NJN 19-SEP-73 06:37 19139

USING Notes

Judy--
I asked Marcia several weeks ago to release a file in my directory as a USING Note. She assigned me USING Note #4 and NIC #18259, which I filled in in the right places in the file. About a week later I received something Marcia wrote as USING Note #4, and immediately sent her a note asking about the confusion of numbers. I received no response from her. I wanted this note released a month ago and , not only has it not been released but there is no number assigned to it. Will you please take care of this right now? If you don't want to change the numbers yourself, [they are in (bbn-net,usingnotes,1)], please send me a message with the correct numbers and I will do it myself. In any case I want this released by the end of the week. Any problems with that schedule, pleas contact me right away.
Thanks, Nancy
The file is (bbn-net,usingnotes,). 1

NJN 19-SEP-73 07:46 19140

Comments on TAMAL

Dave--
I have the folowing comments to offer on TAMAL: 1

/-/ operator: This should be explained for non-PL/I users; as is, there is no indication of what function is being performed. 2

FORK used with files: explain more of how this is used. 3

Evaluation of IF <text-expression>: how is the text evaluated? If the textis a number, then one can infer from your explanation in statement 3c1. What if it is not a number? 4

In 819088,3c1) you should clarify that the text may be "10" but not "TEN". 4a

<external refernce>: You should give specific examples of what this might be, rather than just the concepts mentioned in (3e6a). Particularly since you don't specify it in the syntax. 5

TEXT <text-type>: if TEXT and DTEXT are identical as you claim, then why do you need both of them. If they aren't identical, why did you say they were, and please explain the difference. 6

Also, it was not clear until I poured through the syntax that TEXT, DTEXT, and STEXT were to substitute for each other in the first word position of the command. I at first thought they were to be parameters of the general command TEXT, and couldn't find where tey were specified. 6a

I think it would be neater to have a command TEXT with an optional parameter <eval-type> ::= D S for specifying dynamic and static evaluation. 6b

Some general comments on the formal syntax. Don't use angle brackets (<, >) around expressions that are not syntactic units, e.g. <valid-external-system-refernce>, <string-without-delim>,etc. It makes them appear to be non-terminals that will be further defined. 7

You should define <delim>. 7a

<label-ref> is unnecessary; it has only one meaning, i.e. <label>, which you can use in any place that <label-ref> occurs. 7b

The second option in the definition of <do-parms> should be<do-parm>. You have an incorrect "s" in there. 7c

You should define or make more explicit <process-parms>. 7d

Other than all of that, it looks good. Since I just had to type this

in twice because of a stupid error I made (which I won't mention), I will quit now. Ciao, Nancy

8

PDP-10 SNOBOL Request

Does anyone have or know of a PDP-10 SNOBOL compiler superior to that distributed by DEC, available either free or for purchase. Please respond by contacting Howard Wactlar, C.S. Dept., Carnegie-Mellon Univ., Pittsburgh, Pa. 15213, or by sending mail to S300HW09@CMU-10A (host #78), or send journal mail to ident HDW. Thanks. 1

JCN 19-SEP-73 10:26 19142

Question about the BBN Pager

Mike: I heard from John Perry that there is a "spare" BBN pager at NASA Ames that might be available for use on the Utility. I know this info comes to us late, but did want to mention it. As I understand it, BBN has gone ahead on good faith building a pager especially for you and us. I cetainly wouldn't want to do anything that fouled them up after their cooperation here. When is their page to be delivered, when expected to be checked out? I have the feeling that the Ames pager is offerred much too late....but what do you think? perhaps we could get it put on ice for the next PDP-10 we get hha or maybe it would be a 10-i. Let me know. Jim 1

tickler - 24 Sep - 5 Oct (2 week layout)

(sm5) 24 September - Monday 1

0830 hrs. Branch Chief's Meeting 1a

Remind DiNitto - Form 77 Change A for PRB-4-3230 - Need signature. 1b

Remind Nelson & DiNitto need trip report for Omaha NB trip. 1c

(st5) 25 September - Tuesday 2

Due Date - Survey of Research & Development in Support of Automated Data Processing (DM-1) 1634's - IMMEDIATE ATTENTION 2a

Due Date - Wingfield - Technical Evaluation - PR B - 4 - 3219 - AHI Line Printer 2b

Combined Federal Campaign Film - Auditorium - Bldg. 106 - 1400 - 1430 hrs. Remind Tom B. 2c

(sw5) 26 September - Wednesday 3

0830 hrs. Branch Chief's Meeting 3a

Laboratory Activity Reports are due tomorrow. 3b

(sth5) 27 September - Thursday 4

Officers' Commander's Call - 0900 hrs. - Auditorium - Bldg. 106 4a

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 4b

(sf5) 28 September - Friday 5

Timecards due today. 5a

form 2's (employee time expenditures) are due today. 5b

form 6's (projected manpower) are due today. 5c

(om1) 1 October - Monday 6

0830 hrs. Branch Chief's Meeting 6a

News Brief items due into Becky Today. 6b

Bobbie: Personnel Strength Rpt. due. 6c

tickler - 24 Sep - 5 Oct (2 week layout)

ISIM - Evaluation of report, "Generalized Data Base Management Systems & Selected Air Force Applications" 6d

(ot1) 2 October - Tuesday 7

Lt Col Thomas J. Wachowski, Directorate of Mathematical and Information Sciences (AFOSR) - Will be here 2 & 3 Oct to look at the technology program of RADC/IS(mainly, software research & pattern recognition). 7a

Univac Technical Seminar - At the Beeches 7b

(ow1) 3 October - Wednesday 8

0830 hrs. Branch Chief's Meeting 8a

laboratory activity reports are due tomorrow. 8b

Due Date - Excess Property List - ISIS & ISIM 8c

Lt Col Wachowski - Note statement above 8d

8e

(oth1) 4 October - Thursday 9

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 9a

ISC Confessions 0830 hrs. 9b

(of1) 5 October - Friday 10

Bobbie: Travel figures due by noon. 10a

Timecards due today. 10b

RFC #574
NIC #19144

Mark Krilanovich
UCSB
Sept 26, 1973

Announcement of a Mail Facility at UCSB

There now exists a server program at UCSB, resident under socket 3, which supports that subset of the File Transfer Protocol necessary for mail delivery. Only the MAIL and BYE commands are implemented at this time.

Mail may be sent to an individual at UCSB by specifiying his local user name in the MAIL command. The following is a list of those individuals currently defined as valid recipients of Network mail, each with their respecitve user name: Ed Faeh (FAEH), Jim Guyton (GUYTON), Mark Krilanovich (KRILANOV), Curtis Mosso (MOSSO), John Pickens (PICKENS), and Ron Stoughton (STOUGHTN). In addition, any general comments or complaints about UCSB services may be sent to user name GRIPE.

NWG/RFC# 574 MCK 26-SEP-73 09:57 19144
Announcement of a Mail Facility at UCSB

(J19144) 26-SEP-73 09:57; Title: Author(s): Mark C. Krilanovich/MCK;
Distribution: /SA NLG; Sub-Collections: NWG NIC NLG; RFC# 574; Clerk:
MCK;
Origin: <UCSB>FTPRFC.NLS;6, 26-SEP-73 09:54 MCK ;

19144 Distribution

George N. Petregal, Michael B. Young, Michael A. Padlipsky, Schuyler Stevenson, L. Peter Deutsch, John Davidson, Thomas O'Sullivan, Sol F. Seroussi, Scott Bradner, Robert H. Thomas, Michael J. Romanelli, Ronald M. Stoughton, A. D. (Buz) Owen, Robert L. Fink, Jeanne B. North, Steve D. Crocker, Thomas F. Lawrence, John W. McConnell, James E. (Jim) White, A. Wayne Hathaway, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Abhay K. Bhushan, B. Michael Wilber, Edward A. Feigenbaum, Robert T. Braden, James M. Pepin, John T. Melvin,
Station Agent, John F. Wakerly, Tom C. Rindfleisch, Leonard B. Fall, David L. Hyde, Gary Blunck, Tom P. Milke, Alan H. Wells, Chuck R. Pierson, Carl M. Ellison, Robert P. Blanc, Jay R. Walton, Terence E. Devine, David J. King, William L. Andrews, Milton H. Reese, Kenneth M. Brandon, Lou C. Nelson, Jeffrey P. Golden, Richard B. Neely, Dan Odom, Ralph E. Gorin, Robert G. Merryman, P. Tveitane, Adrian V. Stokes, David L. Retz, Reg E. Martin, Gene Leichner, Jean Iseli, James E. (JED) Donnelley, William Kantrowitz, Michael S. Wolfberg, Yeshiah S. Feinroth, Anthony C. Hearn, Eric F. Harslem, Robert M. (Bob) Metcalfe, Bradley A. Reussow, Daniel L. Kadunce

Output Journal Mail

What does Output Journal Mail do??

JLM 20-SEP-73 13:59 19146

hese aare minutes of a meet i was at i am journalizing them as well as putting a link into my sadpr85 file so be my guest

hese aare minutes of a meet i was at i am journalizing them as well as putting a link into my sadpr85 file so be my guest

The following are some quotes and observations made at the meet held on 18 sept. when the laison men from the major air commands and air staff were welcome and briefed and the study. 1

General Larsen 1a

There has to be a better way of doimg business,the af cannot survive if it does not somehow come up with procedure policies etc which streamline and make more cost effective its operation. 1a1

He also said thaat from his experience as amanager he had yet to see where the computer was useful to any mg,t type of decsion. 1a2

some vp of mitre - 1b

Don,t be afraid to be innovative.he desribed many case where mg,t is bound to resist any new ideas since it will impinge on the way they are used to doing busiess 1b1

Lt Col O,Keefe 1c

Stressed that it be kept in mind this study is aimed a tbase level services not at specific mission or functional org,s 1c1

i might comment that this is a confusing issue since in effect that is whaat the b-3500 does not do in many cases.It does support many fuctional programs with supply being the classic example 1c1a

The objective is to provide better services than are now being provided for same or less money. 1c2

He also stated that their is a urgencie to this study since they want to get it into the pam I think was the words for 1974. 1c3

Also,the data systems design Center will implent the plan we come up with. 1c4

This will include how ifo is stored and concepts for handinling info. 1c4a

Blanks or Brackets

The team writing the HELP data base is at loggerheads over one issue: whether in examples of the users litteral typein to represent space by a blank (" ") or by an acronym in angle brackets ("<SP>" or "<SPACE>"). 1

We are using angle brackets to show non-printing characters in general. We will use "<CR>" for carraige return and for control characters, e.g. "<control-c>". 2

We have agreed to solicit the opinions of various experienced users. If you have a opinion, please get it to me by the morning of the 21st. 3

MINUTES: SURSC Meeting, August 19, 1973

These minutes summarize the main points discussed at the SUR Steering Committee Meeting at SRI on Aug. 19, 1973. 1

The first 3 points all relate to the halfway progress report. 1a

1. Possible Halfway Recommendations 1b

Steve outlined the following halfway point possibilities:
1. cut down (or cut out) some contractors
2. stay on present course
3. cut down on total money
4. restructure individual goals for sites (ie. not all sites build total systems). 2

There is no possibility for increasing the overall level of support. 2a

2. Review of Original Goals 2b

The original goals (as listed in the Final Report) were reviewed to see whether they seemed unrealistic. These goals, together with comments made, are listed below. 3

'The system should:
1. accept continuous speech
2. from many
(it is not clear how 'many')
3. cooperative speakers of 'General American' dialect
(June Shoup says that 'General American' was a poor choice of words)
4. in a quiet room
5. over a good quality microhone
(might like to allow telephone: Raj says that this takes about 1 man-year of effort)
6. allowing slight tuning of system to speaker
(at most a few hours would be the hope: only male speakers)
7. permitting a slightly selected vocabulary of 1000 words
(current vocabulary: Woods- 1500, Reddy- 1000)
8. with a highly artificial syntax
(some systems will have quite natural English syntax)
9. in a task like the data management or computer status tasks 10. with a simple psychological model of the user
11. providing graceful interaction
(whatever that means)
12. tolerating less than 10% semantic error
(again, its unclear what is meant in concrete terms)
13. in afew times real time
(if implemented efficiently in today's technology) 4

The general consensus was that we needn't and shouldn't alter these goals. 5

3. The Halfway Report 5a

It was decided that the halfway report should consist of two parts: 6

1. A 2-day meeting in Washington (Oct. 18-19).
-Each site will present a 1 hour talk describing the current status of their progress, particularly in terms of the original goals, to be followed by 1 hour of discussion.
-Each site will prepare a 2-3 page written report to supplement the talk. These papers are due on the Net by Oct. 15.
-The smaller contractors are also invited to these presentations. 7

