CFD 12-APR-73 17:44 15955

Some more notes on Command Recognition

This is a sequel to (mjournal,15628,) which introduces the possibility of employing alternative command recognition algorithms.

Some more notes on Command Recognition

SOME MORE NOTES ON COMMAND RECOGNITION AND FEEDBACK 1

Making suggestions about changing the command language for NLS strikes a sensitive nerve so it seems as the number of constructive responses has been high. It is clear that no proposal can be judged right or wrong, and considering the diversity of responses to my proposal, I'm reasonably certain that none will find complete concurrence. I am, none the less, charged with energies of collaborative dialogue and would like to keep the fires and minds burning. 2

I conceive of the principles of command recognition and feedback as a first step in the establishment of a reference framework for all of NLS command language evolution. Other proposals are in draft stages for segregation of the command language into subsystems including the control problems associated with it, development of a consistent addressing scheme for NLS, and specific proposals for the redefinition of parts of the command language. The philosophy of command recognition and feedback is essential to all aspects of the command language, and I hope we all can enjoy some mutual enlightenment by pursuing the dialogue before more specific syntactic issues are proposed. 3

The command language interpretter has the function of transforming a sequence of input symbols into requests for NLS system actions. Fortunately, the operation is not as general as just described. There are some well developed and generally accepted notions implicit in the structure of the command language, and for subsequent reference and argument perhaps these should be listed. 4

1) Commands are given "names" which are ordered phrases of alphabetic characters, including blanks as word delimeters. Each phrase string corresponds to a comman "keyword phrase". 4a

2) The recognition of a "keyword phrase" is accompanied by "feedback" to the user. 4b

3) Each "keyword phrase" begins with an alphabetic character. 4c

Folklore and experience gained with many versions of NLS add another principle. 5

4) Command specification should require the minimum number of input for "frequently" used commands. 5a

Let's consider some algorithms for command keyword recognition. This recogniton process requires a list (possibly ordered) of

keyword phrase strings and the input text. The input text is compared against the keyword phrase strings by applying some recognition algorithm. The process terminates when either a particular phrase has been identified or it has determined that no phrase can be identified. Functionally this is represented as: 6

recognition value = f (input text, keyword phrase list) (1) 6a

Algorithm 1: Minimum unique substring using a right delimiter. 7

Consecutive input characters are collected until a delimiter is encountered. This string is then compared against the keyword list, and if the specified string is a leading substring of exactly one keyword, then recognitin has been accomplished. Tenex and a great number of command languages use variations of this algorithm. Note that any unique substring will cause command recognition. 7a

Algorithm 2: Minimum unique substring, undelimited. 8

This is a variation of Algorithm 1 and does not use a right delimiter. The first input character is read and compared with the initial characters of all of the keywords. This compare operation has 3 possible outcomes. 8a

1) no like compares - recognition fails - done
2) 1 like compare - recognition succeeds - done
3) >1 like compares - recognition proceeds 8a1

If the recognition proceeds, the keywords which matched in their initial character now constitute a new keyword list. The next input character is read and the compare and set reduction operations continue until recognition either succeeds or fails. Note that only one substring identifies the keyword phrase. This is the recognition algorithm that was proposed in (MJournal,15628,). 8b

Algorithm 3: Single character recognition with escape to handle conflicts. 9

A selected subset of the keyword phrases are predetermined to be "priority phrases". All of these selected phrases must have different intial characters and each of these phrases is recognized by the input of its initial character. The lower priority commands are recognized by the occurrence of an escape code or initial delimiter followed by some string of characters. This string may be delimited on the right or not,

depending whether algorithms 1 or 2 are chosen for the recognition of the second level commands. NLS presstly uses this method of command keyword identification, employing Algorithm 2 to resolve the second level commands. 9a

Other recognition algorithms could be discussed, but these seem adequate for our purposes in NLS. Let's try to consider some of the advantages and disadvantages of each of these rcognition algorithms. 10

Algorithm 1: 11

Advantages: 11a

a) Easily extensible 11a1

b) Simple to learn and use, consistent recognition rule 11a2

c) Allows command expression which can not be obsoleted by the addition of another command (i.e. full specification of the command keyword is permitted) 11a3

Disadvantages 11b

a) Requires a right delimiter for all keywords. 11b1

Algorithm 2: 12

Advantages: 12a

a) Easily extensible 12a1

b) Simple to learn and use, consistent recognition rule 12a2

Disadvantages: 12b

a) Command expressions change as a function of additions/deletions to the keyword list. 12b1

Algorithm 3: 13

Advantages: 13a

a) Minimum number of characters typed for "level 1" commands 13a1

Disadvantages: 13b

Some more notes on Command Recognition

a) inconsistent - recognition method is a functin of the command. 13b1

b) limited - the preferential recognition can be applied to only a small subset of commands. 13b2

c) tends to encourage non-descriptive naming of commands for the purpose of achieving simpler recognition. 13b3

It is apparent that each recognition algorithm has its own set of advantages and disadvantages. The selection of one is to a large extent subjective and is based on user preferences and past experiences. Algorithm 3 may be made more manageable by allowing the set of level 1 commands to change with time, hopefully under user control. The recognition problem is simply the application of an algorithm to the input characters and alternatve keyword lits, thus equation (1) can be rewritten. 14

recognition value = b (input text, keyword list, algorithm) (2) 14a

If we construct a command language interpreter which permits selection of the recognition algorithm, we probably can come closer to satisfying the subjective demands of most users. We may also satisfy other objectives of NLS, such as providing true novice/expert modes, permitting consistent extensions to NLS etc. It may well be that most of NLS is best modelled (or learned) in an Algorithm 1 comman recognition mode, but in areas where high commands interactions rates are expected and useful, another more expert recognition algorithm could be more desirable. Why not make the command recogntion algorithm a function of the user's profile? 14b

Clearly there are problems and details to be resolved in such a scheme, but I wuld like the opportunity for gathering some more flack before proceeding. 14c

What are your ideas? Does it make sense to allow alternative forms of command recognition? Why or why not? 14d

CFD 12-APR-73 17:44 15955

Some more notes on Command Recognition

(J15955) 12-APR-73 17:44; Title: Author(s): Dornbush, Charles F. /CFD ; Distribution: /NMDT EMC WLB MDK LPD PR DCW MFA ; Sub-Collections: SRI-ARC NMDT EMC; Clerk: CFD ;

CFD 16-APR-73 08:22 15956

Comments on proposed Coding Standards

This note is in response to (mjournal,15934,1)

Comments on proposed Coding Standards

TITLE:Comments on proposed Coding Standards
COMMENT:This note is in response to (mjournal,15934,1)
AUTHOR(S):CFD
DISTRIBUTION:npg,dce,dcw,rww,pr,mdk
SUBCOLLECTION:
CLERK:CFD
GO.

1

CFD 16-APR-73 08:22 15956

Comments on proposed Coding Standards

(J15956) 16-APR-73 08:22; Title: Author(s): Dornbush, Charles F. /CFD ; Distribution: /npg dce dcw rww pr mdk ; Sub-Collections: SRI-ARC NPG; Clerk: CFD ;

CHI, how do I get at a statement data block?

