L10 change

L10 has been changed so that a '$ may be followed by any legal full word right hand side, e.g. $a[10]. $[a+b*c] are now legal constructs. 1

WSD 7-APR-72 9:46 10026

L10 change

(J10026) 7-APR-72 9:46; Title: Author(s): William S. Duvall/WSD; Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton, Don I. Andrews, L. Peter Deutsch, James C. Michener/NPG DIA LPD JCM; Sub-Collections: SRI-ARC NPG; Clerk: WSD;

Don I. Andrews
P.O. Box 182
Occidental, California 95465

To:
Access Copy

10027

DIA 7-APR-72 10:55 10027

Another note on the cost of NLS

(J10027) 7-APR-72 10:55; Title: Author(s): Don I. Andrews/DIA; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews, L. Peter Deutsch/SRI-ARC LPD; Sub-Collections: SRI-ARC; Clerk: DIA;
Origin: <ANDREWS>BLUB.NLS;2, 7-APR-72 10:35 DIA ;

Another note on the cost of NLS

Another point about the expense of NLS 1

I haven't been in on any BS sessions about the WYLBUR-NLS controversy, so this may not be very relevant. But just for the record, stuff coming out of the journal has not included a couple of things: The guy doing the editing costs money, and NLS may be faster that other editors. Please control your outrage as I post a ficticious example: 1a

Brand X editor costs $10 per hour (I think this is rather realistic). 1a1

The guy doing it costs $20 per hour (doing seat-of-the pants creative type editing) 1a2

Brand NLS editor costs $20 per hour. 1a3

Suppose it take the guy 1 hour to do it in Brand X system, and because the file is highly structured, etc. it takes half as long in NLS. 1a4

The relative costs are: 1b

Brand X: 1b1

$10 plus $20 = $30 plus 1 hour real time 1b1a

Brand NLS: 1b2

$10 plus $10 = $20 plus 1/2 hour real time 1b2a

In this phoney example, NLS is clearly cheaper. In addition, consider that, although the saving of real time is a resource not generally convertable into dollars and cents, it is certainly valuable to have something done faster, generally even if it is more expensive. 1b3

Feel free to plug in your favorite numbers and come to your conclusions, which may not necessarily be the same. 1c

But my point remains. I think the speed of NLS shows up in terms of what a person does with it to get the job done, not in the number of CPU cycles it takes to delete a character. And this is where we need to work on NLS, i.e. human engeneering and some kind of correspondence between how people work in their brains and how the world is structured in the computer. I'm not hot to build faster brand X editors, and I don't think ARC should even consider that NLS is in competition with them. 1d

Another note on the cost of NLS

On the other hand, I don't think NLS has "arrived" yet either. It needs a lot of work -- refinement of details as well as basic design type work. But I think the direction is in "how do people work most effectively and most naturally -- to get their thing done quickly and with little frustration". If we can find ineffeciencies and fix them, great. But that's not our main point of business here. I hope. 1e

DHC 7-APR-72 13:25 10028

testing, 1, 2, 3, 4, ...

steve,

would you please send me a journal message, so i can see whether i can receive thm now? duvall fixed it so that i can receive thm online now. it seems that i was not dwn fr that.

tnx.

bye. 1

DHC 7-APR-72 13:25 10028

testing, 1, 2, 3, 4, ...

(J10028) 7-APR-72 13:25; Title: Author(s): David H. Crocker/DHC;
Distribution: Steve D. Crocker/SDC2; Sub-Collections: NIC; Clerk: DHC;

AAM 7-APR-72 14:36 10030

Note to JBN

Jeanne,

1) your mailing system keeps dropping a bit and not sending me "Transmittal letters". This time I did not get "Transmittal to NIC Station Agents #44". Could you please send me a copy.
2) In NIC 5150, "Affiliations - Extended", page 6, Dave Walden is listed at extension 441. His actual extension number is 421 (four two one).
3) As yuo know, we have steadfastly refused to give you a copy of the IMP Operating Manual (BBN Report #1877), maintaining that it is "part of the machine" and thus should not be available to the general public (problems of updating, etc). Although it is not yet certain, it looks as though we are about to adopt the same position with regard to the Multi-Line Controller hardware manual (BBN Report #2184). In this regard, see NIC 8706.