2. A 1-week safari by the public members, visiting each site, to be made sometime during November. After the safari, the public members will talk (by telephone etc.) to Steve. 8

Some sort of document will have to be produced, but nothing like a second speech report. Also, a demonstration should be prepared for ARPA sometime between Dec. and Aug. 9

4. Revision of the Steering Committee 9a

It was decided to enlarge the SURSC to include one member from each smaller contractor. An executive committee of only public members could meet separately if necessary. 10

5. Communication Between Groups 10a

It was suggested that the degree of day-to-day informal communication between groups could be improved. One suggestion was that I compile a list of workers at the various sites broken down by keywords describing their interests. 11

6. Rights of Smaller Contractors 11a

The issue of what 'rights' smaller contractors had to use parts of the systems developed at the major sites was discussed. The consensus seemed to be that they should have a fair degree of freedom, and should feel entitled to use the systems if they wanted to, although presumably some negotiation might be necessary. Joint research projects were particularly encouraged.
The converse issue was raised by June Shoup: are smaller contractors bound to carry out any project proposed to them by a major site. The feeling was that in such a case, negotiation was appropriate to assure that both parties felt comfortable with the proposed request. 12

7. Data Base 12a

It was decided that part of the October meeting would be a session in which each site described how they might use the Lincoln data base, if at all. 13

8. Comparative Evaluation of Whole Systems 13a

The question of whether there is some way that different systems can be compared was discussed. Clearly we are not at a point where a general top end program can easily be adapted to the various sites domains.
A number of people seemed to agree that it might be possible to run differnt top ends with different bottom ends, if the interface between syntax and semantics on the one hand, and lexical look-up on the other hand was sufficiently clean. 14

9. ARPA SUR Research Fellowships 14a

It was proposed that a number of junior or senior Post Doctoral Fellowships might be created. They would support someone working at one of the contractors for 1-2 years. They would not be grants to support work elsewhere, but rather would halp attract independent talent into the ARPA SUR effort.
Steve wanted some general feedback as to how this sort of program should be set up. 15

16

CFD 19-SEP-73 12:20 19149

CML Documentation

This is the first release of documentation on the CML interpreter and parser. The appendices should be useful in writing and running CML programs.

COMMAND META LANGUAGE -- CML 1

INTRODUCTION 1a

The command meta-language (CML) is a vehicle for describing the syntax and semantics of the user interface to the NLS system. The syntax is described through the tree-meta alternation and succession concepts. The semantics are introduced via built-in functions and semantic conventions. 1a1

No attempt is made to describe the full semantics of any command via CML, but it is hoped that the front-end interface (parsing and feedback operations) may be explicitly accomodated with these facilities. It will still be necessary, and desirable, to use execution functions to perform the low-level semantics of the command. The CML describes how the command "looks" to the user, rather than what it does in the system. 1a2

USE OF CML 1b

The user interface for the NLS command language is defined in the CML specification language. This "program" is then compiled by the CML compiler (written using ARC's tree-meta compiler compiler system) to produce an interpretive text which drives a command parser. The command parser is cognizant of the device dependent feedback and addressing characteristics of the user's i/o device. 1b1

ELEMENTS OF CML 1c

PROGRAM STRUCTURE 1c1

The basic compilation structure of a CML program is described by: 1c1a

```
file        = "FILE" .ID [system] #subsys "FINISH";          1c1a1
system      = "SYSTEM" .ID %system name% '=                  1c1a2
              #<'/>.ID %names of subsystems % '; ;           1c1a3
subsys      = "SUBSYSTEM" .ID % subsystem name --
%                                                            1c1a4
               #(command / rule) "END.";                     1c1a5
command     = "COMMAND" rule ;                               1c1a6
rule        =  .ID '=  exp '; ;                              1c1a7
```

The "file" construct brackets the definition of command language subsystems and may optionally include the system definition (which defines all subsystems contained in a particular system). 1c1b

The subsystem contruct brackets a set of rules or commands. The commands are linked together to form a command language subsytem. 1c1c

Each rule/command is named with an identifier. This name is a global symbol and should not conflict with any other variable names, rule names, or keywords. 1c1d

RECOGNIZERS 1c2

Keyword Recognition 1c2a

The process of keyword recognition is independent of the description of the keywords for CML. In the CML description, each keyword is represented by the full text of the keyword. The algorithm used to match a user's typed input against any list of alternative keywords is known as keyword recognition, and is a function of the command interpreter and is independent of the CML description of the command. 1c2a1

Keywords are written in the meta language as upper-case identifiers enclosed in double quote marks optionally followed by a set of keyword qualifiers. 1c2a2

```
keyword        = .SR [ '  #qualifier '  ]                    1c2a2a
```

The qualifiers serve to control the recognition process for the keywords and to override the system supplied internal identification for the keywords. 1c2a3

```
qualifier      = "NOTT"          % DNLS only keyword %       1c2a3a
               /"NOTD"           % TNLS only keyword %       1c2a3b
               /"L1"             % first level keyword %     1c2a3c
               /.NUM             % explicit value for
keyword %                                                    1c2a3d
```

Selection Recognition 1c2b

Three types of selections are built into CML. They are DSEL, SSEL, and LSEL (see -- <userguides,commands,1> for

the explicit definition of the selections). Basically, they are recognizers which require some entity type as an argument and they return a pair of text pointers in the state record. The entity type is obtained either by some previous invocation of the recognition function for some list of keyword entities, or use of the VALUEOF built in function. 1c2b1

The DSEL, SSEL, and LSEL functions perform all evaluation and feedback operations associated with the selection operations. 1c2b2

```
selection      = ("SSEL"/ "DSEL"/ "LSEL") '( param ')   1c2b2a
```

Other Recognizers 1c2c

The processes of viewspec recognition, level adjust recognition and command confirmation recognition are represented in CML by built-in parameterless functions in the meta-language. 1c2c1

```
others         = "VIEWSPECS"    % viewspec collection %  1c2c1a
               /"LEVADJ"        % leveladj collection %  1c2c1b
               /"CONFIRM"       % command confirmation
%                                                        1c2c1c
```

FUNCTION EXECUTION 1c3

Functions may be invoked at any point in the parse by writing a name of some routine and enclosing a parameter list in parentheses. All functions invoked by the interpreter must obey the groundrules set up for interpreter routines. The actual arguments are passed by address, rather than value, and two additional actual arguments are appended to the head of the argument list. 1c3a

```
control    = .ID % routine name % '( $<',> param ')      1c3a1
param      = factor          % expression element %       1c3a2
           / "VALUEOF" '( .SR )   % keyword value %       1c3a3
           / '# .SR          % same as VALUEOF %          1c3a4
           / "TRUE"          % boolean TRUE value "       1c3a5
           / "FALSE"         % boolean FALSE value "      1c3a6
```

```
                / "NULL"        % null pointer value %          1c3a7
```

FEEDBACK CONTROL 1c4

The feedback control elements of CML are used to provide feedback in addition to the normal feedback generated by the recognizers. This is used to implement additional "noise words" and help feedback. 1c4a

1) adding feedback to the command feedback line. 1c4a1

A string may be added to the current command feedback line by enclosing the quoted string in angle brackets. 1c4a1a

```
extra feedback = '< .SR '>                                     1c4a1a1
```

2) replacing the last word in the feedback line. 1c4a2

It is possible to replace the last string in the command feedback line by using the string replace facility. This is similar to (1) above except the previous word in the feedback line is deleted before adding the new string. 1c4a2a

```
replace extra feedback = '<"..." .SR '>                        1c4a2a1
```

A function is also provided to initialize the command feedback mechanisms and clear the command feedback line. 1c4b

```
clear cfl = "CLEAR"                                            1c4b1
```

EXPRESSION DEFINITION 1c5

CML is an expression languge. Commands are defined to be a single expression and expressions are composed of successive/alternative expression factors. Alternative paths are indicated by the character '/ in the expression. 1c5a

The nesting of expressions may be explicitly defined with parenthesis and brackets are used to delimit optional expression elements. The dollar sign preceeding an optional construct is used to indicate that the optional element is repeated as long as the option character is typed in. 1c5b

```
exp             = #<'/>alternative;                            1c5b1

alternative     = #factor;                                     1c5b2

factor          = term                                         1c5b3
```

```
                        / '( exp ')                                    1c5b4
                        / '[ exp ']    % optional element %             1c5b5
                        / '$ '[ exp '] % repeated opt elements
        %                                                              1c5b6
        term            = subname      % id/ assign/ function
        %                                                              1c5b7
                        / confirm      % command confirmation
        %                                                              1c5b8
                        / feedback     % noise word feedback %          1c5b9
                        / recognition  % built-in recognizers
        %                                                              1c5b10
```

COMPLETE FORMAL SYNTAX OF CML 1d

```
file            = "FILE" .ID [system] #subsys "FINISH";                1d1
system          = "SYSTEM" .ID %system name% '=                        1d2
                        #<'/>.ID %names of subsystems % '; ;           1d3
subsys          = "SUBSYSTEM" .ID % subsystem name --  %               1d4
                        #(command / rule) "END.";                      1d5
command         = COMMAND .ID '=  exp '; ;                             1d6
rule            = .ID '=  exp '; ;                                     1d7
exp             = #<'/>alternative;                                    1d8
alternative     = #factor;                                             1d9
factor          = term/ '( exp ')/ '[ exp ']/ '$ '[ exp '];            1d10
term            = subname/ confirm/ feedback/ recognition;             1d11
subname         = .ID  [ '← param/ '( $<',>param ')];                  1d12
confirm         = "CONFIRM"; % call routine to terminate cmd %         1d13
recognition     = keyword/ builtinrec;                                 1d14
keyword         = .SR [ '  #qualifier '  ];                           1d15
```

```
qualifier       = "NOTT"/ "NOTD"/ "L1"/ .NUM;                    1d16

builtinrec      = [("SSEL"/ "DSEL"/ "LSEL") '( param ')          1d17
                        / "VIEWSPECS"/ "LEVADJ";                 1d18

feedback                = "CLEAR"/ '< ["..."] .SR '>;            1d19

control         = .ID '( $<',>param ');                          1d20

param           = factor/ ("VALUEOF" '( .SR ') / '# .SR)         1d21
                        /"TRUE"/ "FALSE"/ "NULL";                1d22
```

THE INTERPRETIVE TEXT 2

Each instruction of the interpretive text contains a structure word at least one function execution word. The structure word defines the alternation and successor paths of the grammar for the command language. The function execution words perform the actions of the interpreter. 2a

The structure words 2b

Each structure word consists of two pointers. The right half of the word defines the alternative node to the current node. The left half of the word points to the successor to the current node. Null paths are indicated by 0 valued pointers. 2b1

The executable function word formats 2c

Format 1: [OP CTL MODIFIER ADDR] 2c1

This is the only interpreter instruction word format presently defined. OP is an operation code. CTL contains control bits used by the keyword regognition function. MODIFIER may contain an additional value. ADDR is the address or principal value for the function. 2c1a

The functions of the interpreter. 2d

RECOGNIZERS 2d1

KEYOP -- keyword recognition. 2d1a

CTL = control bits for level 1 commands, DNLS commands, and TNLS commands. 2d1a1

ADDR = address of keyword literal string 2d1a2

The current input text is matched against the keyword string specified by the current node and all alternatives of the current node. This function performs keyword recognition on all of the alternative nodes of the current node simultaneously. 2d1a3

This function cannot fail. Control remains in the keyword recognition function until appropriate input is recognized or until the control is abnormally wrested via backup or command delete functions. 2d1a4

The value returned in the argument record is a single word containing the address of the string corresponding to the keyword actually recognized. 2d1a5

CONFIRM -- process command confirmation characters 2d1b

This function interrogates the input text for one of the command confirmation characters. Control remains in this routine until a proper confirmation is recognized, and command termination state is appropriately set. This function always returns TRUE. 2d1b1

The value returned is a single word containing a command completion code which identifies the completion mode. 2d1b2

SSEL -- get a source selection 2d1c

ADDR = not used 2d1c1

The sselect routine is invoked to process a source type selection. The return record contains two text pointers which delimit the selected entity. 2d1c2

DSEL -- get a destination selection 2d1d

ADDR = not used 2d1d1

The dselect routine is invoked to process a destination type selection. The return record contains two text pointers which delimit the selected entity. 2d1d2