Charles: You once told me the names of the record fields in the statement data block, and some of the procedures that could be used to get at the block. I've spent several hours exploring NLS source code to nail down, from examples, from looking at RECORD declarations, etc., how to go about getting a statement data block and operating on it (safely...); and I'm finally calling for help. 1

I began by assuming that the "Copy Statement" operation would have to open up the source data block -- so I traced through a whole bunch of procedures and found "copsdb" where apparently the opening was done; but it got too tricky for me in setting up "stbold" by building its sub records from a mix of variable records (especially , why set mysterious record def stdbold.stpsdb ← rnl.rsdb? Anyway, I'm not sure of the "freezing" operations, and of what the "index" usage, dependence, etc. is. 1a

Would you provide me with a few lines of code, some to set up for my accessing a statement data block, and then whatever (if) that is needed for unfreezing etc. after I'm through with it? (Like, I don't know about how to use the "ON SIGNAL ELSE BEGIN frzblk(mmm...." stuff)? 1b

Assume that I have the stid of a statement, from operations I'm sort of familiar about using such as getsuc(stid) etc., and that I want to set up a local variable "stdblk" (and load, freeze, protect on signals, etc.) so I can do like the following: 2

```
%Have stid, will travel%                                    2a

%set up to operate on the data block%                       2b

%do some work on data block -- for instance%                2c

   a ← stdblk + 5;                                          2c1

   b ← stdblk + stdblk.slength;                             2c2

   FOR j = a UP UNTIL > b DO readwritethings;               2c3
```

%extricate, clean up, release possibly altered-textstring statement data block; knowing not to let stdblk.schars go to overlow of set length; not changing length by doing anything at all to cells with addresses lower than "stdblk" or higher than "b"; knowing not to alter the name part of the string unless I am agreeable to having mismatch with the hash code in

CHI, how do I get at a statement data block?

the ring-element record -- like probably not considering changing anything except ten-word cells in the a to b range% 2d

%go on about other processing% 2e

Can you give me the code I need for subplexes under Branches 2b and 2d? Thanks, Doug. 3

DCE 14-APR-73 12:43 15957

CHI, how do I get at a statement data block?

(J15957) 14-APR-73 12:43; Title: Author(s): Engelbart, Douglas C. /DCE ; Distribution: /chi ; Sub-Collections: SRI-ARC; Clerk: DCE ;

DLS 16-APR-73 13:05 15958

Procurement Method for NLS Utility

Send any reply to STONE in SNDMSG subsystem and/or DLS in the NLS Journal system. Thanks.

DLS 16-APR-73 13:05 15958

Procurement Method for NLS Utility

We are ready here at RADC, to start procurement paperwork for the NLS Utility. We would like to know your plans for procurement. Are you going to use RADC procurement? If so, will a directive come to amend ARPA Order #967? If not, who will be doing the procurement job for you? And finally, regardless of who does the procurement, can RADC use your contract as a vehicle for our share of the Utility--approx $200K or 1/4 of the utility)? 1

15958 Distribution

Roberts, Lawrence G. , Dolan, Bruce A. , McNamara, John L. , Kennedy, Edmund J. ,

DLS 16-APR-73 13:05 15958

Procurement Method for NLS Utility

(J15958) 16-APR-73 13:05; Title: Author(s): Stone, Duane L. /DLS;
Distribution: /lgr bad jlm ejk ; Sub-Collections: RADC; Clerk: DLS;

HGL 16-APR-73 09:21 15959

YES ON OR

Reply to (15757,)

HGL 16-APR-73 09:21 15959

YES ON OR

Paul, I think the suggested OR seminars will be of interest to me and many others at ARC. Could you supply a reading list and/or some xeroxed articles? 1

YES ON OR

(J15959) 16-APR-73 09:21; Title: Author(s): Lehtman, Harvey G. /HGL; Distribution: /pr ; Sub-Collections: SRI-ARC; Clerk: HGL;

JBN 16-APR-73 16:14 15960

April Issue of ARPANET NEWS is Published

Network Members-- 1

The second issue of ARPANET NEWS is now available through the NIC query language, which is accessed by entering "nic" instead of "nls" at SRI-ARC. The issue is also available in the file <NIC>ARPANEWS. 2

And for those who requested the cover, for purposes of printing out on their own equipment, the cover and the masthead, which gives information about the NEWS and how to access it, are in file <NIC>ARPANEWSCOVER. 3

The deadline was slipped to get the benefit of late contributions, and there will be only one update this month. This lag would be more critical if it weren't for the ingenuity of Network readers in accessing the NEWS while it is in the process of compilation. 4

-- The NEWS Editors, JI and JBN 5

15960 Distribution

Institute for Advanced Computation , Barker, W. B. , Neigus, Nancy J. , Bressler, Robert D. (Bob) , Levin, Joel B. , Bliss, Peter M. W. , Kraley, Michael F. , Moore, Julie B. , Walden, David C. , Cosell, Bernie P. , McKenzie, Alex A. , Heart, Frank E. , Crowther, Will R. , Bolt Beranek and Newman Inc. , Case Western Reserve University , Behaviordyne Inc. , Computer Corporation of America , University of Chicago , Carnegie-Mellon University , Council of Ontario Universities , Communications Research Center , CRLT , Dartmouth University , Defense Communications Agency Operations , Marcus, Michael J. 2nd. Lt. USAF , Szabo, Wayne R. , Dean, William C. , Gilliard, Lucille C. (Lucy) , Owen, A. D. (Buz) , Bruffey, Vernon R. , Jet Propulsion Laboratory , NASA Ames - ILLIAC Group , University of Illinois , IBM Watson Research Center , Harvard University , Harvard University , Air Force Global Weather Central (DN) , Fleet Numerical Weather Central , Educational Testing Services , USAF-ETAC , EDUCOM , Ballistic Research Laboratories , Massachusetts Computer Associates , Institute for the Future , AF Human Resources Laboratory (T.T.) , USAMERCD , NASA Ames - 67 Group , AMES-TIP , Argonne National Labs , Advanced Research Projects Agency Auerbach, Marilyn F. , Bass, Walt , Engelbart, Douglas C. , Hardeman, Beauregard A. , Hardy, Martin E. , Hopper, J. D. , Irby, Charles H. , Jernigan, Mil E. , Lehtman, Harvey G. , North, Jeanne B. , Norton, James C. , Paxton, William H. , Peters, Jeffrey C. , Ratliff, Jake , Van De Riet, Edwin K. , Van Nouhuys, Dirk H. , Victor, Kenneth E. (Ken) , Wallace, Donald C. (Smokey) , Watson, Richard W. , Andrews, Don I. , Stanford Research Institute , System Development Corporation , Speech Communications Research Laboratory, Inc. , Blandford, Robert R. , Koch, Carl F. , Flinn, Edward A. (Ted) , Mc Coy, Emily B. , Whitaker, D. Anne , Kerr, Ann U. , Hill, Alan R.
University of California, Irvine , University of California, Berkeley , University of British Columbia , Tinker Air Force Base , Syracuse University , SUNY Stony Brook , Stanford University - IMSS , Stanford University - Heuristic Programming , Stanford University - AI Project , Keeney, Marcia Lynn , Hoffman, Carol B. , Lee, Susan R. , Michael, Elizabeth K. , Dornbush, Charles F. , ARC, Guest O. , Feinler, Elizabeth J. (Jake) , Handbook, Augmentation Research , Kelley, Kirk E. , Meyer, N. Dean , Byrd, Kay F. , Prather, Ralph , White, James E. (Jim) , Vallee, Jacques F. , Kaye, Diane S. , Rech, Paul , Kudlick, Michael D. , Ferguson, Ferg R. , Lane, Linda L.
National Bureau of Standards , Tjaart Schipper , National Physical Laboratory , University of Waterloo , Washington University , University of Utah , US Continental Army Command , University of Southern California , University of Southern California , Headquarters USA Weapons Command , Headquarters United States Air Force , UNIVAC , University of Michigan , University of Maryland , University of London , University of Illinois at Chicago Circle , University of Hawaii , University of California, San Diego , University of California at Santa Barbara , UCLA - Network Measurement Center , UCLA - Campus Computing Network , University of California at Los Angeles
Rutgers University , Raytheon Data Systems , Rand Corporation , Rome Air Development Center (ISIM) , Xerox Palo Alto Research Center ,

