

parameters are a list of numbers which will be the columns in which tab stops are to be added -- any previous tab settings will remain 4c4a

TBD: Tab stops Delete 4c5

parameters are a list of numbers which will be the columns in which tab stops are to be deleted 4c5a

GPN: Generate current Page Number 4c6

GCD: Generate current Date and time 4c7

(followed by a 't to distinguish it from the File Change Date) 4c7a

GFN: Generate File Name 4c8

(name of the input NLS file) 4c8a

GCI: Generate file Changers Initials 4c9

(initials occuring in the origin statement) 4c9a

GOI: Generate Operators Initials 4c|0

(initials of the person currently logged into NLS (followed by a '↑ to distinguish it from the File Changer's Initials)) 4c|0a

GFD: Generate File Date 4c||

(date the input NLS File was last changed) 4c||a

PBL: Paginate Before Line in which directive occurs 4c|2

LSH: Level SHow 4c|3

parameters for the directive could be a list of entities such as 5, < 9, > 2, 3-6, NOT 6 4c|3a

PSH: Pages SHow 4c|4

parameters for the directive could be a list of entities such as 5, < 9, > 2, 3-6, NOT 6 4c|4a

this is a syntax change and a generalization of the new directive implemented in Stage I 4c|4b

Other Changes 4d

fix so header buffer never runs out of space as it does now 4d|

(this can be rather easily changed when the directive recognition is changed) 4d|a

the directive recognizer/executor will make sure each time it sees a new directive that its setting to be is consistent with other current settings, e.g., the left margin could not be set beyond the right margin 4d2

also, some directive settings may become dependent on other settings, e.g., (I can't think of any right now) 4d2a

maybe print under- and overbars on the printer 4d3

this requires some modification to Dave Hopper's :PREX 4d3a

it will probably be possible to define a new directive as a text string which includes other directives 4d4

after the definition, the occurance of that directive will cause the text string to be scanned and input 4d4a

directives will be able to appear in the string given in the HED directive 4d5

several directives will take effect at different times than before (??? these should be listed and included in the new Users' Guide) 4d6

Other "device types", e.g. Journal, Network memos, Plans 4d7

Stage III 5

This stage is merely the rewriting of PASS4 for the |O language. The only changes envisioned are the deletion of superseeded directive names, some name changes, and a few directives dissappear entirely. 5a

Superseded by new ones 5b

FLN: Format LiNes, 5b|

CEN: CENter, 5b2

RTJ: RighT Justification, and 5b3

RJS: Right Justification Switch 5b4

will be superseded by RJB during Stage I, but will not be deleted til Stage III 5b4a

PLN: number of LiNes to a Page, 5b5

MLN: number of LiNes to the bottom of the text area, 5b6

HLN: number of blank LiNes to follow the Header, 5b7

HSW: Header Switch, 5b8

NTP: Number of lines to space down from the ToP, and 5b9

PGP: number of lines up from the bottom of the page to put the PaGe number) (see above in Stage I for an earlier change), 5b|O

may all be superseded by a new set that allow positioning and size setting of the areas of the page, body, header, and page number independently of each other during Stage II, III, or IV. 5b|Oa

hopefully the above directives will not disappear until Stage III or IV 5b|Ob

NSW: page NumberinG Switch, 5b||

ROM: ROMan page numbering, and 5b|2

FNC: case of the Roman page numbers 5b|3

will all be combined into options of the new directive PNO and HJP (Page Numbering Option) during Stage I -- directives will not disappear until Stage III 5b|3a

DPV: Dont' Produce Vector output 5b|4

will all be superceded by the new directive FIG (FIGure) during Stage II -- directive will not disappear until Stage III 5b|4a