LSEL -- get a literal selection 2d1e

ADDR = not used 2d1e1

The lselect routine is invoked to process a literal type selection. The selection type is passed as an actual

argument. The return record contains two text pointers which delimit the selected entity. 2d1e2

VIEWSPECS -- process viewspecs information 2d1f

The viewspec input routine is called to process the input stream for viewspec characters. The return record contains the two updated viewspec control words. This function always returns TRUE. 2d1f1

LEVADJ -- process level adjust information 2d1g

The level adjust input routine is called to process the input stream for level adjust characters. The return record contains a single word which indicates the relative level adjust value (u = +1, d = -1, etc). This function always returns TRUE. 2d1g1

CONTROL FUNCTIONS 2d2

EXECUTE -- transfer of control to another point in the tree. 2d2a

ADDR = address of root of tree for transfer of control 2d2a1

The current point in the tree is marked and control is transferred to the node pointed to by the address field. Control remains in the descendent node until it has been completely parsed, at which time control returns to the successor of the EXECUTE node. 2d2a2

CALL -- subroutine invocation 2d2b

MODIFIER = number of actual parameters 2d2b1

2d2b2

ADDR = address of the subroutine 2d2b3

The appropriate number of actual arguments are popped off of the evaluation stack and passed to the routine whose address is contained in ADDR. 2d2b4

The resultptr from this routine is pushed onto the eval stack if it returns TRUE. 2d2b5

OPTION -- test for an optional construct. 2d2c

If the next input character is the OPTION select character, then it is read and control is transferred to

the node at address ADDR. If the next character is not the OPTION character, then control passes to the successor path of the current node. 2d2c1

ANYOF -- collect alternative optional keyword values 2d2d

If the next input character is the OPTION select character, then it is read and control is transferred to the node at address ADDR. After the descendent nodes have been processed, control returns to the ANYOF node, permitting another optional selection to be made from among the set of alternatives. The result values from the succession of optional recognitions are logically OR'ed together to form the value for the ANYOF node. If the next character is not the OPTION character, then control passes to the successor path of the ANYOF node. 2d2d1

FEEDBACK ELEMENTS 2d3

FBCLEAR -- clear the contents of the feedback buffers. 2d3a

The feedback state information and command feedback line are set to their initial or empty position. 2d3a1

ECHO -- appends a noise-word string to the command feedback link 2d3b

ADDR = address of the text string to be appened 2d3b1

RECHO -- replaces the last noise-word string in the command feedback line 2d3c

ADDR = address of the text string which is to replace the last item in the command feedback buffer 2d3c1

VALUE MANIPULATIONS 2d4

LOAD -- loads a pointer to an argument record into the top of the eval stck. 2d4a

ADDR = address of the variable containing the pointer to the argument record. 2d4a1

The pointer value contained in the variable whose address is contained in ADDR is pushed onto the top of the eval stack. 2d4a2

STORE -- saves a pointer to an argument record in a variable 2d4b

ADDR -- address of the variable 2d4b1

The address of an argument record is fetched from the top of the eval stack and is saved in the variable at address ADDR. 2d4b2

ENTER -- enters a constant value into the argument record pointed to by the top of the eval stack. 2d4c

ADDR -- value to be entered (18 BITS only) 2d4c1

The value is taken from the ADDR field of the instruction and is entered into the argument record for the ENTER node in the path stack (whose address is at the top of the eval stack). 2d4c2

VALUEOF -- enters the system value for a keyword into the argument record . 2d4d

ADDR -- address of the KEYWORD string. 2d4d1

The ADDR points to a string variable. The literal area is searched for a match with the argument string and the address of the literal string which matches the keyword string is entered into the argument record for VALUEOF, whose address is pushed onto the top of the eval stack. 2d4d2

FLOW OF CONTROL IN THE INTERPRETER 3

At any point in the process of parsing, the control pointer for the interpreter points to a structure word in the grammar. A path stack also exists which shows the nodes from which TRUE returns have been achieved. Some operations mark the path stack for halting the backup process. The parser has 4 distinct control states defined as follows: 3a

1) parsing: recognition state where input text is compared with gramatical constructs to determine the parsing path in the parse tree. 3a1

2) backup: A FALSE return has been obtained from some execution/recognition function. The path stack is backed up until a non-NULL alternative path is found, at which time the parse mode is set to parsing, and recognition of the alternative path is attempted. If no non-NULL alternative path is found, then the parse fails and the interpreter returns FALSE. 3a2

3) cleanup: A terminal parse has been achieved and control is

passed to each execution routine to reset any state informations set by the routine. 3a3

4) repeat: The command is being repeated, and each execution function is given control to redo the operation it last performed (if its function is defaulted by the semantic action of the command). 3a4

The general flow of control is: 3b

1) An initial path stack entry is constructed, and the parse mode is set to parsing. The execution function for the current node is evaluated. A pointer to the "function state record" is passed to the routine. The state record contains the return values for the function as well as a record of any state information saved by the function (for backup purposes). 3b1

2) If the function returns TRUE, then the successor to the current node becomes the current node. If this is NULL, then the ptrstk stack is backed up until a non-NULL successor path is found. If none is located before the bottom of the current parse state is reached, then the root of a parse tree has been reached, and a command has been successfully executed. In this case the command reset operation is performed and the interpreter is set to "parsing" mode once more. 3b2

3) If the function returns FALSE then the parser mode is set to "backup" and a non-NULL alternative path is sought. 3b3

After a command has been executed, the parsing path for the tree is re-evaluated in "reverse order" beginning with the terminal node of the path. Each execution function is re-invoked, in "cleanup" mode, and is passed the handle for the state information record which it generated on the forward pass through the grammar. Each execution routine has the responsibility of resetting any state information which it wishes to do at the termination of a command. Cleanup continues until a "starting point" is reached in the parse. This is generally the beginning of the command. At this point, the interpreter "shifts gears" and goes into forward or recognition mode and begins back down the grammar for the language. 3c

The same backup mechanism is also used during command specification in order to back up the parse to allow the respecification of all or part of the command. The command delete function backs out of the parse tree until the beginning of the command is reached. 3d

The same backup mechanism may be adapted to control the partial

backup required for executing commands in "repeat mode" where at least one of the alternatives are defaulted to their current values. The process of marking some nodes in the execution path as defaulted is as yet undefined. It seems that it should be possible to identify those execution functions which need not be re-evaluated in subsequent invocations of the command. The interpreter would then be smart enough to skip over defaulted parameters when in the forward or specification phase of the command and would not invoke backup for defaulted parammeters. 3e

APPENDIX 1: USING THE CML SYSTEM 4

WRITING CML PROGRAMS 4a

Source programs for the CML compiler are free form NLS files. Comments may be used wherever a blank is permitted and the structural nesting of the source file is ignored by the compiler. 4a1

COMPILING CML PROGRAMS 4b

CML source programs are compiled into REL files with the Output Compiler command using CML as the compiler name. The current marker (top of display area) should point to the first statement of a CML program, not the top of an NLS file. 4b1

RUNNING CML PROGRAMS 4c

After loading the user program for the parser (<rel-nls>parser) and your rel file, you must connect your grammar to the parser. This is done by using NDDT to change the contents of the global cell "GRAMMAR" to point to your grammar (whose address is contained in the symbol table entry corresponding to your subsystem name). 4c1

Example: 4c1a

IF your subsystem name is "expjournal" then you could connect the parser to your grammar with the following NDDT command: 4c1a1

S[how] L[ocation] GRAMMAR_EXPJOURNAL<CR> 4c1a2

After connecting your test grammar to the parser, parsing is initiated by the NLS command : 4c2

G[o to] P[rograms] E[xecute program] PARSER CA 4c2a

FUNCTION INTERFACE PROTOCAL 4d

The syntax of the function call in the CML meta-language is similar to that of most programming languuages: the name of the function is followed by a list of expressions enclosed in parenthesis. In the CML system however, there are some strict rules which apply to all execution functions invoked by the interpreter. These rules are enumerated below: 4d1

1) Additional actual arguments 4d1a

Preceeding any actual arguments which appear in a function reference in CML, the interpreter supplies two additional actual arguments. These are: 4d1a1

1) a pointer to the "function state record" 4d1a1a

2) an integer which defines a parsing mode 4d1a1b

= parsing: normal execution mode 4d1a1b1

= backup: backup after a FALSE path is taken 4d1a1b2

= cleanup: resetting of state after completion of command 4d1a1b3

These addtional arguments must be used by all execution functions to determine what they are to do. The pointer to the "function state record" is used to return values from the function and to save state information associated with a particular invocation of the function. The length of the function state record is presently 9 words and this record may be formatted in any manner appropriate to the function. 4d1a2

If 9 words is not sufficient space to record all of the state associated with a particular invocation of a function, then the function must use a storage allocator to allocate the additional storage and record the handles to the allocated storage in the function state record. Note that if this additional "local state" storage is required, then it is the responsibility of the execution function to de-allocaate the local state storage when called in backup or cleanup modes. 4d1a3

2) Returning parse failure 4d1b

All execution functions are passed a pointer to their function state record. If the function processes normally, then it returns the same pointer as its only

return value. If the function decides that the parse should fail at a given point, then it returns FALSE. 4d1b1

3) Passing arguments by address 4d1c

All of the actual arguments in a function call on an execution function are passed by address rather than by value. The values actually passed are pointers to the function state records corresponding to the actual arguments. The format of the function state records are defined by the execution functions which manipulated them, and thus the location of parameter values in these records is determined by convention, the caller and callee having previously agreed to a particular layout for the function state record. The layout of the records for the built-in interpreter functions in given elsewhere in this appendix. 4d1c1

4) Order of control 4d1d

An execution function will always be called in parsing mode before it is called in backup or cleanup modes. 4d1d1

A function routine which saves state information in the function state record must initialize its state record to some consistent state before it calls any subroutines which may cause SIGNALS or otherwise cause control to abnormally pass above the execution funtion. 4d1d2

Format of the function state records for the built-in CML recognizers. 4d2

Each of the functions of the CML parser utilitzes the function state records in a locally defined way summarized below. 4d2a

REGOGNIZER	RECORD FORMAT	# WORDS USED	
keyword	word 1: address of keyword str	1	4d2c
viewspecs	word1: updated vs word 1	7	4d2d
	word2: updated vs word 2		4d2e
	words 3-7: vs collection string		4d2f
levajd	word1: level adjust count	7	4d2g
	(u = +1, d = -1, etc)		4d2h

```
% the following sample program should help illustrate the use of
the CML language for describing NLS commands. %                    5a

% the grammar is taken from observation of a hypothetical first
grade class in the process of receiving art instruction %          5b

% for a more exhauative example, take a look at (dornbush,syntax,)
%                                                                  5c

FILE sampleprogram   % CML to sample.rel %                         5d

   SUBSYSTEM sample                                                5d1

      objects =                                                    5d1a

         "GLUE" L1                                                 5d1a1

        / "PASTE" L1                                               5d1a2

        / writingthings;                                           5d1a3

      writingthings =                                              5d1b

         "CRAYONS" L1                                              5d1b1

        / "PENS"                                                   5d1b2

        / "PENCILS";                                               5d1b3

      COMMAND zuse =                                               5d1c

        "USE" L1   what . writingthings                            5d1c1

          <"to draw a pretty">                                     5d1c1a
```

```
            ( whom ← "PICTURE" L1  <"of Aunt Mary">                5d1c1a1
            / whom ← "SKETCH" L1  <"of your dog"> )                5d1c1a2
          CONFIRM                                                  5d1c1b
          % call execution routine process the USE command         5d1c1c
            *** commented out for now ***                          5d1c1c1
            xuse( what, whom)                                      5d1c1c2
            ***    *** % ;                                         5d1c1c3
                                                                   5d1c1d
      COMMAND ztake =                                              5d1d
        "TAKE" L1  what ← objects                                  5d1d1
        <"out of your">                                            5d1d2
          where ← ("EARS" L1  / "NOSE" L1  / "MOUTH" L1 )          5d1d2a
        <"PLEASE  "> CONFIRM;                                      5d1d3
  END.                                                             5d2
FINISH                                                             5e
```

APPENDIX 3: SAMPLE INTERPRETER FUNCTION ROUTINE 6

DHC 19-SEP-73 13:04 19150

Response to (19126,)

Dirk -- Thanks for info on the two community computer projects. I thought the 940 went to a group called Resource One.

If they have a mailing list, and there is any easy way to get on it, I would like to. Or if you have a pointer(s) to how I can.

I fixed the Output Processor problem, by the way, by replacing my GCR directives with carriage-returns, and my Tabto directives with control I's and enabling tabbing. It was all very strange.

So what else is new??