Xerox PARC , ONR Branch Office , Office of Emergency Preparedness , ODOI-CAI-PG , National Science Foundation , National Security Agency , Naval Personnel & Training Research Center , Lawrence Berkeley Labs , M.I.T. Lincoln Lab - 67 Group , M.I.T. Lincoln Lab - TX2 Group , Marine Corps Communication Electronic School , MERIT Computer Network , Project MAC - DMCG Group , Project MAC - Multics Group , M.I.T. Artificial Intelligence Laboratory , MITRE Corporation , Network Analysis Corporation , National Accelerator Laboratory

JBN 16-APR-73 16:14 15960

April Issue of ARPANET NEWS is Published

(J15960) 16-APR-73 16:14; Title: Author(s): North, Jeanne B. /JBN;
Distribution: /netmem ; Sub-Collections: SRI-ARC NETMEM; Clerk: JBN;
Origin: <NORTH>NEWSANN.NLS;2, 16-APR-73 15:38 JBN ;

alex- actually i am in a quandary on the graphics developments. first i dont have the time, and second i dont think it is approiate to have a meeting since as i see it nothing has happened publicly since the last meeting. i think there should be several draft protocols circulated to the interested parties at least. i agree with you about vint other comitments being likely to prevent him making much of a dent on this level of protocol issue. about you and nancy taking a more active role, i would tend to favor that, tho as you mention it is a large manpower comitment. my current stratagy is to argue that the meeting ought to be postphoned until documents are circulated. -- jon 1

(J15961) 14-APR-73 13:39; Author(s): Postel, Jonathan B. /JBP;
Distribution: /AAM; Sub-Collections: NIC; Clerk: JBP;

JEW 16-APR-73 14:55 15962

Echo & Discard Source is Ready

Mark-- Will you please tell John Mc Afee that the source file for the echo and discard server process I wrote for him is available on-line at SRI-ARC now. The filename is '<NET>ECOD.FAI'. Thank you much. --Jim 1

15962 Distribution
Krilanovich, Mark C. ,

JEW 16-APR-73 14:55 15962

Echo & Discard Source is Ready

(J15962) 16-APR-73 14:55; Title: Author(s): White, James E. (Jim) /JEW; Distribution: /mck ; Sub-Collections: SRI-ARC; Clerk: JEW;

Why doesn't Output File print the file name like Update? 1

(J15963) 14-APR-73 17:20; Title: Author(s): Deutsch, L. Peter /LPD; Distribution: /NP; Sub-Collections: NIC NP; Clerk: LPD;

di

1

(J15964) 16-APR-73 04:46; Author(s): Leavitt, M. R. /MRL;
Distribution: /JI; Sub-Collections: NIC; Clerk: MRL;

NJN 16-APR-73 06:22 15965

reply to (15941,) identfile changes

Marcia-- Thanks for the information. the ctrl-v, CR is easy enough to figure out, considering the general weirdnesses of nls, but the preceding space is obscure unless you just happen to know that you are at a point similar to having just typed ctrl-b in insert mode. You might tell Charles or Dave or whoever is polishing up NLS now that a bit of explanation is necessary at the point. Or will that prompting be included in the new version of tnls coming up soon? Thanks again. --Nancy 1

NJN 16-APR-73 06:22 15965

reply to (15941,) identfile changes

(J15965) 16-APR-73 06:22; Title: Author(s): Neigus, Nancy J. /NJN;
Distribution: /MLK; Sub-Collections: NIC; Clerk: NJN;

PJK 16-APR-73 11:56 15966

TNLS Quick Reference cards

marcia: steve crocker, arpa-ipt, 1400 wilson blvd, arlington, va 22209 would like 25 tnls quick reference cards. please send at your earliest convenience. thanks. 1

PJK 16-APR-73 11:56 15966

TNLS Quick Reference cards

(J15966) 16-APR-73 11:56; Title: Author(s): Cutler, Pam J. Klotz /PJK; Distribution: /MLK; Sub-Collections: NIC; Clerk: PJK;

15967

JCN 17 APR 73 6:55AM xxxxx

Visit Log: Dave Holzman, Xerox and Ed Nuttall, Xerox Consultant - 2/8/73

~~15943~~

Its a little late, but I thought it is still worth having in our records.

15967
15943 either/or

JCN 17 APR 73 6:55AM xxxxx

Visit Log: Dave Holzman, Xerox and Ed Nuttall, Xerox Consultant - 2/8/73

VISIT LOG OF HOLZMAN (XEROX) AND NUTTAL (XEROX CONSULTANT) 1

DATE OF VISIT: 2/8/73 2

AGENDA FOR VISIT 3

12:30- 2.00 :	Lunch and Discussion	(PR)
2.00 - 2.30 :	Discussion of Agenda	(JCN & PR)
2:30 - 3:00 :	Demonstration (Projection TV)	(JCN)
3:00 - 3:45 :	Overview of ARC	(JCN)
3:45 - 4:30 :	Analysis - Summary	(PR)
4:30 - 5:00 :	Tour ARC.. PSO	(JCN)
5:00 - 6:00 :	Guest's Experience	(RWW, PR, JCN)
6:00 - 7:00 :	Hands-On Experience with NLS	(JCN & PR) 3a

THE VISITORS 4

David Holzman is a General Manager of Xerox's Planning Division in their Head Office in Rochester, New York. 4a

He is presently the Head of Strategic Marketing Analysis which is preparing long term forecasts of U.S. information handling requirements and developing commercial opportunity analyses based on these forecasts. The latter, besides being utilized for specific venture analyses and capital budgeting purposes, will be fed into Xerox' long term planning cycle. 4a1

Holzman's function is a crucial one within Xerox. If he succeeds with his plans he could have an important impact on future evolution of information handling technology. 4a2

David Holzman was accompanied by Ed Nuttall, Xerox consultant in audio and communication. 4b

Xerox organization as it relates research to marketing, Under the President of Xerox there is: 4c

Research: Jack Goldman VP 4c1

Business Development: under a VP; Holzman works for him 4c2

Operating Divisions 4c3

Holzman himself with 3-4 other staff will conduct an integrated office market study. 4d

He feels that the various groups within XEROX each have

their own specialized interests and viewpoints and it needs an overall view... from him and his special staff. 4d1

SUMMARY OF DISCUSSIONS 5

Holzman discussed their approach to market study and plan development with Ed, RWW, PR, and JCN for about an hour (from 5-6). 5a

The mission of his Department is to: 5b

Pull together a comprehensive picture of the market environment and make projections of future requirements for information handling technology. 5b1

Holzman has to approve forecasts by other departments such as marketing itself. 5b2

If these forecasts are not compatible with those of Market Research, then Holzman takes away some of their profit forecasts in the light of his own forecasts. 5b2a

Holzman's approach to market analysis is to use a segmentation technique. He intends to consider the following sectors. 5c

1. Operational Work 5c1

This segment includes payroll, claims people,.. People who do not add in general much thinking to the product. 5c1a

2. Tactical Work 5c2

Includes sales people, engineering, and so on. These people are usually not decision makers. 5c2a

3. Strategic work 5c3

Staff people, managers, and so on. 5c3a

Holzman talked of directed breakthoughs. 5d

Notes 5e

About IBM (Holzman 11 yrs there .. same area) they are sales oriented... not market oriented.. production, design people have a heavy hand. 5e1

Visit Log: Dave Holzman, Xerox and Ed Nuttall, Xerox Consultant - 2/8/73

He thinks that, as far as office automation is concerned, it will not be pushed by technology but rather pulled by the market needs. His market research group plans to identify by a market analysis, using a segmentation technique, those sectors in the field of information handling technology, which will be most likely to provide this push. 5e2

