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THE TNLS SECOND COURSE OUTLINE:  
INTRODUCTION TO STRUCTURE AND VIEWING

ARC-ADG

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Applications Development

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INTRODUCTION TO TNLS

AKW = Augmented Knowledge Workshop

PURPOSE OF SYSTEM: Augmentation of Knowledge Work

GOAL: To provide computer based tools to accomplish all aspects of knowledge work with an emphasis on collaboration.

OVERVIEW of system

NLS = on Line System

TNLS = Typewriter Version

CAPABILITIES OF SYSTEM:

Composing

Editing

Studying

Structuring

Browsing - viewing

Printing

Publishing

Communicating -

sending and receiving mail, messages, documents;  
teleconferencing; etc.

Storing and retrieving -

record keeping, library services, data bases, searching, etc.

Calculating

## Course Organization

### NLS COURSE LEVEL:

NLS training is divided into five courses for ease of learning. Each level corresponds to what can be covered at one time. The things introduced at each level are determined by difficulty, usefulness, complexity, and quantity (i.e., so that there is not an excessive amount to cover at any one time).

Each level in the series of NLS courses contains most of the commands from the previous level for review in addition to the commands to be introduced (which are marked by an \*).

### BASIC TNLS

This is the first course level (basic) which covers those commands necessary to enter, edit, and "mail" typewritten information. It has a special structure and is published in the Journal (see -- Journal, 33874,).

### \*INTRODUCTION TO TNLS STRUCTURE AND VIEWING

This is the second course which introduces NLS structure (hierarchical) and special tools for viewing structured information ("viewspecs").

NLS is divided under headings for the purposes of this course. The commands under each heading can be used to perform the general operation denoted by the heading, e.g., "printing" includes commands that cause the system to print in various ways. Certain headings are introduced in later courses.

### COURSE HEADINGS:

1. GETTING TO NLS
2. STRUCTURE
3. PRINTING
4. ADDRESSING
5. EDITING
6. COMMUNICATING
7. TROUBLE SHOOTING AND HELP

**\*NOTE:** TO BE EFFECTIVE, THIS COURSE MUST BE PRECEDED BY THE BASIC COURSE AND SUFFICIENT TIME TO PRACTICE AND BECOME THOROUGHLY FAMILIAR WITH THE BASIC COURSE MATERIAL.

## DEFINITIONS FOR THE COURSE OUTLINE

<SP> = You type a space.

[ ] = Comments and suggestions will appear in brackets.

Uppercase words = You specify the appropriate information for that command phrase, e.g., TYPEIN.

OK or CR = you type a Carriage Return; prompted by OK:.

CTRL = hold down the control (CTRL) key WHILE typing the specified character.

<ESC> = the ESC, ALT MODE or ESCAPE key on your terminal.

BASE C: = the TNLS ready signal. It means that you can type in an editing or file handling command (like home base...).

SEND C: = the Sendmail subsystem ready signal. It means that you can type in a Sendmail command.

ADDRESS: = Specify a location in an NLS file. End it with an OK. For current location, just type OK. Prompted by A:.

COMMANDS = You type some characters to tell the computer what to do. The characters you type are represented by the uppercase letters in each "command word"; the rest are lower case.

CONTROL MARKER (CM) = WHERE YOU ARE: Where the computer thinks you are pointing to (to some character in some file); you may move it by specifying an ADDRESS; this is where your command will be done. Note: your address must be followed by an OK or a Carriage Return.

\*LEVEL-ADJUST: specifies level relative to addressed statement -- type any number of u's [for up], d's [for down] followed by an OK, or just an OK for the same level, prompted by L:.

\*STRUCTURE: Statement or Branch or Group, prompted by C:

\*STRING: Character or Word or Text, prompted by C:

\*TYPEIN = a string of characters from the keyboard, ending with an OK, prompted by T:. [TYPEIN has a special form when a FILENAME or Link or Ident is called for (You can tell from the noise words)].

\*VIEWSPECS: a string of one or more viewspec characters followed by OK, prompted by V: [type just OK if no viewspecs are to be entered]

## \* INTRODUCTION TO TNLS STRUCTURE AND VIEWING

## 1. GETTING TO NLS

## THE TERMINAL AND USE:

See the "Basic TNLS-8 Course" [You usually have to dial a telephone number and place the receiver in your terminal's cradle]

ARPA NETWORK [for a new connection where you dial in]

## NETWORK CONNECTION:

- [I] Type E [to get the Network's attention]
- [II] Type @ 0 <SP> 43 CR [to open a connection to Office-1, Host 43; BBNB is 49]

You now should be connected to TENEX and will receive the usual notice to that effect and the @ (the TENEX ready signal).