D/

sadpr85 notes

11 Sept.-SADPR-85 1

operating systems remarks by Lt Col o,Keffe 1a

He stated that their was a lot of interest at the high levels in fact he apparently briefed yesterday a group of high level officers on the study.They stressed that the computer must be used to better help the AF to manage their resources 1a1

The cuurent base level machines are running out of gas and room,ie the 3500,s and the 1050,s 1a2

To upgrade these systems it is important that it be done in the context of a overall plan-thus the sadpr study was born 1a2a

He stated that the current systems were designed and implemented on a functional basis and that it may have been okay then but it is no longer acceptible and certanily not efficent. 1a2b

Stated that the study was to deal with base level business and their were emerging technology,s around such as texteditors and communication systems like the ARPA net which offered the AF a much more efficent and powereful way of doing busiiness. 1a2c

He stated thaat the STALOG was considered a good study as a point of departure as well as the Base Comm Study. 1a3

The following is the originaziton of the study. 1b

Director-lt Col O,Keeefe 1b1

Dep Dir Lt Col Hoffman from the Data Design center 1b2

Requirements-Major Zara 1b3

Concepts and Technology-Lt Col Conrraty 1b4

Resources-Mr zenlea 1b5

mitre project officer-j Mitchell 1b6

He stated that j mitchel had prepared a 1980 tchnology forecast which was just published 1b7

He also stated which is probably most significant that the study would result in a DAR which would then be implemented.As

i read the plan it does imply r&d though I am not too convinced at this point if they really mean it. 1b8

I was amazed to observe that I and frank are the only troups from the r&d side of the house. It is heavily manned by stems design center peopple.. 1b9

They intend to use the redactron system for the prepartion of the report, which is encouraging but i am nervous about their willigness to truly look at the 1980 time frame. 1b10

The following is a cut at the plan for conducting the technology forecasting task for the study. 2

tech reports forcasting the SOTA of the 1985 time frame are suggested in the following areas 2a

Software engineering 2a1

since the major cost factors of the systems is becoming heavily software it is important to assess the potential aids for producing programs-structured programming, automatic programming 2a1a

Multiprocess Systems 2a2

potential use of mini computers tied to gether ;all kinds of questions of how they will be tied to gether and programmed etc. 2a2a

Security 2a3

The whole question of what we can expect to be possible and what it will cost us 2a3a

OPERATING(Systems 2a4

The trend of what operating systems will require /or better provide in the time frame will be important to the development of a plan of operation for that time frame 2a4a

Networks and Distributed data bases 2a5

Ther is little doubt that the kind of data processing one will predict will require the use of networks etc. 2a5a

Data Handling Technology 2a6

The whole area of what tools will be avaiablee to the af

worker is of great interest.It is growing rapidly and the whole question of how fast and how it can be used is of greaat of importance 2a6a

data Processing Equipment Cost Factors 2a7

A market study will be conducted by some appropiate firm to help in predicting what will be avaiable in the 80,s 2a7a

Software Cost Factors 2a7b

This will examine the trend to make software packages avaible which one can use such as gdms .Also it will it what will cover cost to develop our own and maintain as well. 2a7b1

Communications Cost factors 2a7c

DCA and AFCS plans will be examine in house but under contract commercial trends will be examined as well. 2a7c1

Transition Planning 2a7d

The conversion of over 100 sites to new equipments and concept will be difficult and expensive .The experience of large corpations of carrying out similar conversions will be tapped through a contract study 2a7d1

Following are some of the questions which will be addressed 2a7d1a

Permit proto type dev and testing to minimize risk 2a7d1a1

Keep all parts of the af working with consistent system and data products 2a7d1a2

Keep the yearly expenditures at a acceptable level 2a7d1a3

Keep overall cost at a minimum 2a7d1a4

Consultants 2a7d2

It is expexted that a number of consultants will be needed in a few important areas to help in the predition of trends 2a7d2a

PR 19-SEP-73 15:39 19152

Tomorrow's Seminar on User Allocation is Postponed.

Since neither DCE nor JCN will be here tomorrow, we are postponing the seminar on group allocation that was scheduled for tomorrow, to Thursday Sept 27 at 3 pm in our conference room. 1

DHC 19-SEP-73 16:10 19153

Whither goest the SMMFS Source (from Interrogate)??

Jim -- There are severral SMFS files. Some are .SAV, and one is FAI. Once is SMFS... with some more characters (SMFSMSR??). What is the source I should look at/steal??

--Dave.

1

DHC 20-SEP-73 14:55 19154

Preliminary Draft of RFC to Correct RCTE Option

Please let me know if you have any suggestions/comments

Preliminary Draft of RFC to Correct RCTE Option

Network Working Group
Request for Comments: #

D. Crocker
21 SEP 73

NIC #

References: RFC 560, RFC 563
Categories: Protocols, TELNET, RCTE

1

Corrections to RFC 560
Remote Controlled Transmission & Echoing TELNET Option

1a

Section 1 of the RCTE Option specification (18492,2a:gy) was supposed to include the name and code for the option. The code was accidentally left out. That statement should read: 2

RCTE 7

2a

In RFC 563 (18755,) John Davidson criticizes RCTE's apparent failure to allow Net I/O and server computation to overlap. 3

I agree with John's criticisms and feel that the following should fix the problem: 4

1. Change 5.A (18492,2e1) 4a

   from: 4a1

      Overview of Interaction 4a1a

   to: 4a2

      Overview of User Terminal Printing Action & Control 4a2a

2. Change 5.B.5.a (18492,2e2e1) 4b

from: 4b1

A Transmission character is one which REQUIRES the User Host to transmit all text accumulated up to and including its occurrence. (For Net efficiency, User hosts are DISCOURAGED from sending before the occurrence of a Transmission character). 4b1a

to: 4b2

A Transmission character is one which RECOMMENDS that the User Host transmit all text accumulated up to and including its occurrence. (For Net efficiency, User hosts are DISCOURAGED from sending before the occurrence of a Transmission character). 4b2a

3. Change 5.B.5.b (18492,2e2e2) 4c

from: 4c1

A Break character has the effect of a Transmission character, but also causes the User host to stop its print/discard action upon the User's input text, until directed to do otherwise by another IAC SB RCTE <cmd> command from the Serving host. Break characters therefore define printing units. "Break character" as used in this document does NOT mean Telnet Break character. 4c1a

to: 4c2

A Break character REQUIRES that the User host transmit all text accumulated up to and including its occurrence and also causes the User host to stop its print/discard action upon the User's input text, until directed to do otherwise by another IAC SB RCTE <cmd> command from the Serving host. Break characters therefore define printing units. "Break character" as used in this document does NOT mean Telnet Break character. 4c2a

4. Change 5.B.6 (18492,2e2f) 4d

from: 4d1

Input from the terminal is (hopefully) buffered up to the occurrence of a Transmission or Break character; and the input text is echoed or not echoed, up to the occurrence of a Break Character. The most recent RCTE command determines the echo, Transmission and Break actions. 4d1a

to: 4d2

Input from the terminal is (hopefully) buffered into units ending with a Transmission or Break character; and echoing of input text is suspended after the occurrence of a Break Character and until receipt of a Break Reset command from the Serving host. The most recent RCTE Break reset command determines the Break actions. 4d2a

5. And add 5.C.5, 5.C.6, and 5.C.7 as follows: 4e

(5) The Serving and Using hosts must carefully synchronize Break Class Reset commands with the transmission of Break characters. Except at the beginning of an interaction, the Serving host MAY ONLY and MUST send a Break Reset command IMMEDIATELY AFTER receiving a Break character. This should establish a one-to-one correspondence between them. (A <cmd> value of zero, in this context, is interprested as a Break Classes reset to the same class(es) as before.) 4e1

(6) Text should be buffered by the User host until the occurrence of a transmission character in effect at THE MOMENT THE CHARACTER IS TYPED. 4e2

(7) Transmission Class Reset commands may be sent by the Serving host at ANY TIME. If they are frequently sent separate from Break Class Reset commands, it will probably be better to exit from RCTE and enter regular character at a time transmission. 4e3

(8) It is not immediately clear what the Using host should do with currently buffered text, when a Transmission Classes Reset command is received. The buffering is according to the previous Transmission Classes scheme. 4e4

The Using host clearly should NOT simply wait until a Transmission character (according to the new scheme) is typed. 4e4a

Either the buffered text should be rescanned, under the new scheme; 4e4b

Or the buffered text should simply be sent as a group. This is the simpler approach, and probably quite adequate. 4e4c

(9) It is possible to define NO BREAK CHARACTERS. This might actually be useful, as in the case of tranmsitting on carriage-return, with the Using host echoing. 4e5

The only problem is that the protocol does not provide any convenient way to then reset the Break characters, since Break Reset commands may only be sent by the Serving host after receiving a CURRENT Break character. 4e5a

It is therefore suggested that, in this particular case, RCTE be terminnated and then re-entered. 4e5b

Draft Job Description Para

Serves as a prime focal point in the Augmented Knowledge Workshop. Uses the ARPAnet and the NLS computer sytem in communicating, entering and retrieving information essential to the efficient operation of the Section and parallel, subordinate and superior organizations. 1

Maintains familiarity with the Computer system and its functions, including the TENEX executive system, the NLS on-line system, the Journal system, and the NIC [Network Information Center). Uses the computer system to perform all of the functions described in the following paragraphs. 2

Distribute Document on old items

The searching machinery for auxiliary catologs hasn't been implemented for "Distribute Document". Until this is done, documents older than 4 or 5 months cannot be distributed (current cutoff is 1-APR-73). 1

Don't shoot if you see the white's of their spaces.

Dirk et al

My preference for specifying that the user type a space is <SP>. This is quite similar to the SP we have been using but is easier for the user to understand. I have had questions from user's on the network using documentation where a space is designated by " ". Since many writers simply use a typed space to make the words clearer, the user is never sure whether a space is truly needed or not. When he follows all the syntax except for typing the " ", he cannot understand why nothing happens and tends to think there is a system problem.

Space War

I believe that I think that [how's that for qualification?) "<SP>" or "<SPACE>" should be used to represent blanks. Probably "SPACE" is best. I think an actual blank is a terrible representation; "SP" stands some (too much??) chance of not being understood by some peercentage of users.

--Dave.

1

DSK 20-SEP-73 16:03 19160

A Short Summary of Query Features for Help

for general information - feedback requested only if HELP data base writers discover additional specific needs.

A Short Summary of Query Features for Help

The HELP system is a user of the QUERY system. Certain extensions to the query execution logic are being made to accomodate HELP needs. 1

The following is a summary of features available to a data base writer. 2

This represents the approximate current level of plans and development, and is subject to further extension. 3

DEFINITION of TERMS 4

TOP NODE - refers to "TOP" of a data base, statement 0; the departure point from which the user may eventually see all possible selection choices. 4a

ADDRESSED NODE - the node indicated by the last SHOW operation or the last operation of any type which caused the system to print out a block of information; the top statement of the block of printed information. 4b

MENU - a list of numbered items sometimes presented by the system to the user who has executed a SHOW or taken a previous selection. 4c

QUERY SPECS (QSPECS) - data base builder options which may be imbedded in the data base directly preceeding a link, or by itself, if no link exists. They are enclosed in square brackets. The scope of Qspecs is the rest of the current node printout. Thus, they are reset to default values at each SHOW. 4d

QSPECS VALUES - They may appear in any order. Codes may be in small or capitalized letters. The parameters are run together with no separators. Errors are simply IGNORED. (The data base builder causes the errors, not the current user. Verification programs should be provided eventually.) 4e

CODE	MEANING	
		4e1
C	columnate the next menu	4e2
I	Include the substructure of the statement addressed by the next link	4e3
P	Show error messages.	4e4
N=digit	Override the system default for max menu items and use this value instead. When satisfied, the system will NOT ask the user if he wants more.	4e5

LINKS - the data base builder may enclose one or more standard NLS links in double pound signs: ##(kaye,test,one) (kaye,test,two)##. The purpose is to cause the query system, during printout, to execute the link and to extract the object statement and POSSIBLY it's substructure to include in the printout. 4f

INCLUDE - an include is the processing of a link, causing data from another physical location to be INCLUDED at the current location in the printout. Whenever this happens, the system automatically ejects a line. 4g

HOW THE SYTEM EXECUTES A SHOW COMMAND 5

Top statement 5a

1. The system locates the statement (addressed node). 5a1

It scans from left to right looking for ##.....##. 5a2

If no ##.....## is found, it simply prints or displays that whole statement, all lines. (go to "SUB-Plex of Top Statement".) 5a3