TAL: Tab ALgorithm and 5b|5

TSP: SPace file Tab 5b|6

get combined into TAL 5b|6a

Meaning expanded or alterred or syntax changed or name changed 5c

REL: page Restore at End of Line 5c|

name changed to PEL (Paginate at End of Line) -- Stage I 5c|a

RES: page Restore 5c2

name changed to PgR (Paginate HeRe) -- Stage III 5c2a

DPR: Directive PRint 5c3

name will be changed to DIR -- Stage III 5c3a

DSN: indication that Statement Numbers are to be Deleted if set on 5c4

name will be changed to SNB (Statement NumBers) and the meanings of its settings will be reversed -- Stage III 5c4a

DPN: Don't Print statement Names 5c5

name will be changed to SNA (Statement NAmes) and the meanings of its settings will be reversed -- Stage III 5c5a

PLO: Paginate for all Level One statements 5c6

will have an expanded meaning -- Stage I 5c6a

will have a new name: PLN (Paginate for all Level N

statements) -- Stage III 5c6b

TST: Tao SeTtings 5c7

will have a new syntax -- Stage II 5c7a

DNM: Directive Names 5c8

at least the syntax will change (perhaps like .DNM "DNM" ← "SUL";), but eventually the directive will disappear (not til Stage IV) because its function could be mostly accomplished by the new directive SUB 5c8a

NCH: current Number of CHaracters in the current line and 5c9

NLN: current Number of LiNes on the current page 5c10

will become a new type of directive that can be tested in conditional expressions of directives, but cannot be set 5c10a

COD: CODe conversion array 5c11

By means of this directive and the directive affecting the character case, it is possible to change the output code for any character in the input. 5c11a

At least the syntax of this directive will be changed (perhaps like .COD 'a ← 'B;). Also the changing of the case will probably be done automatically (so the user doesn't have to worry about it). Eventually the directive may be deleted because its function can be performed by the new directive SUB. 5c11b

Made obscure (don't appear in the normal Users' guide) 5d

(cas) cas : all "KASh" -- directive which gives the case for each character (an array, i.e. type |, directive). If a code is changed for a character (via "cod" directive), its case should also be set to the proper case in an analogous manner 5d1

most of this could be done automatically by the Directive Recognizer/Executor when it sees the directive COD 5d1a

(ssw) ssw : all zero -- indicates a stop code is to be

inserted at the end of each page (for mats - normally only for flex) 5d2

(tsw) tsw : all 1 -- indication that tabs are to be searched for in order to execute appropriate directives 5d3

(csw) csw : 1,0,0,1,1,1 -- indication that case shift analysis is to be performed for output 5d4

(tma) tma : all zero -- temporary a (not used by program - for use by user) 5d5

(tmb) tmb : all zero -- temporary b (same as for "TMA" above) 5d6

(tmc) tmc : all zero -- temporary c (same as for "TMA" above) 5d7

(tmd) tmd : all zero -- temporary d (same as for "TMA" above) 5d8

(dmx) dmx : all "DMAX" -- array directive (type 1) that gives the name of the array in the PASS2 program which contains the directive maximum values 5d9

(pov) pov : all zero -- treat overbar as printing and spacing character 5d10

(sov) sov : all zero -- indication that overbar causes output device to space 5d11

(upr) upr : 1,0,1,1,0,0 -- treat underbar as printing and spacing character 5d12

(usp) usp : 1,0,0,1,0,0 -- indication that underbar causes output device to space 5d13

(tal) tal : 2,1,1,1,1,1 -- tab algorithm to be used for the output of tabular information (1=flex type, 2=dura type, 3=one space) 5d14

(tsp) tsp : 1,1,0,0,1,1 -- space fill tab, i.e., insert necessary space characters in the output in order to produce proper tab spacing 5d15

(fsu) fsu : 10b,0b,0b,172b,377b,53b -- output code for shift to upper case 5d16

(fsd) fsd : 20b,0b,0b,174b,377b,54b -- output code for shift to lower case 5d17

(fsc) fsc : 0b,0b,0b,13b,0b,0b -- output code for stop code 5d18

(fcr) fcr : all 155b -- input code for a carriage return (i.e., the search code used by the statement input algorithm when looking for a carriage return) 5d19