## TENEX

## LOGIN PROCEDURE:

- [III] Type LOG <SP> USERNAME <SP> PASSWORD <SP> CR  
[The last space fills in your account number automatically; you're then ready to call NLS]

\*For some systems to accept lower case characters, it may be necessary to type the TENEX command:

NO RAISE CR

## CALLING NLS:

- [IV] Type NLS CR [it's not necessary to call NLS more than once during one login session]

To Go to Tenex from NLS (as a subsystem):

Goto (subsystem) Tenex OK  
QUIT CR [to return to where you were]

\* Other ways to get to Tenex from NLS

\*Quit Nls CR [to leave NLS]

CONTINUE CR [to return to where you were]

To leave the system, logout in NLS [from BASE only]:

<SP> Logout OK [you type only the L of logout]

To close the network connection:

@ C CR

## 2. ORGANIZATION OF THE SYSTEM

## FILES &amp; DIRECTORIES

Information in the origin ("parent") statement of a file  
 The origin statement contains the file name, version number, the date and time of last modification, the ident of the last person to modify the file, and 4 semicolons. The statement should not be edited. It is numbered 0, but no number will be printed.

File names

\* Types of files [indicated by filename extensions]

\* TXT = sequential file which can be copied into NLS  
 COPY = a temporary sequential file, usually a message  
 NLS = an NLS file which you can load and read in NLS

Load File:

Load File FILENAME OK [FILENAME WILL BE ECHOED]

User creation of files:

<SP>Create File FILENAME OK

To see a list of all your files:

<SP>Show Directory (of) OK OK

## FILE STRUCTURE

STATEMENT: The basic element of structure in a file  
 [each has a statement number]

\*Relationship between statements:

\*All statements have a "source" (may be the Origin) and may have statements as "substructure".

\*STRUCTURES made up of statements:

BRANCH: a statement plus all substructure (if any)

GROUP: set of contiguous branches at the same level  
 and with same source

## 3. PRINTING: to see specified view of stored information

[To see anything in TNLS you must print it]

Printing on a terminal:

Print File OK

Print Rest OK

Print Journal (mail) OK

\ [easy print, typing a \ prints the statement where you are]

\* LF [line feed prints the next statement regardless of level]

\* ^ [print back one statement regardless of level]

\* Print STRUCTURE (at) ADDRESS VIEWSPECS

VIEWSPECS: to specify what you see, use the characters below when prompted with a V: and end with an OK.

w = Default, all lines & levels (show all of the text)

m/n = numbers on/off

y/z = blank lines on/off

[have instructor set these for your default]

\* To clip levels and lines, use lower case viewspecs including:

a/b - show one level less/more

c/d - show all levels/show first level

e - show referenced statement level

g/h - show branch only/show all branches

q/r - show one line less/more

s/t - show all lines/show first lines only

w/x - show all lines, all levels/show one line,  
one level

\* SIDS (Statement Identification Numbers)

I/J - SIDS on instead of statement numbers/statement  
numbers instead of SIDS (when m is on)

[can be used in place of statement numbers in NLS]

G/H - Numbers (SIDS or statement numbers) right side/left  
side (when viewspec m is on)

## 4. ADDRESSING

Control Marker concept = where you are [travels left to right]

Jump to a new address:

Jump (to) Address ADDRESS VIEWSPECS OK

\* To tell where the Control Marker is:

/ slash command shows Control Marker context

\* . period command shows statement number and character number;

\* [Note that addressing can be combined with editing, you do not have to move the marker separately, i.e., you can give an ADDRESS in an editing command]

## ADDRESSING WITHIN A FILE

Use the following which will be referred to as IN-FILE-ADDRESS:

STATEMENT NUMBER:

Automatically assigned to a statement, but not included in it.

TYPEIN SEARCH: "TYPEIN" [must be surrounded by quotes]  
where TYPEIN = the text to be searched for.