2. After finding a ##[ ]...## it changes the internal system qspecs to the new values inside the square brackets. Then, if there is a link, it "executes" it. If this an actual change of location (not just viewspecs alone), it prints or displays the first segment of the original statement (before the link) and the addressed INCLUDE statement. NOTE: Included statement(s) have their names and their ##.....## stripped out before printing or displaying. Links are never taken here. 5a4

3. If the qspecs show that SUBSTRUCTURE is to be INCLUDED it makes a MENU out of the subplex at the new location, and then returns to where it left off. 5a5

4. The above process is repeated until the whole source statement is exhausted. NOTE: Every INCLUDE causes a carriage return line feed. 5a6

SUB-Plex of Top Statement 5b

If present, this is processed according to Menu Rules. If one or more menus were generated from processing the top source statement, the numbering always continues from the last menu (so there will not be two number ones, for example.) 5b1

Rules for processing a Menu Plex 5c

A plex in the data base becomes a menu plex, then, simply by virtue of the fact that it occupies a particular position in the structure with relationship to the addressed node. 5c1

To prepare it for printing or displaying, the system does the following: 5c2

1. Determine if a statement is a menu statement - it must either be NAMED or begin with an asterisk. 5c2a

If columnation is OFF, a menu statement is printed out ONE line only. If named, the name shows, and if unnamed, the asterisk is removed. A unique number is concatenated to the front. 5c2b

If columnation is ON, a named menu statement has number-name only (no text) and is printed on the same line with up to 2 other named menu items. Unnamed menu statements are printed in full. 5c2c

2. If not a menu statement, it is printed out in full and receives no number. 5c2d

3. Whenever text is printed out for one of these statements, LINKS are taken and the destination statement is INCLUDED. However, substructure is NEVER included on these, even if viewspecs dictate their inclusion. 5c2e

4. In outputting menu selections, the system will adhere to the qspecs menu number setting, if used. Otherwise, the default max is currently 21. After hitting 21, the system will stop and ask the user if he wants more selections. If yes, it gives him up to 21 more, etc. 5c2f

<SPACE>'d Out

I'm for angle brackets around spaces. Literal spaces are useful for separating entities in syntax equations for style (without confusion, I hope.) It is too difficult to otherwise tell that a literal space is required to be typed in. Also, the convention chosen should be consistent with that for other non-printing characters. 1

KIRK 20-SEP-73 16:16 19162

Video Request

According to our records, you have on loan one copy of the half-hour video tape on ARC-NIC created for the ICCC. We would like to fulfill requests for this tape. If you could send it back it would be appreciated. Feel free to make a copy for your library. 1

Loving Grace's Phone Number

Loving Grace Cybernetics is some how connected to Resource One. I don't have an address, but their telphone number is (415) 845-4736. That's a Berkeley number.....By the way the jounral was not working (it was a day and a half before anyone noticed) so don't feel obliged to get me any response of blanks vs brackets until Monday, if you have any.

1

(the message I was about to send you the other night when you linked)

ADO 20-SEP-73 16:54 19164

Mil: 1

Thanks for your very generous offer for online NLS instruction. I originally asked about NLS classes on behalf of Dale duSette (which I have no doubt misspelled,) who is away right now. Dale would be a beginner. When I get a chance, I would like to take a few advanced lessons, since I'm self taught, and probably have large gaps in my knowledge and usage of NLS. Only assuming you have time, of course. 2

Buz Owen 3

SRL 20-SEP-73 16:59 19165

More Questions about Superwatch

Had some more questions about Superwatch, and decided to send a message instead of calling 1

First, when you look at the output, and it says something about 8:00, does that mean the period of time before 8 or after. Also how does it determine what subsystem a person is in? Is it just the one he happens to be in when the check is made? The reason I ask is because it seems that a lot of people are in the subsystem systat. 2

The last strange thing is that lately people have be said to be in subsystem .....+, whatever that is. What is it anyway? 3

4

Followup on Space War

<jjournal,19147> was delayed in delivery until this afternon, so don't feel obliged to reply, if you plan to reply, until Monday. 1

HGL 20-SEP-73 17:28 19167

Reply to Connie McLindon at ARPA Concerning Retrieval Systems

Copy sent to Connie McClindon at USC-ISI via SNDMSG

HGL 20-SEP-73 17:28 19167

Reply to Connie McLindon at ARPA Concerning Retrieval Systems

Jim Norton gave me your inquiry concerning retrieval systems on the net. We are currently engaged in a development effort aimed at providing such a capability within NLS. It is not clear, however, whether the system we are designing would fulfill your needs without some further information. 1

The development we plan to do wll be staged and while we are currently expanding the Query system for the Resource Notebook and a Help data base with completion expected within weeks, it may be several months until the complete retrieval system we are considering with more complex search and set creation capabilities for use with more general data bases will be available. 1a

You say in your message that you "are quickly exceeding the capacity of [your] in-house configuration." Could you provide us with some information concerning that configuration? What are your anticipated needs? It is not clear without that information whether the system we will have will meet those needs or meet them in time. 2

DVN 20-SEP-73 17:44 19168

Would You Give Dex One More Try?

As of today, DEX is running here. Woulld guys give it anoter try to make sure it runs thrugh the net?...Thanks 1

on representing spaces that are to be typed

re (JJOURNAL, 19147,1:w):

1

As you know, I prefer <sp> [or <SP>), to denote that the user must type a space. I prefer this over any other method proposed so far. It is consistent with our treatment of other invisibles, such as carriage return, tab, line feed, ... But there are other reasons, too:

2

EVERY thing that appears in ink on the page is thereby a clue to the user, and these are his ONLY clues as to what he is to type.

2a

We had a similar problem with carriage return, for example, and the decision to use <CR> was appropriate:

2b

It didn't seem wise to rely on the user "seeing" that he must strike the carriage return key.

2c

And it doesn't seem wise to rely on the user "seeing" that a blank is something he MUST type.

2d

what happens at the END of a line? Isn't it awkward (and prone to occasional error) for the data base builder to always have to insert his own carriage returns to prevent a space from occurring at the end of a line?

2e

What if the "space" were to BEGIN a line (as in one of the proposed recognition schemes)? Won't this be hard to discern if a blank is used?

2f

A "blank" or "blanks" should be used ONLY for readability. This is so standard a practice, I should think it needs no emphasis.

3

Also for readability, the string used in denoting the "space" character should be " <sp> ", that is, a blank before the left angle bracket, and a blank after the right angle bracket.

4

Response to (19166,) re Space Format

Response to #19166

Dirk,

For whatever value it may represent, I would vote for <SP>. Further, if it would be of any assistance to you, I would welcome your looking at: <help>tutorial, <help>tenex, and <help> engelbart. All may be viewed with NIC Query. These files were developed as experimental vehicles to assist some users, provide for evaluation of construction of such files utilizing designated facility, and in an attempt to promote more network collaboration in the construct and maintenance of such data bases. The TENEX file will be made complete and upper/lower case command distinctions consistent in the near future. Also, think the section on <↑X> in TENEX may need attention.

If I can be of any further assistence in your undertaking, it would be my pleasure.

Warmest regards, Jean

JCN 20-SEP-73 21:18 19172

Journal Trouble? Jean Iseli Problem Tonight

Dave: I tried to link to you tonight, but you were out. Jean Iseli of Mitre-tip linked with a Journal problem. He was submitting branch .8 from his initial file (mitre-tip,ji,8) [protected now] and got the message No such version He says that when he tried to submit it as a message, he got file space allocation exceeded message..hmm we looked at his mitre-tip disk space...it had 164 of 200 pp used. The branch was only a statement long, etc, etc.. Do you have any ideas about the nature of the problem? I'll add that I have sent a test mesage since and this and the Journal ssems to work for me.. Oh, almost forgot: I sent his message for him using a link to that branch (while he had it unprotected) and it worked to my knowledge. Let me know what you think ok? His ident is JI. 1

MTB 21-SEP-73 06:22 19173

TRIAL 4.

THIS IS A TRIAL MESSAGE, RIC, ABOUT NUMBER FOUR, I FIGURE. WHY CAN'T I SEND JOURNAL MESSAGES TO MYSELF? 1

Blanks and Brackets, response to (19147,)

Dirk--
The method used in the ICCC scenario booklet worked very well I thought: to wit, spaces should be denoted by <SP> in command strings where there might be some ambiguity (some languages tending to be obscure); but in strings of straight text (as in an example of insertion) a blank can be used because it shouldn't be ambiguous there.

Examples: @DEL<SP>FILE.;1<SP>FIL.2;1<CR>
<SP>insert<SP>st/...etc./
T: This is a sentence with spaces.

Thus my humble opinion. Salut. Nancy

1

JLM 21-SEP-73 07:16 19176

iproject admin

this is notes from a meet or presentation made by F Allen thought they might be of some interest

JLM 21-SEP-73 07:16 19176

iproject admin

Frank Allen made his pitch on this project the folloing are some notes and observations of the talk. 1

Staed this excludes tech manuals,functional mg,tintelligemce and command and control 1a

envisions terminals which will interface to all systems so each individual will require only one terminal 1b

First time it is quite clear and he said it one of the problems is no one know what admin cost us today so it is hard to show cost savings 1c

Was asked how could he show cost savings since without them it seems generally agreed it will never get off the ground 1d

He described the place in Baltimore where they put out 45 tons of paper work per day,i still can,t belive it.He stated that all ready bases were beginning to feel the pinch on paper shortages.-Seems as though you could make a case for parts of the project on that alsone-Odd though,F Allen does not like to focus on that agruing that the real cost are in the every day office admin 1d1

He does belive some kind of soft copy should be available which hard copy can be made from ,Commented that Mitre has a comparable system in their lab right now. 1e

Commented that only 6 bases are now using OCR,s to read messages for input into the system 1f

It would seem off hand that if you go the route of terminals for many of the air force types you will not need OCR,s 1f1

Described the reg,manuals and publications which they are responsible for 1g

There are 1 million pages of these-they do include graphics which means if you go the approach of havibg them avaible on line for review and only make hard copy on demand you will require a system that can cope with graphic 1g1

That was when the Mitre project which is experimenting with getting hard copy off from a tv type terminal was mentioned-have to find out more about that 1g1a

I did see a fantastic demo at Zerox labls in Menlo park by Bob Taylor where the kind of quality they were getting was

really something else probably should mention the mitre guy who maybe could visit etc. 1g1b

He then briefly mentioned a number of systems going in which he feels will have a bearing on administration. 1g2

Postal Directory and Base Locator 1g2a

i guess they are talking about using the MPC system soehow to keep track of all personnel from one central location and feeding the base 3500 with their subset. 1g2a1

Micro Form system-our old friend 1g2b

Minicaps a micor job for the Supply catalogs 1g2c

He sounded like the 3500 may be asked to maintain a index of the micreo form of the supply catalogs 1g2c1

He then described their plannned program to creaate admin centers much like IBM,s word processing centes where one would call in and dictate his work and get a quick turn around draft. 1g2d

The pentagon is being used as a application area 1g2d1

their are now 1200 clerk typist in the pentagon 1g2d1a

he also commented there were 3600 typewriters. 1g2d1b

the men in the question period really pushed hard that th admin types should realize the disparity in devices to clerks is because there is a lot of typing done by peopple who are not genereally recognized as needing typing skills 1g2d1b1

their proposal is to pool 600 of the tyoist into a number of word processing centers leave 600 in the individual offices for other kinds of jobs and release 600 clerks 1g2d1c

There was quite a bit of debate on this approach many arguing you could not get girls or i should say peopple to do that kind of work. 1g2d1c1

I don,t know IBM is doing but they have fleability in hiring salries and the like 1g2d1c2

I do think this plan resulted from the previous dir

of admin who talked of ggreat length of the IBM system and how one could not sell this kind of overall program without cost or peopple savigs and urged that this was a concrete way to staart.I am not clear on the status of this should check with f allen 1g2d1c3

The other cost savings he mentioned was mail 1g2d1d

He stated the air force is charged annualy 37 million $ in fact to the admin budeget i think 1g2d1d1

He desribed just by a sampling technique they were able to prove that it was to high for their amount of mail and are now being charged something like 20 mil which is a 12 mil savings-I should check this as i am a little unclear as i write this 1g2d1d1a

Few observations of questions asked etc, 1g2d1e

Col Hoffman observed that his counter part here major Zarra which was a surprise to him but did point ut there were new ways to get data prepared which no one up to now has faced up to 1g2d1e1

The theme of this meet and discussion and every other i have been to so far is that technology is here but how can we sell it and transition to it with cost reduction being the driving force of General Robbin,s charge to the study panel 1g2d1e2