(fsp) fsp : all 0b -- input code for a space (i.e., the search code used by the statement input algorithm when looking for a space) 5d20

(ftb) ftb : all 11b -- input code for a tab (i.e., the search code used by the statement input algorithm when looking for a tab) 5d21

(fub) fub : all 134b -- input code for an underbar (i.e., the search code used by the statement input algorithm when looking for an underbar) 5d22

(fov) fov : all 133b -- input code for an overbar (i.e., the search code used by the statement input algorithm when looking for an overbar) 5d23

(fds) fds : all 15b -- output code for a dash 5d24

(fbs) fbs : 141b,0b,0b,141b,0b,141b -- output code for a back space 5d25

Deleted 5e

NUL null directive, i.e., it does nothing 5e1

DTY array directive (type 1) that gives the name of the array in the PASS4 program which contains the directive types 5e2

DVL array directive (type 1) that gives the name of the array in the PASS4 program which contains the directive values 5e3

IGS insert ignore codes (see directive (fig:pwg)) in document before each character added to the output which was not in the input (page number, header, right justification, etc.) 5e4

ICR put ignore codes in front of generated carriage returns on output (meaningful only for dura and flex) 5e5

FIG output code for ignore (used to delete next character; see directive (ins:pwd); only has meaning for dura and flex) 5e6

DEV gives the device number for which the current document is being formatted. (dura=7, teletype=1, NLS-QED=3, flexowriter=2, printer=6, film=5, controlling teletype (QED format)=4) 5e7

TCR replace all carriage returns in the statement by spaces during output (normally for input from QED using the PASS4 Subsystem) 5e8

NIN number to indent for each statement level (set at the start of each statement to be output to: level-of-the-statement, minus one; times "ins")* 5e9

(this isn't needed because the amount of indentation will be calculated afresh for each line of the body) 5e9a

Stage IV 6

The following is a haphazard and very incomplete collection of various PASSL features that have been proposed and are unlikely to happen before the 10. 6a

Are only reasonable when PASSL is changed-to/replaced-by a real page formatting routine 6b

indirect references (via footnotes or end-of-section bibliography), the op-cit loc-cit problem, 6b1

footnotes, 6b2

Multi-columns, 6b3

marginal notes, 6b4

integrated graphics and tabular constructs, 6b5

special symbol definition (both the output sympol and the input string used to invoke the special symbol on output) 6c

header down a margin in a single column 6d

a means of specifying the verticle positioning of lines within the various areas -- comparable to the possible settings of the horizontal position directives 6e

(flush left compares with "flush top") 6e1

LNM: print Line Numbers 6f

(or every nth one) 6f1

BCH: Big Characters 6g

something like what PASSL currently does on the front end of paper tapes it outputs 6g1

GRB: GRaB 6h

this would say: don't make a page break between this statement and the following n statements 6h1

SUB: SUBstute one character string for another 6i

(comparable to NLS's Substitute Branch command) 6i1

put statement id /centered/ in the statement gap 6j

put line numbers, directives, when last changed, who last changed, and/or if changed since time T in the right hand margin (tear off part) of the printer output 6k

specially mark statements with a signature or date filling some criteria 6l

output as one document pieces from several NLS files 6m

invisible text on/off (this could be both a new NLS feature with an attendent viewspec and a new PASSH directive) 6n

characters can be conditionally (i.e., by directive) indicated by some special group of delimiters. 6o

For example " :F,I: John Jacob Jinkelheimer Smith, Jr.
:F,I: " would indicate that the text enclosed within the "
:F,I: " delimiters was set to flicker and italics. 6o|

fix page numbering so that one may specify a page number prefix to be printed along with the page number. 6p

consider possibility of options to supress printing of: vowels, consonants, articles, etc. 6q

right-justification is dumb for output to film. The capability exists to put in spacing characters between | and |4 raster units wide, so why not add an algorithm to insert more spacing characters, each of a smaller width. 6r

have independends « sets of directives apply to level n statements, header, etc. 6s