He then intends to turn towards both research and product development to guide their efforts towards those breakthroughs which will be most likely to become market successes. His market research group plans to stay in the process much longer than in the past in order to provide continued guidance. 5e2a

Talked about integrated systems (for offices) POLOS at Xerox PARC (JCN doesn't know what they meant) word-processing center 5e3

Questions and Answers 5f

RWW: what does ARC look like to Xerox.. as an entity in R&D and What role should we play? 5f1

A: very useful...more depth in our approach than PARC..or other research groups he knows of....our PSO orgamization, forms, indexes.....all point to more indepth study...planning we do using system. 5f2

Holzman wants HANDS-ON feasibility study DCE we talked about next Fall, he might be ready to get tied to us. 5f3

JCN SUMMARY: 5g

Holzman seemed very perceptive about possibilities - has a grasp of the broader aspects of the "office" SYSTEM approach - methodology, training, segmented tasks. His influence in Xerox planning and decisions will be good from our standpoint.. he may really help them to look AND WORK ON the larger system part of augmentation..more than just software, hardware.. 5g1

He seemed genuinely interested and "turned on" by what we discussed with him. 5g2

REFERENCES: 6

JCN 17 APR 73 6:55AM xxxxx

Visit Log: Dave Holzman, Xerox and Ed Nuttall, Xerox Consultant - 2/8/73

JCN 17 APR 73 6:55AM xxxxx

Visit Log: Dave Holzman, Xerox and Ed Nuttall, Xerox Consultant - 2/8/73

(J15967) 12-APR-73 18:39; Title: Author(s): Rech, Paul , Norton, James C. /PR JCN ; Distribution: /DCE RWW JCN ; Sub-Collections: SRI-ARC; Clerk: PR;
Origin: <RECH>HOL.NLS;3, 12-APR-73 18:35 PR ;

jim, have you spoken to padlipsky? he has an idea which i guess i support. it requires (for mail protocol, and prehaps ftp as well) the use of a command like "free" to be given if one does not intend to supply a user name. the are several arguments in favor of this but i'll withhold them until i know whether mike hasn't spoken to you, or as is not infrequently true, he has misrepresented his true arguments. coments?
bob.

1

(J15968) 16-APR-73 07:25; Author(s): Bressler, Robert D. (Bob) /RDB2; Distribution: /JEW; Sub-Collections: NIC; Clerk: RDB2;

REF 16-APR-73 10:29 15969

COMMENT ON: (FEB73,2C) rich fikes test comment.

yes, the newsletter is really great. 1

15969 Distribution
Cmmtfile, Cmmt , Fikes, Richard E. ,

REF 16-APR-73 10:29 15969

COMMENT ON: (FEB73,2C) rich fikes test comment.

(J15969) 16-APR-73 10:29; Title: Author(s): Fikes, Richard E. /REF;
Distribution: /COMMENT; Sub-Collections: NIC COMMENT; Clerk: REF;

Network Test

In order to be able to compare the data gathered on the network with what has already been done at ARC, a method similar to the one used before will be used again, at least at the onset. Basically, this consists of logging into NLS, and using a control I (↑T) to determine the amount of CPU time as well as connect time used to insert a series of characters. (In the following detailed example, pretend that the series of dashes are blanks.) 1

In order to conduct these tests, information should be recorded in the following manner: 2

Ident ----- 2a

Date ---------- 2b

↑T USED -------- IN--------- Load Avg. ---------- 2c

I(nsert) C(haracter) (address) 2d

↑T USED -------- IN -------- 2e

(Type in 100-200 characters, or whatever you feel like
Specify exact character count.) ---------- 2f

↑T USED -------- IN -------- 2g

When entering the characters, a normal typing speed should be used (approximately 40-50 wpm). If possible conduct your tests during times of low load average (<2) and normal load average (>3), possibly in early morning and during normal working hours. Also vary the CPS setting so that you have records at both 30 and 15 CPS. (The switch to vary this setting should be located inside your terminal.) Please repeat each test several times (at least 3). When finished, please send your data to me (SRL). If you have any comments or questions, please feel free to contact me. 3

15970 Distribution
Crocker, David H. ,

Network Test

(J15970) 16-APR-73 08:51; Title: Author(s): Lee, Susan R. /SRL;
Distribution: /DHC; Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>NETMEASURES.NLS;2, 11-APR-73 16:33 SRL ;

TO 16-APR-73 11:15 15971

cbigmemlist update

can cbigmemlist be brought up to date by wed. for a meeting
of cbi arpa advisory group, some of whom aare new to the list and
are potential sponsors of an nls cbi workshop environment? 1

TO 16-APR-73 11:15 15971

cbignemlist update

(J15971) 16-APR-73 11:15; Title: Author(s): O'Sullivan, Thomas /TO;
Distribution: /JBN; Sub-Collections: NIC; Clerk: TO;

WLB 16-APR-73 15:03 15972

Invitation to an Easter Happening at Alderness

This weekend (April 21-22) there will be an "open house" at Alderness, my wilderness retreat in the Santa Cruz Mountains. On Saturday we will have an extravagant bonfire and pot-luck picnic on our Meadows, followed by a moonlit hike to one of the nearby peaks for Easter sunrise meditations. All ARCers and their families are cordially invited to come for all or any part of the weekend. Plan to bring all personal survival necessities, and check with me for directions and road information -- Alderness is down seven miles of dirt roads behind a locked gate, and you will not find it the first time without some help. If enough people are going, we can coordinate transportation in car-pools (a pleasant alternative to driving the Last Chance Road is to hike in three miles from Big Basin State Park Headquarters -- your car will love you for it) -- Walt 1

WLB 16-APR-73 15:03 15972

Invitation to an Easter Happening at Alderness

(J15972) 16-APR-73 15:03; Title: Author(s): Bass, Walt /WLB;
Distribution: /sri-arc lpd wke wsd ; Sub-Collections: SRI-ARC;
Clerk: WLB;

(J15973) 16-APR-73 19:38; Author(s): Kelley, Kirk E. /KIRK;
Distribution: /; Sub-Collections: SRI-ARC; Clerk: KIRK;

CFD 17-APR-73 09:46 15974

Comments on proposed Coding Standards

This note is in response to (mjournal,15934,1) Sorry about yesterday's submission of my journal command form (due to careless bug selection I suppose).

Comments on proposed Coding Standards

Notes on Documentation Standards (15934) 1

The proposed coding standards (mjournal,15934,) essentially records the de-facto standards currently employed by most NLS programmers (with minor modifications). Like all "laws", these coding standards are only as good as their enforcement, yet I think we should consider our documentation problem in a more global context before worrying about the enforcement issue. 1a

Program documentation serves several identifiable functions: 1b

1) It aids program development. 1b1

It aids the programmer in writing the code by leading him through the logical paths of the program. (Dijkstra's "levels of abstraction") Recording the logical function of a set of program statements at the time the code is first written helps minimize program development and checkout costs. Logic errors will often manifest themselves at the level of the commented "branches" of code, where they often can be easily recognized and remedied. 1b1a

2) It aids program maintenance and enhancement. 1b2

It promotes understandability of the code, thus makes the code more amenable to subsequent modification. The creation of the code which is NLS is an ongoing development effort which outlives the programmers who have developed it. The code that is written today will have to be read, understood, and changed tomorrow by someone other than the original creator of the code. 1b2a

3) It creates a valuable implementation information data base which permits evaluation and study of the implementation and aids the design of subseqent or similar software systems. 1b3

It records the function and implementation of algorithmic processes in humanized terms. 1b3a