Quick thought why not put a group like ad little to work on cost savins in area like regs and mail for instance if you used comm lines and sent messages around like mad 1g2d1e2a

Some concern by sstems design center types that if we give users to much capabiltiy they will swamp their machnies.Sure is a real possibly 1g2d1e2b

the counter to this was it hasn,t to date many ssstems start out with a high use rate but as the novelity wears off,the real use takes over- 1g2d1e2b1

I am not so sure that is a correct assumtion-if we give them something really useful it may grow like mad,i am afraid i

iproject admin

lean to the tought that the reason the
current systems are not being swamped is
the system no the data is not that useful
lg2dle2bla

ilaision

The following are some quotes and observations made at the meet held on 18 sept. When the laison men from the major air commands and air staff were welcome and briefed and the study. 1

General Larsen 1a

There has to be a better way of doimg business,the af cannot survive if it does not somehow come up with procedure policies etc which streamline and make more cost effective its operation. 1a1

He also said thaat from his experience as amanager he had yet to see where the computer was useful to any mg,t type of decsion. 1a2

some vp of mitre - 1b

Don,t be afraid to be innovative.he desribed many case where mg,t is bound to resist any new ideas since it will impinge on the way they are used to doing busiess 1b1

Lt Col O,Keefe 1c

Stressed that it be kept in mind this study is aimed a tbase level services not at specific mission or functional org,s 1c1

i might comment that this is a confusing issue since in effect that is whaat the b-3500 does not do in many cases.It does support many fuctional programs with supply being the classic example 1c1a

The objective is to provide better services than are now being provided for same or less money. 1c2

He also stated that their is a urgencie to this study since they want to get it into the pam I think was the words for 1974. 1c3

Also,the data systems design Center will implent the plan we come up with. 1c4

This will include how ifo is stored and concepts for handinling info. 1c4a

Tickler - 24 Sep - 5 Oct (2 week time period)

(sm5) 24 September - Monday 1

0830 hrs. Branch Chief's Meeting 1a

Remind DiNitto - Form 77 Change A for PRB-4-3230 - Need signature. 1b

Remind Nelson & DiNitto need trip report for Omaha NB trip. 1c

(st5) 25 September - Tuesday 2

Due Date - Wingfield - Technical Evaluation - PR B - 4 - 3219 - AHI Line Printer 2a

Combined Federal Campaign Film - Auditorium - Bldg. 106 - 1400 - 1430 hrs. Remind Tom B. 2b

(sw5) 26 September - Wednesday 3

0830 hrs. Branch Chief's Meeting 3a

Laboratory Activity Reports are due tomorrow. 3b

(sth5) 27 September - Thursday 4

Officers' Commander's Call - 0900 hrs. - Auditorium - Bldg. 106 4a

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 4b

(sf5) 28 September - Friday 5

Timecards due today. 5a

form 2's (employee time expenditures) are due today. 5b

form 6's (projected manpower) are due today. 5c

(om1) 1 October - Monday 6

0830 hrs. Branch Chief's Meeting 6a

News Brief items due into Becky Today. 6b

Bobbie: Personnel Strength Rpt. due. 6c

ISIM - Evaluation of report, "Generalized Data Base Management Systems & Selected Air Force Applications" 6d

(ot1) 2 October - Tuesday 7

Tickler - 24 Sep - 5 Oct (2 week time period)

Lt Col Thomas J. Wachowski, Directorate of Mathematical and Information Sciences (AFOSR) - Will be here 2 & 3 Oct to look at the technology program of RADC/IS(mainly, software research & pattern recognition). 7a

Univac Technical Seminar - At the Beeches 7b

(owl) 3 October - Wednesday 8

0830 hrs. Branch Chief's Meeting 8a

laboratory activity reports are due tomorrow. 8b

Due Date - Excess Property List - ISIS & ISIM 8c

Lt Col Wachowski - Note statement above 8d

(othl) 4 October - Thursday 9

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600. 9a

ISC Confessions 0830 hrs. 9b

(ofl) 5 October - Friday 10

Bobbie: Travel figures due by noon. 10a

VGC 21-SEP-73 08:06 19179

complaints about NIC sussystem available

Mike: I am utterly frustrated by the arbitrary selection of non-NLS services permitted to NIC users. In particular, I recently had a new directory set up, SU-DSL. I wanted to move some of my SU-AI files to this new account, but found that COPY was not available to me. As an alternative, I tried to use FTP but as Jim White will tell you, FTP craps out on NLS format files. I would appreciate having someone move <SU-AI>Hostnames.nls and <SU-AI>PIaddition.nls to <SU-DSL>. A similar complaint might be made that TECO is not available. I don't use TECOas an editor but rather whn linking, it avoids having to type a semicolon before each line of text (!). Technically this also makes the linking operator part of an editing system and not just a means to send text from terminal A to terminal B -- this could be important from the legal standpoint eventually. Please keep me informed about the progress on TYMSHARE NLS system -- Kahn has asked me to keep tied into that effort in case we want to get a true internetwork experiment going. Thanks. Vint 1

Haiku

September Meetings,
Anger glances off order,
Days fade into beige.

1

NJN 21-SEP-73 08:39 19182

Distribution of USING Meeting notes: USING Note #5

Carol--
Thanks for your quick reply. I have made the change in the file, so you can distribute it now. I will make sure the access is correct. The distribution list is USING and USERS. Thanks again. Nancy
The file is still (bbn-net,usingnotes,) 1

NJN 21-SEP-73 08:43 19183

USING Meeting Notes in the ARPANEWS?

Jean--
Why wasn't the report of the USING Meeting in the September issue of the ARPANEWS? I thought we had arranged for it to be there. I certainly hope it doesn't get pushed off any further. Nancy 1

Space War

Thanks for the number.

I have a feeling <SPACE> is best, unless users are expected to have enough "sophistication" to handle <SP> (less typing for you). If you are going to use <CA>, <FF>, etc, then <SP> should be fine. Otherwise, I vote for <SPACE>.

Blank is terrible and amibguous, and constrains your formatting too much, and ...

/D

1

JCN 21-SEP-73 11:13 19186

Second JCN Message to UK-ICS People

I hope all went well with your TNLS course this week. We were just starting to get used to the time-differential when Friday came. Good luck.Let us know how things are going as you progress. Also, feel free to link to me Jeanne Beck or Dirk vanNouhuys if you want some particular question answered. Until then, bye Jim Norton, ARC 1

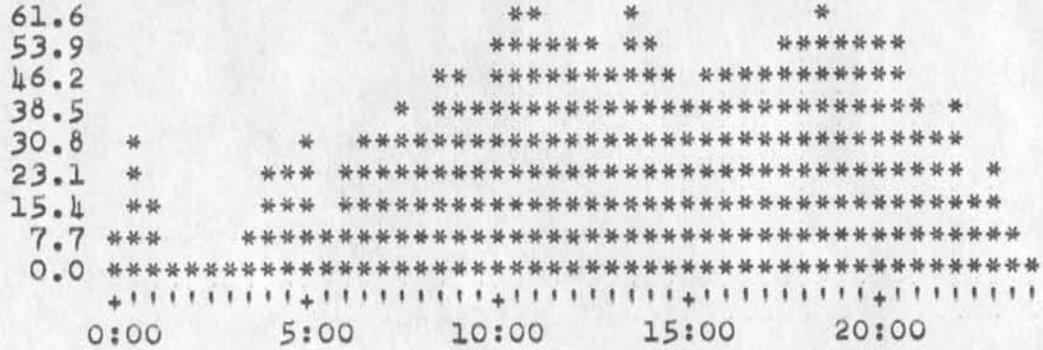
rc2 initial file

we have had to retrieve your initial file several times in the last couple of weeks so you could receive journal mail. this makes extra work for us and delays your journal delivery. please leave your initial file (and its pc, if any) in your (lamonica's) directory if you have been deleting it, and if you haven't, you might want to find out who has been.

1

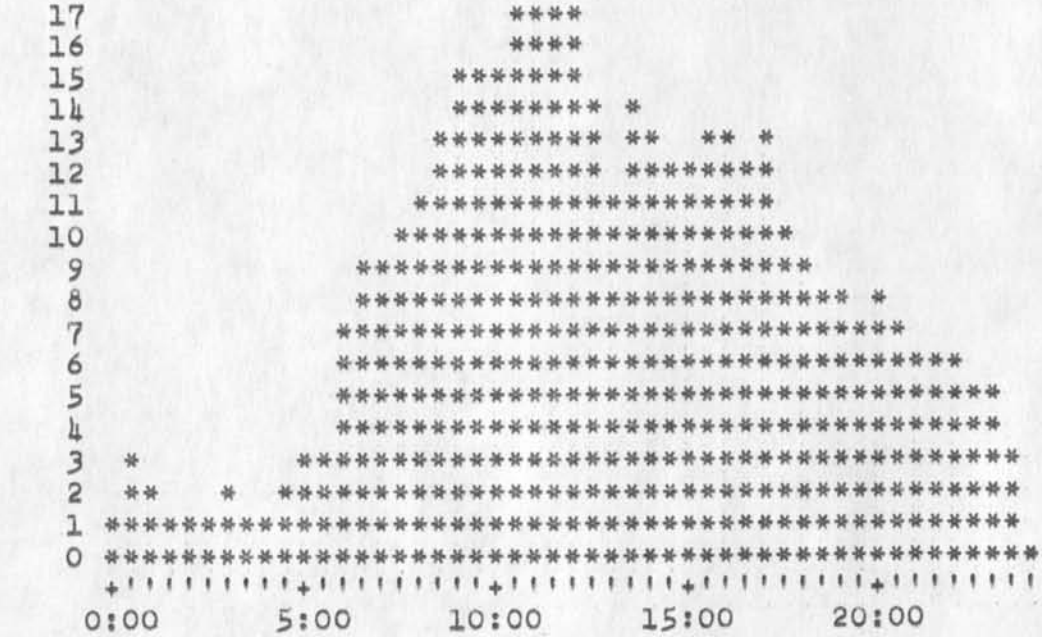
Superwatch Average Graphs for Week of 9/3/73

TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS
FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 1



1a

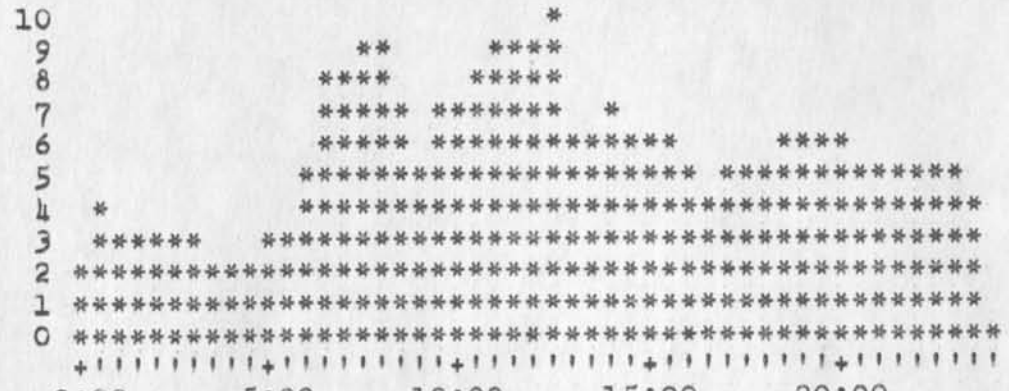
TIME PLOT OF AVERAGE NUMBER OF USERS FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 2



2a

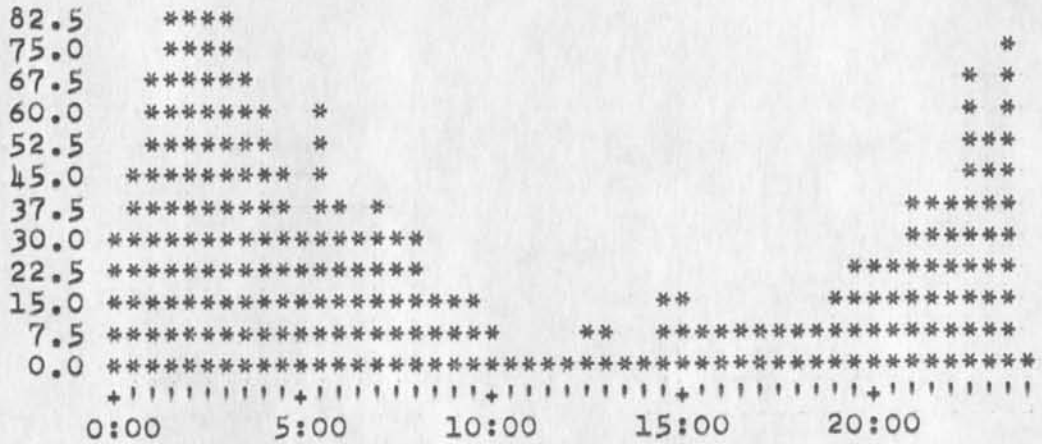
Superwatch Average Graphs for Week of 9/3/73