1

AAM 7-APR-72 14:36 10030

Note to JBN

(J10030) 7-APR-72 14:36; Title: Author(s): Alex A. McKenzie/AAM; Distribution: Jeanne B. North/JBN; Sub-Collections: NIC; Clerk: AAM;

JBP 7-APR-72 14:54 10031

the '20th' meeting

John, I will let you know whats happening about the "20th" meeting as soon as i know myself. So far it sounds like an evening at my place. -- jon. 1

JBP 7-APR-72 14:54 10031

the '20th' meeting

(J10031) 7-APR-72 14:54; Title: Author(s): Jonathan B Postel/JBP;
Distribution: John T. Melvin/JTM; Sub-Collections: NIC; Clerk: JBP;

Douglas C. Engelbart
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025

To:
Access Copy

10032

DCE 7-APR-72 15:39 10032

Visit Log: 7 Apr 72, Roger Gillette, SRI-Washington

(J10032) 7-APR-72 15:39; Title: Author(s): Douglas C. Engelbart/DCE; Sub-Collections: SRI-ARC; Clerk: DCE;

DCE 7-APR-72 15:39 10032

Visit Log: 7 Apr 72, Roger Gillette, SRI-Washington

Roger has been working for SRI Washington for many years as a systems analyst. We've known each other since I first came to SRI, and have talked off and on over the years about the implicatons of these electronic communication (and processing) techniques within some of the men/machine systems he's been studying. 1

Today he dropped by to say hello. I mentioned our pending plans to launch a BC; and it appears that we should keep in touch so that he could provide good leads when we begin looking for systems planners/developers for initial BC membership. 2

RWW 7-APR-72 15:51 10033

Inconsistency of Meaning of Space in NLS Questions

Charles while you are making some of TNLS dnls syntax consistant I noticed that in TNLS commands asking a question that the meaning of a "space" is yes for the editing commands but no in the id sys and journal. 1

RWW 7-APR-72 15:51 10033

Inconsistency of Meaning of Space in NLS Questions

(J10033) 7-APR-72 15:51; Title: Author(s): Richard W. Watson/RWW; Distribution: Charles H. Irby/CHI; Sub-Collections: SRI-ARC; Clerk: RWW;

To Launch LINAC

INTRODUCTION 1

The purpose of this memo is to launch a new organizational approach for what I am calling our Line Activity (acronym, LINAC). LINAC serves several basic needs: 1a

Modularizing our way of doing things -- something that the size and complexity of our activities require. 1a1

Establishing interdependence relationships that will give us valuable experience for the future problems of managing a considerably larger and more varied activity within an increasingly complex operational and technical environment. 1a2

Establishing the activity framework within which we can pursue our new-contract commitments to ARPA (see our proposal of 29 Jul 71 -- 7404,) 1a3

Much of the information here has been communicated via meetings involving almost eveybody listed in the following role structure. A good deal of thought has been given to this particular distribution of roles among our staff, with consideration being given not only to qualifications but to such as gaining extra communication coupling between certain activities via overlapping team memberships, and to developing experience and skills. All of the pusher/coordinator assignments were discussed privately with the designated person before any mutual commitment was made. Team-support assignments were made by me, with good suggestions from several sources -- because of the diffiulty in juggling assignements over the number of roles now involved, they were tentatively announced in a meeting of all the team assignees and their pushers with an urging to accept these assignments for an initial go at LINAC, but saying that the announcement (via this memo) would be held off until this week to allow special cases to be made for reassignments. None such was made, so below is published the LINAC roles structure with which we will proceed. 1b

THE LINAC ROLE STRUCTURE

The first name associated with each activity is the person carrying the role responsibility (the pusher); the names following are of a Plan/Design and Review support team assigned to help the pusher. A name in parenthesis signifies a "consultant," generally one who is to be included as much as his time and availability allow. 2