The proposed documentation standards seem to define a practice which will encourage good documentation at the "micro" level, but it largely ignores the more encompassing issues. One of the things that makes NLS so difficult to comprehend is not the localized lack of coding standards, but is rather the lack of documentation as to how a particular piece of code

functions as a component of some larger software process. The question of "How does this piece of code relate to the process of which it is a part?" is the more essential one. It is certainly annoying to find poorly documented and obscure code, but it is not sufficient to format and document code in the local context. 1c

An apparent inconsistency can be noted with the MPS way of doing things. In the MPS world local code or data segments (modules) can be developed and verifyied independently of any external contexts. There are considerable advantages to be gained from the localized software development process, but it is essential that we develop the documentation methodology which permits us to describe just how the software modules are packaged and connected together to create larger softare processes. 1d

Localizability is essential for manageable development and maintenance of a large software system, but it is equally essential that the configuration of the locally developed modules be documented. It seems appropriate that the documentation that describes the layout and configuration of the system be created in a data base which is independent of the code files. In the MPS world at least, the process which binds the system together in some configuration is not necessarily related to the code in the source code files. 1e

Code fomatting conventions and local commenting conventions address only the lowest level aspect of the software documentation problem. The paper by HGL and KEV is a good first step to developing the documentation methodologies we need. Lets keep the level of interest in documentation up until we get a better handle on the entire software documentation problem. 1f

CFD 17-APR-73 09:46 15974

Comments on proposed Coding Standards

(J15974) 17-APR-73 09:46; Title: Author(s): Dornbush, Charles F. /CFD ; Distribution: /npg dce dcw rww pr mdk ; Sub-Collections: SRI-ARC NPG; Clerk: CFD ;

SUSAN LEE: I AM HABING A HARD TIME GETTING A MESSAGE TO DIRK. CAN YOU MAKE A SCHEDULE AND CAN WE OR US GET TOGRTHER?? CAN YOU LEAVE ME A MEAASGE?? 1

(J15975) 17-APR-73 17:11; Author(s): Harrison, Christopher G. /CGH;
Distribution: /SRL; Sub-Collections: NIC; Clerk: CGH;

CHI 17-APR-73 12:44 15976

Output File does print file name in XNLS, Re: 15963

Peter, Output File behaves just like Update File in the experimental system (an has for about a month). We should be bringing that system up within a week or so. -- Charles. 1

CHI 17-APR-73 12:44 15976

Output File does print file name in XNLS, Re: 15963

(J15976) 17-APR-73 12:44; Title: Author(s): Irby, Charles H. /CHI;
Distribution: /lpd ; Sub-Collections: SRI-ARC; Clerk: CHI;

DHC 17-APR-73 17:40 15977

Comments after two days' experience with IMNLS/DNLS over the Net:
there are some problems

I would like to be involved with any process to deal with these
issues, if I can help

DHC 17-APR-73 17:40 15977

Comments after two days' experience with IMNLS/DNLS over the Net: there are some problems

The cursor currently bounces all over the place and appears to be very inaccurate. 1

There does not seem to be any way to query the available command alternatives, as can be done with TENEX and TNLS. 2

Documentation is extrememly incomplete. 2a

Upon entering NLS, I must issue a contro-6 to set the modes flag properly; or else I must enter control-C and then CON. After that (cntl-c, con sequences) the flag is automatically set properly. 3

The procedures for recreating the screen are currently very inefficient. 4

Only jump commands cause frozen (viewspec v) screens to be recreated. Load Files, etc should also do this. 4a

NLS does not keep a picture of the frozen screen, so that the user must be absurdly careful when editting with a frozen screen 4b

For that matter, nls should have a model of the imlac screen so that it could, for example, direct the imlac to move individual lines about (this is now done only sporadically) including inserting lines between other lines.. The whole intent would be to avoid transmitting data already residing in the imlac. 4c

Display Control and Execute Connect seems to have problems 5

Display control does not make it possible to find out where the boundaries are and there is no way to return to a 'normal' screen (not shown in documentation). 5a

I attempted to execute connect once and blew up. Didn't bother to try again. (blew up = i had to start at 100) 5b

Sometimes, characters get lost on the end of an input line. NLS/IMLAC do not always delete the too-long word and replace it onto the next line. I am sure if the characters are completely lost or are merely not shown on input line. I believe latter. 6

I strongly suggest IMLAC and NLS set up their own Davidson echoing scheme. It would improve things enormously. 7

DHC 17-APR-73 17:40 15977

Comments after two days' experience with IMNLS/DNLS over the Net:
there are some problems

Screen seems to get spurious but benign characters floating
around at times. This is worst in the tty-window part. 8

NLS provides much to little prompting for input.. This is a very
general complaint about the lack of assistance dnls gives you. 9

15977 Distribution

Victor, Kenneth E. (Ken) , Irby, Charles H. , Wallace, Donald C. (Smokey) , Lawrence, Thomas F. ,

DHC 17-APR-73 17:40 15977

Comments after two days' experience with IMNLS/DNLS over the Net:
there are some problems

(J15977) 17-APR-73 17:40; Title: Author(s): Crocker, David H. /DHC;
Distribution: /kev chi dcw tfl ; Sub-Collections: NIC; Clerk: DHC;

JBP 17-APR-73 13:36 15978

Re: Protocol Notebook Updating

the following sections will be changing soon:
telnet
file transfer
graphics (probably to rfc 493)

the host to host protocol will have a minor revision in about 6 mos.

the remaining section do not appear to be likely to change for a longer time. 1

JBP 17-APR-73 13:36 15978

Re: Protocol Notebook Updating

(J15978) 17-APR-73 13:36; Title: Author(s): Postel, Jonathan B. /JBP; Distribution: /JBN; Sub-Collections: NIC; Clerk: JBP;

JEW 17-APR-73 14:53 15979

DHCBOOK is in Good Hands

Dave -- 1

The following two files exist at UCSB and are found by LOCATE. I also successfully COPYed the second one back, and NLS likes it: 1a

<UCLA-NMC>DHCBOOK.NLS;2
<UCLA-NMC>DHCBOOK.NLS;5 1a1

The host name for both is implicitly SRI-ARC. 1b

You may be interested in the way I found out that information. 2

UCSB has a neat, batch-mode utility program called SMFSDIR which runs on their system. It generates a directory listing of all files known to the SMFS server process at UCSB. This list, then, includes as a subset all those files archived at UCSB by the Tenex subsystem. 2a

A sample print-out (the one I generated to answer your question), should you care to examine it, is in my directory at SRI-ARC; it's called 'SMFSDIR.PRT'. 2b

The source file for the job that generates the listing is also in my directory as 'SMFSDIR.SRC'. If you're at all familiar with the Network RJS protocol, you might try RJSing the source file to UCSB and generating your own listing. A scenario I wrote for using UCSB's RJS service is journalized as (15491,1), should you care to try your hand at it. 2c

--Jim 2c1

DHCBOOK is in Good Hands

(J15979) 17-APR-73 14:53; Title: Author(s): White, James E. (Jim) /JEW; Distribution: /dhc ; Sub-Collections: SRI-ARC; Clerk: JEW; Origin: <WHITE>DHCMSG.NLS;4, 17-APR-73 14:51 JEW ;

JEW 17-APR-73 14:58 15980

SMFSDIR Wins

Mark-- I finally succeeded in RJEing SMFSDIR to UCSB. I got my directory listing, found DHC's 'missing' file, and sent him a reply through the Journal. Yesterday when I tried using RJE, your server process stopped talking to me when I gave it the PASS command. He didn't even know when I disconnected from him, because re-connecting gave me a terminal number one higher. Thanks for the help. --Jim 1