TIME PLOT OF AVERAGE NUMBER OF NETWORK USERS FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 3



3a

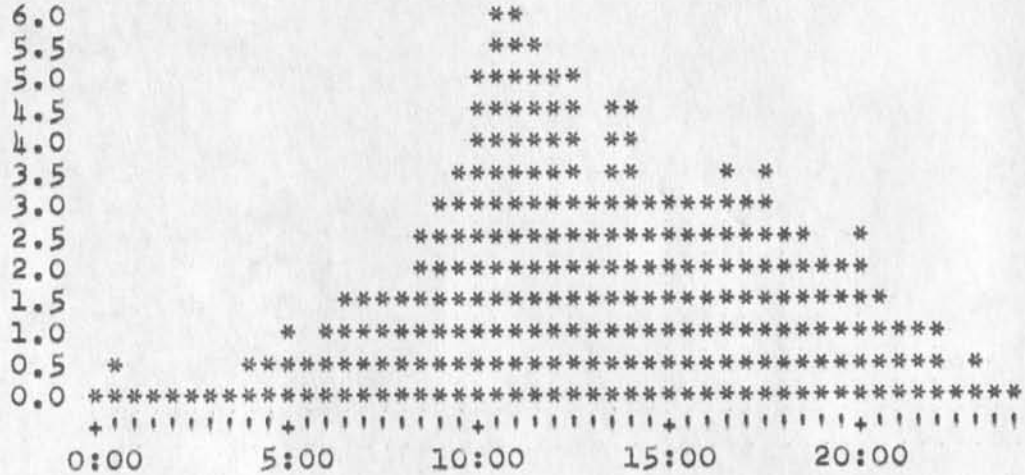
TIME PLOT OF AVERAGE IDLE TIME FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 4



4a

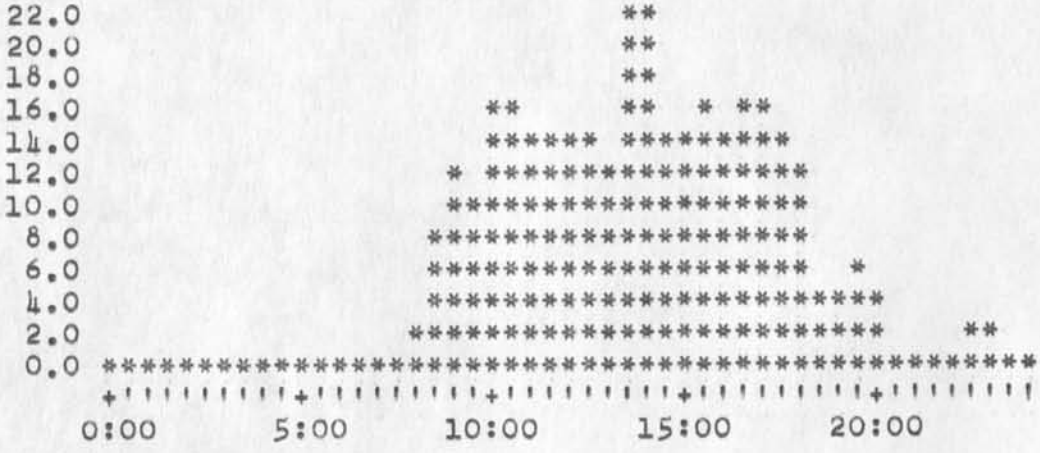
Superwatch Average Graphs for week of 9/3/73

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 5



5a

TIME PLOT OF AVERAGE PER CENT OF SYSTEM USED IN DNLS FOR WEEK OF 9/3/73
x axis labeled in units of hr:min, xunit = 30 minutes 6



6a

JDH 21-SEP-73 12:23 19189

re Your Journal Problem

Jean: The usual problem with the Journal which causes "no such version" is NLS getting confused about your JWORK file. try: (1) get out of NLS and reset, (2) delete JWORKJI and its partial copy, (3) expunge, (4) call NLS again. Sigh--

1

TNLS Users' Guide 1

Journal entry 19200 represents the most recent major revision of the TNLS Users' Guide. 1a

To view an up-to-date version of this document: 1b

On-Line: 1b1

Link to--userguides, arclocator, 2d: eb)
and take a Link on the files listed there. 1b1a

Printed (formatted through our Output Processor) at ARC and mailed to you: 1b2

Hardcopies of this document and future revisions are available from the Network Information Center--telephone Marcia Keeney at (415) 329-0740, or send her a message (Journal Ident--MLK). 1b2a

Printed at your site: 1b3

To print your own copies of the most recent revision we have formatted through our Output Processor, Sendprint the following files: 1b3a

<userguides>tnls-contents.print<ALT> 1b3a1

<userguides>tnls-tenex.print<ALT> 1b3a2

<userguides>tnls-files.print<ALT> 1b3a3

<userguides>tnls-address.print<ALT> 1b3a4

<userguides>tnls-text.print<ALT> 1b3a5

<userguides>tnls-editing.print<ALT> 1b3a6

<userguides>tnls-charcodes.print<ALT> 1b3a7

<userguides>tnls-directives.print<ALT> 1b3a8

<userguides>tnls-errormessages.print<ALT> 1b3a9

<userguides>tnls-commandsum.print<ALT> 1b3a10

<userguides>tnls-glossary.print<ALT> 1b3a11

See (userguides,sendprint,1) for details. 1b3b

19200 Distribution

Ferg R. Ferguson, Ernest H. Forman, Douglas C. Engelbart, Jeanne B. North, John W. McConnell, L. Peter Deutsch, James G. Mitchell, Alan C. Kay, Martin E. Hardy, Charles H. Irby, Mil E. Jernigan, Jeanne B. North, James C. Norton, Richard W. Watson, Steve D. Crocker, Thomas F. Lawrence, John F. Heafner, Dan L. Murphy, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Abhay K. Bhushan, Peggy M. Karp,
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TNLS Users' Guide

(J19200) 28-NOV-73 11:27; Title: Author(s): Jeanne M. Beck/JMB;
Distribution: /TU; Sub-Collections: SRI-ARC TU; Clerk: JMB;

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

4 OCT 73
SRI-ARC 19251

Proposal For Research
SRI No. ISU 73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP TECHNOLOGY TO THE VELA PROJECT

Part Two--Contractual Provisions

Prepared for:

Advanced Research Projects Agency
1400 Wilson Blvd.
Arlington, Virginia

Attn: Col. David Russell

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP TECHNOLOGY TO THE VELA PROJECT

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP TECHNOLOGY TO THE VELA PROJECT

I INTRODUCTION

1

The purpose of this proposal is to request support for transferring the knowledge workshop technology developed at the Augmentation Research Center (ARC) of Stanford Research Institute (SRI) to the VELA Project of the Advanced Research Project Agency (ARPA). 1a

This technology transfer will consist of training, technical and engineering support, and assistance in the development of effective information handling procedures geared towards the specific needs of the VELA project. It will include analytical support to assess the performance of this technology in the VELA environment and will make recommendations for future implementation strategies within that Project. 1b

This proposal is the result of several meetings we have had with Colonel David Russell of ARPA, during which we explored potential gains for the VELA Project and reviewed the technical requirements for the successful transfer of this technology. 1c

At Colonel Russell's suggestion, we have looked at some of the nonclassified, online VELA documents (via the ARPANET), and a representative from ARC attended the May meeting of the "Seismic Data Working Group" in Washington. Thus, we have been able to judge, in its own environment, the extent of the VELA Project's communication needs and its information exchange requirements. This proposal reflects our conclusions. 1d

II BACKGROUND

2

The present augmentation technology is integrated within NLS, which is an online information handling system developed at ARC. This system offers a wide range of general-purpose information handling capabilities that have been designed to augment effectively the information handling capabilities of "knowledge workers" in the exercise of their everyday work, and allow them to do much of that work from online work stations. 2a

The system includes a wide range of tools to handle text creation, editing and studying, online manipulation of information, and storage, management, and retrieval of all online information. It also includes another set of features and procedures that have been designed to support online dialog and information exchange among geographically distributed communities, special interest groups, or simple, ad hoc working teams. 2a1

All of these tools and procedures are available within an integrated system that has been specifically designed to provide the user the wide range of capabilities he needs to do his work online in a new working environment we call the "augmented knowledge worker's workshop". For the past several years this system has been tested and used in the daily working environments of both ARC and the Information Sciences Division of the Rome Air Development Center (RADC). 2b

Of course, many problems must still be solved before the system will become available on an operational basis for commercial users. But it is ready now for experimental applications, and our next step is to introduce this technology into some selected organizations that are confronted with unusually difficult information handling problems. 2b1

With the launching, in the Fall, of an "NLS Workshop Utility" that will be operated and maintained by a commercial timesharing company, NLS will become available on a contractual basis to ARPANET users. In particular, since ARPA will be a main subscriber to this service, a considerable amount of computing power will be directly available for use by the ARPA offices and their contractors. Hence, it is within the ARPA environment itself that early applications will have the greatest potential pay-offs. 2c

The VELA project of ARPA is one of these possible application

areas with high potential. Its objective is to design, develop, operate, and evaluate a world-wide seismic data collection, processing, analysis, and storage system that will use satellite communications, the ARPANET, large frame special purpose computers, and newly developed mass storage systems. 2d

It is a very large scale project involving many geographically distributed contractors whose development schedules are interrelated and whose progress and rates of expenditures must be closely controlled. 2d1

Also, because of the developmental nature of the VELA Project, the difficulty is further compounded by the fact that many iterations in the design of the system will be necessary to arrive at an optimal configuration. 2d2

Consequently, any improvement in communications, information-handling procedures, and support to the necessary iterative process will have a significant impact on the final outcome of the project. 2d3

We propose to introduce the existing augmentation technology tools, procedures, and utilization philosophy into the VELA Project to augment its information-handling capabilities. We propose to do so progressively, in well planned stages, to maximize the potential benefits and minimize the necessary initial investment in time and effort by VELA personnel. 2e

III STATEMENT OF WORK 3

ARC will provide the necessary qualified personnel and engineering services over a one-year period to assist the VELA Project in the use and evaluation of the "augmentation technology" that will become available on a contractual basis via the ARPANET this fall. 3a

The purpose of the project will be to assist the management of the VELA Project and its contractors in the utilization and evaluation of the new information-handling technology available through the ARPANET, with emphasis on the NLS "augmentation technology." 3b

In particular, the work will cover the tasks listed below. 3c

1) Provide progressive training and technical assistance in the use of the dialog support systems available on the ARPANET, with emphasis on the "Journal" system of NLS. 3c1

2) Provide progressive training and technical assistance in the use of the full capabilities of NLS, and its user programming packages. 3c2

3) Provide technical assistance and engineering support in the establishment of an effective online VELA information community based on the technologies mentioned above. 3c3

4) Analyze the information flow within the VELA community and make recommendations about the organization of an online VELA information center. 3c4

5) Assist in the analysis of information-handling problems and in the development of appropriate solution procedures. 3c5

6) Help in the development and utilization of an online project management-information base and participate in the assessment of its effectiveness for project coordination and control. 3c6

It is expected that this work will: 3d

1) Facilitate the management and control of the VELA Project by providing augmented online communication capabilities to the different parties involved; 3d1

2) Result in the creation of online community information services serving all VELA activities; 3d2

3) Provide practical knowledge about the feasibility and potential benefits of decentralizing the management-information basis of a large project. 3d3

IV PROPOSED APPROACH

4

To carry out the proposed work our constant concern during all phases of this project will be to enhance the progress of the VELA Project towards its stated goals, and to ensure that the introduction of the new technology will not slow down the ongoing efforts towards that end. 4a

To achieve such a result, we must take a pragmatic and very gradual approach to the problem of technology transfer. It is our intention to approach the problem in stages. 4b

The first step will be a preliminary analysis in conjunction with ARPA of the information exchange and management problems existing in the VELA Project to provide background and focus for the work to follow. 4b1

We plan to start by "augmenting" the VELA ARPA staff first. Then only, as the needs dictate and the potential benefits become clear will we introduce the same technology to the VELA community at large. 4b2