Other Parts of the Output Processor (maybe not part of PASS4) 7

Table of Contents Generator 7a

KWIC generator 7b

other index generators 7c

link conversion 7d

(this is mostly coded, out it looks like I may not have time to get it running before the IO) 7d|

```
':4849', 09/10/70 0707:54 JCN ;  :OPLAN, 08/08/70 16|2:05 NDM
;.HED="4849 BLP 09SEP70
"; .PLO=1; .SNF=72;.MCH=65;.PGN=0;.DSN=1;.DPR=0;
```

H850 WSD 09SEP70

4850 WSD 09SEP70
Loading instructions for Mail system

(1) Compile it 1

(2) load it in DDT with origin 0, and check for undefined symbols. 2

(3) If you are making a subsystem, then checka address of start, and save coree (0 to 177778) on /MAIL, after putting a BRU NLSTRT into location 240. Starting address is 200000B .V $start. 3

(4) If you are debugging, then change cell jcf+3 to "XCF", and cell mailfi+3 to "MAI". This makes you use the debuggiing file (DIALOGUE):XCF as the journal collection file, and (DIALOGUE):MAILFI as the mail file. 4

(5) Dump it to a suitably named test fille, and do a START;G to go. 5

':4850', 09/10/70 0755:25 JON ; ':MAILOAD', 08/08/70 16|9:15 WSD ; For MIMI (MSC) From ASD....MED="1850 WSD 09SEP70
Loading instructions for Mail system"; with---of course--Love.
.SNF=72;.MCH=65;.PGN=0;.DSM=|;.DPR=0;

4851 DCE 11Sep70

4851 DCE 11SEP70
xxxx DCE 10 SEP 70
Setup of a national Environmental Protection Ageency (EPA)

At a Group Managers' meeting today, Dave Brown told us of a report from John Golden, head of SRI's Washington Office. 1

It concerned the forthcoming establishment of a new government agency -- Miscellaneous details as follows. 1a

Name: Environmental Protectioon Agency (Initials "EPA") 2

Recommended to the President for immediate establishment -- the word is that it will be established as of September 15, 1970. 3

To be publicly announced within a few weeks by President Nixon 3a

As an indication of the standing of EPA in the pecking order of government agencies, its director will be a Level-2 (?) appointee (which is David Packard's level). 4

Its initial funding will be at a level of between $250 and $300 million/year. 5

Funds for this first year to be taken from the budgets of relevant parts of such other agencies as Department of Interior, Department of Health Education and Welfare, etc. -- subsequently I guess it will get its individual appropriations. 5a

Subsequent yearly budgets guessed to be larger than this first year's, and a guess is offered that it will level off at something less than a billion dollars per year. 5b

It is not designed so much to do the direct cure itself, against the evils of our environmental spoilage -- rather it is to learn what is wrong, how to measure things, gather and analyze data so it knows what's going on with our environmet, help formulate significant and effective legislation, and track down the violators, take them to court, haunt them, etc. 6

Here is an interesting conjecture -- resulting from the actions of the EP Agency, there there could well be like 100 billion dollars as the amouunt of "other people's" (industry, car owners, bottled-goods consumers, sewage-producing people, etc) money required to modify our way of living (pollution control, waste disposal, resource conservation, etc.) in order to establish a reasonable degree of "environmental protection." 6a

4851 DCE 11SEP70
xxxx DCE 10 SEP 70
Setup of a national Environmental Protection Ageency (EPA)

So I gather that the EPA is supposed to do its best to learn what these other people really ought to do, get laws passed that say they ought to do it, then watchdog and prosecute to get them to do it. 6b

A fairly hefty research budget is expected -- 7

Of this, a figure of o// proportion will be spent outside the Agency. 7a

In the first year, 70% of this outside money would be in the form of grants, 30% as contracts. 7a1