15980 Distribution
Krilanovich, Mark C. ,

JEW 17-APR-73 14:58 15980

SMFSDIR Wins

(J15980) 17-APR-73 14:58; Title: Author(s): White, James E. (Jim) /JEW; Distribution: /mck ; Sub-Collections: SRI-ARC; Clerk: JEW;

JEW 17-APR-73 15:58 15981

Home Address and Phone Change

Mil-- My address and phone are now:
565 Matadero Ave. # 7
Palo Alto, Calif. 94306
Phone 493-0478 1

Home Address and Phone Change

(J15981) 17-APR-73 15:58; Title: Author(s): White, James E. (Jim) /JEW; Distribution: /mej ; Sub-Collections: SRI-ARC; Clerk: JEW;

KIRK 17-APR-73 13:09 15982

THEM BLUES

Thank you for your message informing me about the blues. According to Webster's Third New International, them blues is a plural noun sometimes singular in construction. I am sure there are better analogies than the one I used, however your criticism tells me more about your knowledge of blues structure than how well my analogy fits NLS. 1

KIRK 17-APR-73 13:09 15982

THEM BLUES

(J15982) 17-APR-73 13:09; Title: Author(s): Kelley, Kirk E. /KIRK;
Distribution: /bah ; Sub-Collections: SRI-ARC; Clerk: KIRK;

THE ECONOMICS OF TEXT-EDITING FUNCTIONS: COST-EFFECTIVENESS ANALYSIS OF NLS AND OTHER SYSTEMS. 1

Jacques Vallee in collaboration with Elizabeth Michael, Linda Lane and Kirk Kelley. 1a

A method for estimating the cost-effectiveness of a text editor under normal office operating conditions is described. Use of the tool is fully documented so that the analysis can be extended to any text-editor for which a measure of cost-effectiveness is desired. 2

This document presents the results obtained when this "test-kit" was applied to an analysis of text-editing functions in terms of comparative costs to the user. The scope was not restricted to NLS but included an examination of two commercially-available systems. An extension of the analysis to other systems is proposed. 3

1. THE APPROACH. 4

The approach taken was the following: 4a

1. We started from externally-specified "tasks", each task being a typical activity that could present itself in everyday office or worshop situations. A "Task" consisted in the entry, proofing, text-editing and structure-editing of a certain document. 4b

2. We decided to test the method on two readily-available systems, namely TNLS and WYLBUR, and to gradually extend it to others, such as the MTST, DNLS and later TECO (TECO is not included in the present study). It is assumed that an analysis of these five systems will give us a good indication of the overall picture. 4c

3. At each facility we explained the conditions of the experiment to trained operators who were very familiar with the tool that was analyzed. 4d

4. All costs reported here include machine-measurable charges only, to the exclusion of personnel salary and overhead; system crashes were not tabulated, as they would have to be in a true business- oriented survey of the field. 4e

2. SELECTION OF TASKS. 5

Text-editors are not universal tools. They are typically

matched to certain office functions, and while some may be excellent for text-entry they fail as table-manipulators or as structure-handlers. Therefore there exists a SPECTRUM of tasks that need to be explored. 5a

In the typical environment we are studying we expect to handle information in three main categories: there will continue to be medium or large bodies of English text such as memos, reports, user guides. These typically have little structure and contain few tables. In a second category we may find the "accounting" report, where text alternates with columns of figures. In a third category, which exhibits deep structure, we have program procedures such as we handle everyday in NLS development. 5b

Accordingly the following three documents were selected: 5c

T1: The source code for the QUERY program. It contains 282 lines of L10 code with deep structure. (5 typewritten pages, 5250 characters). 5c1

T2: Paul's measurement report of Jan.30th, containing 304 lines of text detailing the CPU time required for TNLS and DNLS commands. This is presented in the form of several tables. (8 typewritten pages, 5620 characters). 5c2

T3: An article containing 404 lines of English text. The title of this article is "JUPITER IN AQUARIUS: YOUR LUCKY BREAK?" and it appeared in "Astrology" for February 1973. (7 printed pages, 23530 characters). 5c3

3. DEFINITION OF THE "FUNCTIONS". 6

The various functions to be analyzed are the following: 6a

F1: TEXT ENTRY. In this phase the operator is given the text of the document and is told to enter it into his computer using any command, tool or "trick" that he is familiar with, without going back to edit typing errors. He is also to provide a listing for proofreading. 6b

F2: PROOFING. It is a fact of common experience that a given text-editor encourages a specific type of error. The DNLS keyboard, for instance, forces typing errors that are impossible using the IBM 2741. The syntax is also an important factor since a mis-placed "d" in TNLS can throw the entire text down one level, a possibility that would not exist under TECO or on the MTST, and so on. Therefore it is important to

measure not only the cost of initial entry but the cost of bringing all the documents to the same level of perfection. 6c

F3: TEXT-EDITING. A specific study is needed of the text-editing function, i.e. the replacement of certain words by others, the replacement of strings of text by others, and the systematic substitution of one word or string for another in the entire body of text. Our instructions to the operators in this respect were standardized and are given in the Appendix. In this phase we also measure the cost of moving groups of statements up or down, of transposing branches, of deeply altering the entire structure of the given text. 6d

F4: TEXT VIEWING. Displaying the text to a remotely-located user is a basic function whose cost depends greatly on the type of device supported by the program. 6e

4. FACILITIES INCLUDED IN THE SURVEY. 7

At ARC we have analyzed TNLS and DNLS. At the Stanford Computing Center, Campus Facility, we have used the WYLBUR system, and at the Stanford Graduate School of Business we have tested the MTST machine. A short description of these four systems is given below: 7a

TNLS is the teletype version of the NLS system. It is a statement-oriented, rather than line-oriented editor, where operators must remain aware of the pointer positions. 7b

DNLS, the display version of the same system, makes the pointer position graphically visible through use of a movable arrow on the screen. It automatically refreshes the text to reflect view changes. 7c

WYLBUR is an interactive editor and remote-job-entry system for IBM/360 that was developed at the Stanford Computing Center between 1967-68 and has been made available on many configurations around the country. 7d

The MTST (Magnetic tape selectric typewriter) is an office machine supplied by IBM that is NOT connected to a computer. The machine generates a magnetic tape and has an editing capability. It is widely used in office environments where installing a general-purpose computer is too expensive or unnecessary. 7e

The rates for the MTST utilization were taken as charged by the Stanford Graduate School of Business. 7e1

All operators were familiar with the process being analyzed and were good typists at the professional level. 7e2

Standard instructions were given to the operators at each facility. It was explained to them that this was not a test of their service itself but a test of the FUNCTIONS performed by the text-editor they offered. Need to keep an accurate record of all time intervals was stressed. All console sheets were to be saved and given to us. A clean listing was to be generated in each phase, and the cost of producing it included in the survey. 7e3

The salary of operators (as stated above) was not included in the results. With this in mind, the figures given below can be placed in the perspective of secretarial services, that typically charge $2.50 per page for letter-type documents. Assuming 50 lines per page the cost would be 5 cents per line. 7e4

5. TNLS RESULTS. 8

For all PDP-10 costs we have assumed current BBN rates, namely $4/hour of connect time and $8/minute of CPU time. 8a

This gives NLS costs of 13.33 cents/cpu second, 6.66 cents/terminal minute.('cost.1' column). However analysis of our own internal costs leads to a figure of either $6.25 per cpu minute (10.42 cents per cpu sec, cost.2 column) or $10 per terminal hour (16.66 cents per terminal min, cost.3 column). These figures have been tabulated for comparison. 8b