As far as technology transfer is concerned, we will first introduce the simplest features available on the network (such as "Sendmessage" and the NIC Journal System) and move gradually from there to the use of the more complex tools and procedures available within NLS when the need and potential benefits become clear. 4b3

Throughout the duration of this proposed project, we will have a professional from ARC cooperate very closely with the VELA office and its contractors in every aspect of the use of these new techniques. 4c

It will be his prime responsibility to identify, with the cooperation of VELA personnel, those tasks which can be effectively augmented, to assist in the design of feasible solutions procedures and implementation strategies, and to provide all the assistance needed to carry out all plans approved by VELA management. 4c1

Furthermore, a senior professional from ARC will be responsible for the part of the project which is concerned with the evaluation of the practical results obtained by this project, and make recommendations for further development strategies. 4d

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

I ESTIMATED TIME AND CHARGES 5

It is proposed that the work outlined here be performed during a period of 12 months, commencing 1 December 1973. 5a

Pursuant to the provisions of ASPR 16-206.2, attached is a cost estimate and support schedules in lieu of the DD Form 633-4. 5b

II REPORTS 6

ARPA quarterly management reports will be issued as required. 6a

III CONTRACT FORM 7

Due to the nature of the work proposed, it is requested that any contract resulting from this proposal be awarded on a cost-plus-fixed-fee basis. 7a

IV ACCEPTANCE PERIOD 8

This proposal will remain in effect until 1 December 1973. If consideration of the proposal requires a longer period, the Institute will be glad to consider a request for an extension of time. 8a

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

Cost Estimate:

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

COST ESTIMATE

Personnel Costs		
Proj Supv	154 hrs.	
Professional	1343 hrs.	
Clerical	307 hrs.	
Total Direct Labor		$ 15,644
Payroll Burden @ 26.0% *		4,067
Total Labor and Burden		19,711
Overhead @ 105% *		20,697
Total Personnel Costs		$ 40,408
Direct Costs		
Travel		$ 5,664
12 Trips East @ 318 =	3,816	
48 Days Subsistence @ 31=	1,488	
Auto Rental 24 days @ 15=	360	
Communications		200
Total Direct Costs		$ 5,864
Total Estimated Cost		$ 46,272
Fixed Fee		3,702
Total Estimated Cost Plus Fixed Fee		$ 49,974

* See following Schedules

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

Cost Schedules:

SCHEDULE A

DIRECT LABOR

Direct labor charges are based on the actual salaries for the staff members contemplated for the project work plus a judgmental factor applied to base salary for merit increases during the contract period of performance. Frequency of salary reviews and level of merit increases are in accordance with the Institute's Salary and Wage Payment Policy as published in Topic No. 505 of the SRI Administration Manual and as approved by the Defense Contract Administration Services Region.

SCHEDULE B

OVERHEAD AND PAYROLL BURDEN

Based on projected 1973 budget data, higher overhead and payroll burden rates were formerly negotiated. However, these have been adjusted downward (with the concurrence of the Resident Government Auditor) to reflect more favorable cost experience through the first six accounting periods.

Rather than setting forth these specific rates, it is requested that contracts provide for reimbursement at billing rates acceptable to the Contracting Officer subject to retroactive adjustment to fixed rates negotiated on the basis of historical cost data. Included in payroll burden are such costs as vacation, holiday, and sick leave pay, social security taxes, and contributions to employee benefit plans.

SCHEDULE C

TRAVEL COSTS

Air fare is based on prices for travel to Washington D.C. at $318 round trip tourist established in the Official Airline Guide dated August 1, 1973.

Domestic subsistence rates and travel by private auto are established standards based on cost data submitted to and approved by DCAA.

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

4 OCT 73
SRI-ARC 19251

Proposal For Research
SRI No. ISU 73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

Part One--Technical Proposal

Prepared for:

Advanced Research Projects Agency
1400 Wilson Blvd.
Arlington, Virginia

Attn: Col. David Russell

Submitted by:

J. C. Norton, Assistant Director
Augmentation Research Center

P. Rech, Senior Research Engineer
Augmentation Research Center

R. W. Watson, Assistant Director
Augmentation Research Center

Approved:

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP TECHNOLOGY TO THE VELA PROJECT

D. C. Engelbart, Director
Augmentation Research Center

Bonnar Cox, Executive Director
Information Science and Engineering Division

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

4 OCT 73
SRI-ARC 19251

Proposal For Research
SRI No. ISU 73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP
TECHNOLOGY TO THE VELA PROJECT

Part Two--Contractual Provisions

Prepared for:

Advanced Research Projects Agency
1400 Wilson Blvd.
Arlington, Virginia

Attn: Col. David Russell

Proposal for Research No. ISU-73-148

TRANSFER OF AUGMENTED KNOWLEDGE WORKSHOP TECHNOLOGY TO THE VELA PROJECT

(J19251) 3-OCT-73 12:15; Title: Author(s): Stanford Research Institute /@SRI-ARC ; Distribution: /dcr2 rww pr dce jcn ; Sub-Collections: SRI-ARC; Clerk: JCN ;
Origin: <NORTON>VELA.NLS;3, 3-OCT-73 11:04 JCN ;

Part One--Technical Proposal [0]

19251 Distribution

David C. Russell, Richard W. Watson, Paul Rech, Douglas C. Engelbart, James C. Norton,

More on SPACE

Re: (JJOURNAL,19147,) 1

To clarify the SPACE question for the writers of the HELP data base by actual examples, these are some of our alternatives in telling the user what to type: 2

A. Spaces represented by blanks only: 2a

1. If you type:
move file<ESC>latra<ESC><CR>trala<CR>
It should look like:
*Move File from old filename F: latra.NLS;3 to new
filename F: trala
* 2a1

2. If you type:
set case mode initial upper<CR>
It should look like:
*Set Case Mode Initial upper
* 2a2

B. Spaces represented by <SP>: 2b

1. If you type:
move<SP>file<ESC>latra<ESC><CR>trala<CR>
It should look like:
*Move File from old filename F: latra.NLS;3 to new
filename F: trala
* 2b1

2. If you type:
set<SP>case<SP>mode<SP>initial<SP>upper<CR>
It should look like:
*Set Case Mode Initial upper
* 2b2

C. Spaces represented by <SP> and blanks on either side of it (MDK's sugggestion as I understand it): 2c

1. If you type:
move <SP> file<ESC>latra<ESC><CR>trala<CR>
It should look like:
*Move File from old filename F: latra.NLS;3 to new
filename F: trala
* 2c1

2. If you type:
set <SP> case <SP> mode <SP> initial <SP> upper<CR>
It should look like:

*Set Case Mode Initial upper
*
2c2

3. If you type:
insert <SP> statement<ALT>2b3<CR>d <SP> I <SP> love <SP>
you.<CR>
It should look like:
*Insert Statement following A: 2b3
L: d T: I love you.
*
2c3

D. Spaces represented by <SP> and blanks used at writer's discretion only when necessary for clarity, as long as paces don't make a line of instructions wrap around unnecessarily (which could also be confusing to the reader, and may be a problem with many commands longer than these examples). These examples are arbitrary:
2d

1. If you type:
move <SP> file <ESC> latra <ESC> <CR> trala <CR>
It should look like:
*Move File from old filename F: latra.NLS;3 to new
filename F: trala
*
2d1

2. If you type:
set <SP> case <SP> mode <SP> initial <SP> upper <CR>
It should look like:
*Set Case Mode Initial upper
*
2d2

3. If you type:
insert<SP>statement<ALT> 2b3<CR> d<SP> I<SP>love<SP>you.<CR>
It should look like:
*Insert Statement following A: 2b3
L: d T: I love you.
*
2d3

At MDK's suggestion, I tested alternatives A and D (as above) on 4 persons who were totally unfamiliar with NLS (2 of them technically illiterate and 2 who had used other machine systems); no special explanations were given--I was interested in how self-explanatory our directions were. All of them typed exactly what we wanted them to when presented with A (blank for Space) above; only one person made one mistake with alternative D, but her confusion was due to the fact she had been presented with A first. This was, of course, a statistically inadequate test, but it is the only experience on which I can base an opinion--definitely not the "experts' opinion" DVN called for:
2e

More on SPACE

I think that it doesn't really matter which way we represent spaces, as long as our documenation is consistent. Since no one was confused about what to do about a blank when we meant "Type a Space", I tend to favor alternative A for conciseness; if others are sure that it will cause users to make mistakes, I favor alternative D for readability (somehow avoiding wraparound). 2f

The results of my test are in (beck,test,) 2g

DVN 21-SEP-73 16:01 19253

Notice of DRAFT of Memo on COM

Look in my file <vanNouhuys,spencer,> for a draft of a memo on thecurrent state of COM/DDSI, and their response to our worries. I hope to get it journalized on Monday. 1

Kirk, please don't Output File the HELP file anymore; it changes the SIDs on me. Thanks, JMB

1

DVN 21-SEP-73 17:32 19255

Meeting To Consider Outstanding Problems; a Guess at How Long IT Will Take Us To Finish

I have been trying to arrange a meeting of the active mmbers of DIRT to consider the followng questions: 1

How to represent the character "space" in examples. 1a

People here and on the Net have been quite responsive to my request for feedback. <vanNouhuys,dvn,blank> 1a1

Any difficulties that may arise from Diane's descritption of the HELP Query system <jjournal,19160,>. 1b

The schedule below. 1c

The organization of the statements in the HELP file. 1d

Rewriting <userguides,commands,> to include a simple and a complex form of each syntax. 1e

It appears Wednesday at 9:00 is the earliest possible time. 2

Schedule: 3

Our experince in writintg the data base should give us some notion of what kind of schedule we can make with out real writerpower and problems. 3a

We began writing August 6. 3b

We have had Jeanne fulltime, and Dean, Kirk, and Dirk half time. But for one month either Kirk or Dean were on vacation and Dirk was tied up for one week and on vacation for another; so we have had 12 person-weeks. 3c

The text of te help data base is about 4/5 done; it will need editing and organization so let's call it 3/4 done. We then need 4 more person-weeks to finish it. 3d

Let us assume that writing the Data Base and writing the User Guide are equal jobs an that in writing the Data Base we have done half the writing of the User Guide. We then need 8 more person weeks to finish the user guides. 3e

We are now getting one person full time, two people half time, and one half time person half time, which means we get 2.25 person-weeks per week. 3f

That means we should be able to finish writing the user guide in 5 weeks. 3g

Preparing them for printing and printing will take another calendar week, two weeks if through COM. That means userguides ready to mail November 16th. 3h

I appears that we will have a help data base in time for the utility ,but not a user guide. 3i

USING

Nancy,

Sorry you missed the USING notes, what with all the confusion in finally becomming completely current with the ARPANET Newsletter, guess the August on-line issue must have escaped your attention. The USING notes appeared therein....can understand your concern and appreciate it...you should have your hard copy version early next week since I understand they were mailed from NIC late this week. Sorry August wasn't around long enough.....Hope you enjoy the issues and looking forward to the charter.

Best regards, Jean

1

VGC 23-SEP-73 09:03 19259

Request to move mailbox for Vint Cerf

Mike, Please have my NLS message file (VGC.NLS) and official mailbox moved from SU-AI to SU-DSL. Thanks. Vint

1

Weaknesses in the current NIC Ident philosophy

The NIC Ident Experience

1

I was assigned a NIC Ident of VGC when I first was connected with the NLS system. Later, when ISI became a major message center, I chose to have a mailbox identified as VGC@ISI so as to maintain uniformity with my NIC Ident.

1a

1b

For the past 6 months or so, I have received numerous complaints that it is much harder to remember my initials than my last name so I have finally agreed to change my mailbox name at ISI to CERF to conform to current usage by others.

1c

1d

It occurs to me that others may also have experienced such things and in particular, the NLS system might be modified to use last names rather than initials. For individuals with the same last names, qualifiers would have to be added (e.g. DCROCKER and CROCKER). I have found that I nearly always use the '.' form of ident designation when sending messages in NLS since I cannot easily remember the 3 letter initials either. Is there a policy issue in all this? And should it be investigated? What kind of profound changes would occur if Idents became Last Names?

1e

1f

While we are on the subject of Idents, I would also like to raise the issue of alphabetical ordering versus ordering by Site-Ident. The members of INWG are listed in order not by name but by site ident. This is sufficiently obscure that it takes a long time to find any particular person. A much more useful strategy would be to list by last name in alphabetical order. Can this be done easily?

1g

1h

I would appreciate your comments on these questions. Thanks. Vint Cerf

1i