\* SID: Statement IDentifier: another number assigned to each statement, it's a permanent number (despite editing changes) [always beginning with a zero]

\* IN-FILE-ADDRESSES within one statement:

\*+e skip to end (last character) of statement  
[always use a plus sign]

\*+f skip to front (first character) of statement  
[always use a plus sign]

## \* ADDRESSING BY JUMPING

[Note: Use the Jump command when you do not want the STRUCTURE at the new location printed]

TO FIND A WORD OR STRING OF CHARACTERS (TYPEIN) [no quotes]:

\* Jump (to) Word First TYPEIN VIEWSPECS OK

\* Jump (to) Word Next TYPEIN VIEWSPECS OK

\* Jump (to) Content First TYPEIN VIEWSPECS OK

\* Jump (to) Content Next TYPEIN VIEWSPECS OK  
 [type a CTRL B for TYPEIN in response to RPT:  
 to continue to search for the same thing]

## \* TO JUMP BY STRUCTURE:

\* Jump (to) Origin ADDRESS VIEWSPECS OK

\* Jump (to) End (of Branch) ADDRESS VIEWSPECS OK

## ADDRESSING BETWEEN FILES AND DIRECTORIES:

\* To address another file in your directory you need to add the FILENAME to the addresses within a file. To address a file in another user's directory, you need to add their DIRECTORY name as well as the filename. FILENAME and DIRECTORY must be followed by commas.  
 [These may be used after A: in any command]

## \* To address another file:

\* A: FILENAME,IN-FILE-ADDRESS OK

\* [If an IN-FILE-ADDRESS is not specified it will be statement 0]

## \* To address another user's file:

\* A: DIRECTORY,FILENAME,IN-FILE-ADDRESS OK  
 [e.g.: Copy Branch (from) BAIR,JHB,1 OK (to) 3a OK ]

LINKS: special forms of text that may be used for addressing and other purposes.

\* Characteristics of Links:

- \* -- it is text in a statement rather than typed in after the A:
- \* -- must be surrounded by angle brackets < > (or parentheses)
- \* -- may contain any logical Address
- \* -- it may include viewspecs that will take effect at the address in the link
- \* -- the following forms are valid:

\* <DIRECTORY,FILENAME,IN-FILE-ADDRESS:VIEWSPECS>

\* [Without optional Viewspecs:]  
<DIRECTORY,FILENAME,IN-FILE-ADDRESS>

\* [or in current directory:]  
<FILENAME,IN-FILE-ADDRESS>

\* [or in current file:]  
<IN-FILE-ADDRESS>

Note that the different fields default to the current value if not specified (the same as addresses).

- \* -- may include things other than addresses and/or viewspecs [which will be covered by your trainer as appropriate to your application]
- \* To use a link that has been put in a statement, give the Address of the Statement that contains the link and the letter l preceded by a period after any A: , for example:

\* Jump (to) Address IN-FILE-ADDRESS .l OK

\* TO GO BACK TO PREVIOUS FILES:

- \* Jump (to) File Return OK ANSWER OK  
[N for ANSWER - next filename in stack will be echoed; repeat for file before that;  
Y for ANSWER selects that file]

## 5. EDITING

Syntax: VERB NOUN A: ADDRESS(ES) (L: LEVEL) (T: TYPEIN) OK (OK? OK)

\* STRING and STRUCTURE = "nouns":

\* STRING: [one of the following command words that refers to part of a statement]

\* Character

\* Word [note that the system readjusts spaces]

\* Text [two addresses necessary]

\* STRUCTURE: [one of the following command words that refers to one or more statements]

Statement

\* Branch

\* Group [two addresses necessary]

EDITING COMMANDS = "verbs":

INSERT

Insert Statement (to follow) ADDRESS LEVEL-ADJUST TYPEIN OK

\* The LEVEL-ADJUST determines the level of a statement at a new location -- it is one of the following ended by an OK:

Just an OK = same level

\* u [position up a level from referenced statement]

\* d [position down a level from referenced statement]

\* Insert STRING (to follow) ADDRESS TYPEIN OK

Continue to insert: CTRL E instead of OK puts you in the Enter statement mode. Type a CTRL X to get out.

## DELETE

Delete File TYPEIN OK

Delete STRUCTURE (at) ADDRESS OK

\* Delete STRING (at) ADDRESS OK

## SUBSTITUTE

Substitute STRING in STRUCTURE (at) ADDRESS OK

(New STRING) T: TYPEIN OK

(Old STRING) T: TYPEIN OK Finished? S/Y/N: Y [for yes]

Substitutions made: number

[will replace the old STRING with new  
STRING every time it finds it in the  
STRUCTURE.]