	Function	cpu-time (sec)	connect (min)	cost.1 ($)	cost.2 ($)	cost.3 ($)
T1	F1.Text Entry	56.5	58	11.39	5.89	9.66
	F2.Proofing					
	F3.Editing	114.0	87	20.99	11.88	14.49
	F4.Viewing	34.0	15	5.53	3.54	2.50
	TOTAL	204.5	160	37.91	21.31	26.65
T2	F1.Text Entry	54.1	111	14.60	5.63	18.49
	F2.Proofing	46.0	31	8.20	4.79	5.16
	F3.Editing	75.0*	101*	16.67*	7.81*	16.83*
	F4.Viewing	21.0	10	3.37	2.19	1.67
	TOTAL	196.1	253	42.84	20.42	42.15
T3	F1.Text Entry	89.4	125	20.24	9.32	20.83
	F2.Proofing	30.0	25	5.66	3.13	4.17
	F3.Editing	38.2	9	5.69	3.98	

8c

8d

1.50					
	F4.Viewing	48.0	23	7.93	5.00
3.83					
	TOTAL	205.6	182	39.52	21.43
30.33					
	TNLS TOTAL	606.2	595	120.27	63.16
99.13					

8e

It must be noted that the results for T2 are only given as a lower bound of the cost of editing this type of document under TNLS: We had to stop the experiment because both the cpu time and the terminal time involved were obviously unreasonable. Approximately one fourth of the changes requested in the test had been entered when the experiment was stopped. The person doing the task had given up trying to perform the work with TNLS editing functions and was simply re-typing those portions of the text affected by the changes. When this was observed it was decided to interrupt the process. 8f

6. WYLBUR RESULTS. 9

WYLBUR is commercially available in the Peninsula at rates lower than those charged by Stanford. However we have used the Stanford environment as an upper limit of WYLBUR costs because it was more typical of the anticipated "workshop". These rates are $3.50/hour of connect time and $9/minute of CPU time. It will be noted that although the 360/67 at Stanford is considerably more powerful than our PDP-10 the typical WYLBUR user has to share it with about 50 to 60 other users. All WYLBUR experiments were done during normal work hours. 9a

WYLBUR charges were 15.00 cents/cpu second, 5.73 cents/terminal minute. 9b

	Function	cpu-time (sec)	connect (min)	cost ($)			
T1	F1.Text Entry	1.1	78	4.63			
	F2.Proofing						
	F3.Editing	4.6	84	5.50			
	F4.Viewing	0.6	19	1.18			
	TOTAL	6.3	181	11.31	TOTAL	11.31	9c
T2	F1.Text Entry	1.7	71	4.32			
	F2.Proofing	0.5	3	0.25			
	F3.Editing	4.0	95	6.04			
	F4.Viewing	0.7	29	1.77			
	TOTAL	6.9	198	12.38	TOTAL	12.38	9d
T3	F1.Text Entry	2.2	116	6.98			
	F2.Proofing	2.0	24	1.68			
	F3.Editing	5.8	10	1.44			
	F4.Viewing	1.0	46	2.79			
	TOTAL	11.0	196	12.89	TOTAL	12.89	

WYLBUR	TOTAL	24.2	575	36.58	TOTAL	36.58	9e

7. MTST RESULTS. 10

The MTST used at the Stanford Graduate School of Business was charged at the rate of $7.50 per hour for recording mode (text

**entry and edits) and $10 per hour for playback (viewing). 10a

In these tests it had been decided not to include operator time in any of the statistics. From the above figures we therefore subtracted the standard rate chargd for MTST operators, namely $4.50 per hour. The figures below were obtained using a rate of $3/hr for recording and $5.50/hr in playback mode. 10b

After the text entry phase it was found that i) the text produced was perfect and no need existed for a "proofing" phase. and ii) The edits required would be so complex on this machine that the operator would more efficiently re-type the entire document. Therefore we took the cost of text entry as the cost of editing. 10c

	Function	cpu-time (sec)	connect (min)	cost ($)			
T1	F1.Text Entry	N/A	120	6.00			
	F2.Proofing						
	F3.Editing	N/A	120	6.00			
	F4.Viewing	N/A	25	2.30			
	TOTAL	N/A	265	14.30	TOTAL	14.30	10d
T2	F1.Text Entry	N/A	150	7.50			
	F2.Proofing						
	F3.Editing	N/A	150	7.50			
	F4.Viewing	N/A	25	2.30			
	TOTAL	N/A	325	16.30	TOTAL	16.30	10e
T3	F1.Text Entry	N/A	300	15.00			
	F2.Proofing						
	F3.Editing	N/A	300	15.00			
	F4.Viewing	N/A	70	6.40			
	TOTAL	N/A	670	36.40	TOTAL	36.40	
MTST	TOTAL	N/A	1165	67.00	TOTAL	67.00	10f

8. DNLS RESULTS. 11

As in the case of TNLS we have assumed current BBN rates, namely $4/hour of connect time and $8/minute of CPU time. This gives DNLS costs of 13.33 cents/cpu second, 6.66 cents/terminal minute. ('cost.1' column). However analysis of our own internal costs leads to a figure of either $6.25 per cpu minute (10.42 cents per cpu sec, cost.2 column) or $10 per terminal hour (16.66 cents per terminal min, cost.3 column). These figures have been tabulated for comparison as was done in section 5 above. 11a

	Function	cpu-time (sec)	connect (min)	cost.1 ($)	cost.2 ($)	cost.3 ($)
T1	F1.Text Entry	418	50	59.00	43.56	8.33
	F2.Proofing					
	F3.Editing	140	29	20.59	14.59	4.83
	F4.Viewing	12	1	1.67	1.25	0.17
	TOTAL	570	80	81.26	59.39	13.33

11b

T2	F1.Text Entry	507	52	71.04	52.83	8.67
	F2.Proofing					
	F3.Editing	240	38	35.19	25.00	6.33
	F4.Viewing	22	4	3.20	2.29	0.67
	TOTAL	769	94	109.43	80.12	15.67

11c

T3	F1.Text Entry	492	87	71.37	51.27	14.49
	F2.Proofing	30	8	4.53	3.12	1.33
	F3.Editing	36	6	5.20	3.75	1.00

F4.Viewing	26	6	3.87	2.71	1.00
TOTAL	584	107	84.97	60.85	17.82
DNLS TOTAL	1923	281	275.66	200.36	46.82

11d

CONCLUSION: A logical next step in the application of this tool would be to obtain similar cost-effectiveness measures for such systems as TECO and ATS. A definite statement ranking the systems we have studied in terms of their cost-effectiveness would be premature for two main reasons: i) The TNLS figures do not refect true costs because the tests had to be truncated and ii) we do not know enough about the cost coefficients that apply to NLS in general.

12

(J15983) 17-APR-73 09:07; Title: Author(s): Vallee, Jacques F. , Michael, Elizabeth K. , Kelley, Kirk E. , Lane, Linda L. /JFV EKM KIRK LLL; Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JFV; Origin: <VALLEE>PIAF.NLS;2, 17-APR-73 08:57 MDK ;

.PEL; .PGN=PGN-1; .GCR;A method for estimating the cost-effectiveness of a text-editor under normal office operating conditions is described. This "test-kit" has been applied to TNLS, DNLS and two other systems. Extension of the analysis to TECO and other editors is proposed.

Dull Writing: The Reader's Problem or the Writer's Problem?