In succeeding years, it is apparently going to be 100% contracts. 7a2

Apparently it is going to take over and run some 35 existing laboratories presently under the control of other agencies. (Which, where, from whom??) 8

Some sort of "initial plan" is indicated, from which (from conjecture or secret peeks or I don't know what) the following terms trickled to me: 9

Ecological effects; diagnosis and measurement systems; control systems; planning: system integration. 9a

Apparently this latter term refers to coordinatioon among the different groups who might be involved with a given environmental issue -- e.g. keeping S.F. Bay clean, where the cities and counties around the Bay, the Southern Californians who want significant portions of the Sacramento River diverted, etc. are pushing and pulling about all of this. 9b

Note: Apparently there were the aspects of environment related to "noise and aesthetics" recently added to the scope of concern for EPA -- and as the noted quipper, Ralph Keirstead, immediately quipped, "What is one person's aesthetics may well be another's noise". 10

John Golden is supposed to coordinate the mad rush of SRI's promotion at (upon, for, to, ...) the EPA. 11

```
':485|', 09/11/70 0856:30 MGO ;  :JRNLA, 09/10/70 2236:25 DCE ; .DPR=|;
|   .   |   .   2   .   3   .   4   .   5   .   6   .   7
   .HED="485| DCE ||SEP70
xxxx  DCE |0 SEP 70
Setup of a national Environmental Protection Ageency (EPA)";
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To MIC Pusher and Staff: info from Larry Roberts

I talked with Larry Roberts (10 Sep) re. 4791 -- draft on Net Dialogue Sys. 1

His comments: 1) He approves its approach, style, etc., 2) He'd like to see one paragraph added to paint an attractive picture of some of the expected services -- to help sweeten the request. (Suggests like: automatic file retrieval by NIC of items stored at author's site; user-level protocol references for all sites; catalog of NET resources -- hardware, software, people.) 3) Mailing list o.k., but he suggests dropping Les Earnest and Tom O'Sullivan (sending blind copies if desired, making list represent actual site chiefs). 1a

I will install such a paragraph. Final version will be 4792. I'd like to mail it today (Fri 11 Sep). WLB, please see that mailing provisions are readied. Memo and final mailing list should be "ARC Journalized". 1b

Note regarding Network-participation plans. Larry said that beside the 14 sites we are initially corressponding with, he plans to add five more (apparently as soon asNetwork Technology settles out). He says for us not wo concern ourselves about these five for the time being. ** We should keep aware in making NIC plans that this list of participants might well continue to grow, past the inferred 19, when we estimate the various operational costs and quantities. 2

Incidentally, we should expect in the future to distribute various of our refernce materials to a considerably wider clientele than just the Network participants. To prepare for this, I'd like to have you plan on (say within a year) our doing necessary cost analys, setting up a cost center, and running a charge-for-service business to serve these customers. 3

Regarding NIC phone bills, special arrangements for, etc -- Larry Roberts says that DOD doesn't participate in the Federal Telephone System, as does for instance NIH -- so we can't automatially get the same good deal that Pat Rae had at the Parkinson's Informatioon Center, where a call anywhere in the U.S., of any length, would cost his project only a dime. Larry said there were several special-arrangement possibilities, but each would have its dollar cost. 4

He'll look into some DOD-available systems, but in the

meantime he suggests we look into the Wide Area Toll Service (commonly called WATS). 4a

Can negotiate for any of a range of areas. He thinks that a coast-to-coast "out" service would be like $2K/mo. Services for incoming wide-area calls negotiated separately from "outgoing", but he and I both felt that allowing anybody to call us for free would help with Agent rapport etc. 4a1

He would assume that SPI already buys WATS, an that perhaps we could "buy in" in some way. 4a2

WLB: please push on this 4a3

ARPA is currently negotiation with the phone companies about a voice network paralleling the digital network. This voice network, as currently proposed by the phone company, would support any combination of simultaneous two-way conversations among the sites. Somehow this doesn't seem to suit Larry; I gathered that he would like some richer sort of a voice-networking capability. 4b

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