## MOVE

Move STRUCTURE (from) ADDRESS (to follow) ADDRESS LEVEL-ADJUST OK

\*Move STRING (from) ADDRESS (to follow) ADDRESS OK

## COPY

Copy STRUCTURE (from) ADDRESS (to follow) ADDRESS LEVEL-ADJUST OK

\*Copy STRING (from) ADDRESS (to follow) ADDRESS OK

## \*REPLACE

\*Replace STRUCTURE (at) ADDRESS (by) TYPEIN OK

## \*TRANSPOSE

\*Transpose STRUCTURE (at) ADDRESS (and) ADDRESS OK

\*APPEND [joins two statements together to form one statement]

\*Append Statement (at) ADDRESS (to) ADDRESS (join with) TYPEIN OK  
[TYPEIN is text that will be added where the old  
and new statements join]

\*BREAK [to break a statement into two statements after the  
visible you point to]

\*Break Statement (at) ADDRESS LEVEL-ADJUST OK

UPDATE FILE [not imperative, but good practice]

Update File OK

\* Update File Compact OK

[Note: this will ensure the efficient storage of a file that has been edited extensively. To find out the percent of efficiently used storage, use <SP>SHow File Status OK]

## 6. COMMUNICATING with other users

## SENDMAIL SUBSYSTEM and the Journal

Goto (subsystem) Sendmail OK

Interrogate Command

Interrogate OK

(distribute for action to:) IDENT/.LASTNAME

[You may give a series of IDENTs

or .LASTNAMES separated by commas]

(distribute for information-only to:) IDENT/.LASTNAME

(title:) TYPEIN

(type of source:) Message or Statement or Branch or Group

or File (at) ADDRESS

(show status?) ANSWER

(distribute the mail now?) ANSWER

\* Individual commands: instead of or in addition to Interrogate, you may use the following:

\* Title TYPEIN OK

\* Distribute (for) Information (Only) (to)

IDENT/.LASTNAME OK

[You may give a series of IDENTs

or .LASTNAMES separated by commas]

\* Distribute (for) Action (to) IDENT/.LASTNAME OK

\* Comments TYPEIN OK

\* To send a message or statement:

\* Message TYPEIN OK

\* <SP>Statement (at) ADDRESS OK

\* To send a structure or file:

\* <SP>Group (at) ADDRESS OK

\* Branch (at) ADDRESS OK

\* File ADDRESS OK

\* <SP>Show Status OK

- \* Send (the mail) OK
- \* To identify a user by lastname or ident:
  - \* <SP>Show Record (for ident) .LASTNAME OK [precede by a period]
  - \* <SP>Show Record (for ident) IDENT OK

Mailbox = (journal) branch of your initial file -- sendmail automatically inserts citation

To leave the Sendmail subsystem when you are done:  
Quit OK [returns you to Base]

### SEND MESSAGE (Tenex)

Goto (subsystem) Tenex OK

SND CR [The system will prompt you:]  
 (To (? for help):) TYPEIN CR [lastnames separated by comma]  
 (cc (? for help):) TYPEIN CR [lastnames separated by comma]  
 (subject:) TYPEIN CR [subject of your message]  
 (message:) TYPEIN  
CRTL Z [to terminate the message]  
 (Q, S, ?, carriage return:) CR [to send the message]  
QU CR [to return to NLS]

- \* To abort a send message before sending it type a CTRL C

### Linking (Tenex)

first: Goto (subsystem) Tenex OK  
WHE<ESC>re (is) USERNAME CR [do not link when user is in  
 SNDMSG, OUTPRC, NOUTPRC, or XLIST]  
LIN<ESC>k (to) USERNAME CR [precede comment with ; end with CR,  
 repeat every 3 lines]  
BREAK CR [to break the link; only one person must do this]  
QU CR [returns you to NLS]

## 7. TROUBLE SHOOTING AND HELP

Immediate assistance from the system:

Type ? for commands or needed information after any prompt.

\* HELP:

\*Type CTRL Q for help concerning what you are doing or type H for Help command (after typing H you can type any word in NLS you wish to know about). CTRL X gets you out of Help and back to where you were.

\* Help TYPEIN OK

\* Help OK

System Status:

Two CTRL T's [Note the words RUNNING or WAIT -- WAIT means the computer is waiting for you to do something]

\*<SP>SHow <SP>Disk (space status) OK [each user has a certain allocation of pages]

Send a message or sendmail item to: FEEDBACK

Call SRI/ARC, (415 326-6200, ext.3630)

Link to FEEDBACK

Remedies:

CTRL C [use only in emergencies to get to TENEX]  
RESET CR  
NLS CR

\*If over allocation:

<SP>EXpunge Directory OK

<SP>Trim Directory (no. of versions to keep) TYPEIN OK (really?) OK

Update File Compact OK [restores file more efficiently in computer]

Delete Modifications OK (really?) OK [destroys all changes since the last update!]