This note is submitted to let you know what I think about the problems associated with "dull writing". It was written after the lunchtime discussion that Larry Roberts held with DCE, PR, DCW, JCN. MDK, RWW, CHI, on April 11th. 1

The NLS system does not cause dull writing, and it does not prevent non-dull writing. It just makes it easier to ignore the problem. 2

The main reasons for this are 3

- We're not in good habits for communicating with the outside world: We tend to write most items as quick drafts for internal consumption, using jargon words and contexts. 3a

- We can write too easily now. Words flow, sentences get thrown together, and information content gets too easily buried. 3b

- We're limited on-line by the size of our information window, both for writing and for reading. Therefore we use levels and viewspecs, and tend to ignore questions such as continuity and context that the outside, hardcopy world needs. 3c

- The very fact that it's easy to move paragraphs around makes it easy to lose continuity and context from paragraph to paragraph. 3d

  The only way we can avoid this is to read our own documents off-line, before distributing them outside. This is a matter of self-discipline. 3d1

- We often don't use levels to full advantage. I see very few section headings below the first level, almost none below the second level. Yet there are lots of areas of text which could benefit from section or subsection labels. However, to be of use to the reader labels must be used consistently and artfully throughout a document, not sporadically and clumsily. We don't do this well, again a matter of self-discipline. 3e

- We haven't adequately examined the question of what new output processor directives, and what "canned" origin statements, would be useful to prepare readable documents for the non-augmented world. 3f

Good writing is an art. Non-dull technical writing is a fine art. Are we up to it? Probably yes, but I don't think we try very hard. 4

Dull Writing: The Reader's Problem or the Writer's Problem?

To write good, non-dull technical material requires a mixture of certain attitudes and techniques: 5

You have to know the value and technique of good format (and use it). 5a

You have to have an easy to read style. 5b

You have to spell correctly, find and correct your typos (that is, after all, simply good manners), intermix some long sentences wih some short ones, use words that you are comfortable with. 5c

You have to organize your material partly in telescoping fashion, partly with overviews, partly in appendixes for the heavy stuff, and you have to know when to be brief and when not to be. 5d

And, perhaps most importantly, you have to write clearly. This means that 5e

You have to know what you want to say.
You have to want to communicate.
You have to put yourself in the reader's mind, and be sympathetic to his needs. 5e1

That's a lot. No one does it all well. But in my opinion it's worth striving for, especially when trying to communicate with people outside the ARC world. That's what the lunchtime conversation with Larry Roberts was all about. 6

MDK 17-APR-73 13:54 15984

Dull Writing: The Reader's Problem or the Writer's Problem?

(J15984) 17-APR-73 13:54; Title: Author(s): Kudlick, Michael D. /MDK ; Distribution: /sri-arc ; Sub-Collections: SRI-ARC; Clerk: MDK; Origin: <KUDLICK>WRITING.NLS;6, 17-APR-73 13:49 MDK ;

NDM 17-APR-73 16:00 15985

Re: Journal Header redefinition

I talked to Walt about the HJournal redefinition problem yesterday. He says he changed the Output Processor to allow redefinition of journal headers a while ago at somebody's request. He told a few people about it, though he did not tell me until now. 1

I suggested a seperate directive for Journal Header overriding, but he said he would make no FURTHER changes (even restoring the previous system) without some dialog. In the mean time, there is no way to do what we want to do with the LETTER program. So, until Walt feels like reinstating that capability, we have the choice of: 2

removing the HJournal directive from the program (then the proofs won't look like the journalized version), or 2a

removing the HJournal directive by hand before journalization. 2b

I will try to get a hold of Jim N. to discuss past letters. I would appreciate your opinion on what to do with LETTER. 3

Re: Journal Header redefinition

(J15985) 17-APR-73 16:00; Title: Author(s): Meyer, N. Dean /NDM;
Distribution: /DCE JCN(copy) JDH(copy) WLB(copy); Sub-Collections:
SRI-ARC; Clerk: NDM;
Origin: <MEYER>HJ.NLS;1, 17-APR-73 15:56 NDM ;

RWW 17-APR-73 08:16 15986

Combination of Two Journal Task Areas

The Review Team is MDK JCN RWW

RWW 17-APR-73 08:16 15986

Combination of Two Journal Task Areas

The two task areas called Ongoing Journal Evolution and Integration of Text Handling ad Journal into the Network defined in (14164,) are being combined into one task area due to their close interrelation. JEW will be the pusher of the new area with JDH DSK and CHI on the design team. It seems appropriate to call the new task just Journal Development. 1

Combination of Two Journal Task Areas

(J15986) 17-APR-73 08:16; Title: Author(s): Watson, Richard W. /RWW; Distribution: /sri-arc ; Sub-Collections: SRI-ARC SRI-ARC; Clerk: RWW;

Questions concerning the writing ability of an NLS user, remind me of a controversy over the philosophy of teaching writing in college. Writing can be taught with an emphasis on structure or creativity. Being taught to write with structure in mind would be similar to writing in NLS, I would guess. The advantage seems to be that ideas are better thought out and developed logically; however, they may not be tremendously interesting to read at first. It seems that once one has the structure mastered, then an effort has to be made to add a little interest to the writing. On the other hand, when writing is taught with an emphasis on creativity, it will hopefully be interesting to read, and yet not particularly structured. I think it is possible to combine the two (structure & creativity) but I think it takes a conscious effort because good and interesting writing does not come easily, at least for most people. 1

(J15987) 17-APR-73 10:24; Author(s): Lee, Susan R. /SRL;
Distribution: /PR; Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>DULLWRITING.NLS;2, 17-APR-73 10:20 SRL ;

WLB 17-APR-73 16:16 15988

Thanks for the Lesson on Submit Statement

Charles: Thanks for your note on Submit Statement -- I didn't know about this feature, and it is a partial solution to my problem. I still think we should have the capability of editing a message that is typed in before GOing the Journalization process -- as a step towards making NLS inputs "recoverable" a la Teitleman. Thanks -- Walt 1

WLB 17-APR-73 16:16 15988

Thanks for the Lesson on Submit Statement

(J15988) 17-APR-73 16:16; Title: Author(s): Bass, Walt /WLB;
Distribution: /chi ; Sub-Collections: SRI-ARC; Clerk: WLB;

WLB 17-APR-73 16:24 15989

Count Me In

Paul: I would be very interested in attending a seminar series on operations research. Thanks for offering to give it. -- Walt 1

WLB 17-APR-73 16:24 15989

Count Me In

(J15989) 17-APR-73 16:24; Title: Author(s): Bass, Walt /WLB;
Distribution: /pr ; Sub-Collections: SRI-ARC; Clerk: WLB;

Proposed ACTION for Better Writing

I am glad to get the agreement of such an eminent outsider as Larry Roberts on the awfulness of most of ARC's externally-distributed writing. I have a few ideas regarding why we exibit such a failure to communicate but rather than taking potshots I would like to suggest that this is an appropriate subject to be taken up by PODAC (as in "whatever happened to ...").

1

It has been observed for a long time that "practice makes perfect," and I would humbly propose the creation of a PODish group of ARCers who are interested in and/or responsible for the communication of our intellectual product to the outside world and who are willing to practice writing in a more relaxed mode than is usually possible within LINAC. This group could meet to discuss our communication problems (1%), work out individual and group writing assignments (19%), and critique one another's writing and work on techniques for collaborative writing using NLS (80%).

2

This group wouldn't need to be pure overhead but could instead address itself to real problems such as putting together descriptions of ARC and NLS in various lengths and for various audiences, trying to illustrate what we really mean by such terms as "Augmentation" and "Knowledge Workshop," and in general creating a library of good writing that can be used as exemplary and source material for LINAC writing projects.

3

Is there anyone else out there who is interested in organizing or working with such a group -- or has even better suggestions on how to improve our writing? -- Walt

4

Proposed ACTION for Better Writing

(J15990) 17-APR-73 17:39; Title: Author(s): Bass, Walt /WLB;
Distribution: /sri-arc ; Sub-Collections: SRI-ARC; Clerk: WLB;