If your connection is broken:

Type @o <SP> 43 CR [Step 2 of the net login, p. 4]

To check if you are detached, use the where command:

WHERE <SP> USERNAME CR

If you are detached, instead of logging in, type:

ATT <SP> USERNAME <SP> PASSWORD <SP> CR

CTRL O [to wake up NLS if that's where you were, or:]

CTRL C NLS CR

If you are not logged in repeat STEP III of the Login Procedure, p.

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## PRACTICE

Primer ("TNLS-8 Primer," Journal Accession Number -- 32954,)

\* Introductory TNLS Sample Sessions for TNLS Course Level 2  
(Journal Reference Number -- 33405,)

\* Use Strategies

If there is time available while your trainer is present, ask her to explain how to use the system to accomplish specific tasks, from daily routine tasks (such as message handling) to online composition with multiple authors.

## OTHER AVAILABLE COURSES:

\* 3. INTERMEDIATE TNLS

This is the third formal course or level of expertise, and represents significant experience with the system. The Programs and Useroptions subsystems are introduced as well as Output Processing for printer formatting.

\* INTRODUCTION TO DNLS

This is an introduction to the display version of NLS designed to follow the second TNLS course (it requires an understanding of structure and viewing). It covers the use of the special workstation required for DNLS as well as the special ways of pointing and displaying information that are available.

## \* EXAMPLE OF STRUCTURE:

< BAIR, MENU.NLS;1, >, 28-JAN-75 17:29 JHB ;;;;

## 1 SOUP

1A VEGETABLE

1B CREAM OF MUSHROOM

## 2 ENTREE

2A FRIED CHICKEN

2B SALMON

2B1 WITH CREAM SAUCE

2C PRIME RIBS

## 3 DESSERT

3A PIE

3A1 APPLE

3A1A A LA MODE

3A2 BLUEBERRY

3B ICE CREAM

3B1 VANILLA

3B2 PEPPERMINT

3B3 MAPLENUT

3B4 CHOCOLATE

## 4 BEVERAGE

4A TEA

4B COFFEE

Leave NLS:	Goto(subsystem)Tenex <CR>	Quit Nls <CR>	<CTRL-C>
Back to NLS:	QUIT <CR>	CONTINUE <CR> <CTRL-X>	CONTINUE <CR> <CTRL-X>
Comments: When allowed	Can use Goto command after BASE C: or SEND C:	Can use Quit command after BASE C: or SEND C:	Can do <CTRL-C> anytime, in emergencies
Use with SNDMSG.	Goto command creates an Inferior TENEX. Do not type NLS again. Use QUIT after SNDMSG.	Can not CONTINUE after SNDMSG; so use Goto command instead.	Can not CONTINUE after SNDMSG; so use the Goto command instead when possible.

DIFFERENT WAYS TO GET BETWEEN NLS AND TENEX (EXEC)

## EDITING COMMANDS

VERBS	NOUNS
Insert Substitute* Delete Move Copy Replace Transpose Append Break Force (case) Sort	Structure Statement Group (needs two addresses) Plex Branch String Text (needs two addresses) Word Character Visible Invisible Link

\*Substitute command requires three command words.

### QUICK REFERENCE SUMMARY OF SECOND COURSE LEVEL TNLS EDITING COMMAND WORDS

**SENDMESSAGE**

SENT IN TENEX  
SENT TO USERNAMES (DIRECTORIES)  
DELIVERED IMMEDIATELY  
USED TO SEND IMPROMPTU MESSAGES  
NOT CATALOGUED  
NO AUTHOR COPY  
READ IN TENEX (MESS)

**SENDMAIL**

SENT IN NLS  
SENT TO IDENTs (INDIVISUALS)  
DELIVERED SEVERAL TIMES DAILY  
USED TO SEND ALREADY EDITED AND  
IMPROMPTU MESSAGES  
AUTOMATICALLY STORED AND CATALOGUED  
AUTOMATIC AUTHOR COPY  
READ IN NLS (PRINT JOURNAL)

SOME OF THE DIFFERENCES BETWEEN SENDMESSAGE AND SENDMAIL

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COMMUNICATING