PROJECTS 2a

IPT: DCE, JCN RWW 2a1

(This is the ARPA Project minus the NIC part. "IPT" stands for Information Processing Techniques, which is the name of the ARPA office from which we get our funding.) 2a1a

NIC: RWW, JBN JFV JEW 2a2

Station Agent and Information Coordinator: JBN 2a2a

Technical Liaison: JW 2a2b

PSO: CXP 2a2c

CSO: RWW 2a2d

RADC: PR, JCN DVN 2a3

(Transition switchover from JCN.) 2a3a

ONR: MDK, JBN JFV 2a4

(Transition switchover from DCE, JCN.) 2a4a

Xerox: WHP, CHI 2a5

SRI: DCE, JCN RWW 2a6

Mini Console: GJE, DCE 2a7

(This is a special study authorized by Larry Roberts, and is being conducted by George Eilers (SRI), under my direct supervision. It has its own budget (via the ARPA project), and may possibly grow into more relevance and a closer interaction with ARC's principle activities.) 2a7a

CENTRAL STAFF FUNCTIONS 2b

Operations: JCN 2b1

CSO: JCN 2b1a

Hardware: EKV 2b1a1

Software: DCW 2b1a2

Operator: WRF 2b1a3

PSO: PL 2b1b

Administration: DVN 2b1c

User Interface: MFA 2b1d

Development Coordinator: WHP, CHI 2b2

(Further structure likely to evolve) 2b2a

MAIN DEVELOPMENTAL THRUSTS 2c

Delivery/marketing: MDK, CHI DCW (DIA) 2c1

DSS: CHI, JDH JFV (WSD) 2c2

DPCS: WLB, DSK DVN 2c3

SDIS: MDK, JBN JFV 2c4

SEAS: WHP, HGL RWW (KEV) 2c5

BRS: PR, JDH JCN 2c6

SDHS: DCE, MFA WLB 2c7

DISCUSSION 3

The old EMC will gradually be evolved/absorbed into the new role structure, as the latter becomes shaken down. Initially it's membership will be modified to consist of JCN, WHP, and RWW (in view of the coordinative scope these people cover over our operational and developmental activities). 3a

In LINAC's organization, our external projects are the driving forces -- where a project is an explicit activity involving resource interchange with outside organizations. The other specific activities within ARC are to serve the projects' goals, and will get all of their resources allocated, along a contracting chain, from the projects. 3b

To be consistent with this definition, then, we must add the "SRI Project," since capital equipment, Institute "Internal R&D", and other overhead resources come (return) to us through this channel. (Note: I added this "SRI Project" into the structure at the last minute, just before leaving for about a week. It seems too logical and

necessary to just leave out, but I'll plan to work it out with PERC when I return -- so, consider its presence as temporary for the time being.) 3b1

It is assumed that along with this (internal) contracting system will come specific development and application of conventions, procedures and aids for handling estimates, resource allocations, budgets, reserves, accounting and resource-control measures etc. as required to operate the organization. 3b2

I expect that a fair number of our internal activities will emerge from multi-party negotiation and proceed under a contract involving several buyers. 3b3

And some of our activities will be funded by what amounts to a taxation upon all/some of the projects; where such taxation measures are established and monitored with due representation by the concerned parties. 3b4

Over the coming weeks, it is expected that the following actions take place: 3c

During this period, each of the main activities will develop the framework of a plan, with a reasonable amount of informal intercommunication and coordination among them. Refer to (7634,8) for a suggested format in which to develop such a plan, and to (7654,) for a slice at the scope for some of the activities. 3c1

For this period, the eight people who carry the head roles above (DCE JCN WHP RWW MDK PR CHI WLB) will meet regularly (like weekly) and serve as a "Planning and Executive-Review Committee" (PERC). One important function during this time will be to develop recommendations for refinements to the LINAC system of roles, processes, etc. 3c2

While we are in this transition period, which includes evolving into a mew system for decision making, it will be a bit clumsy at times to make some kinds of decisions -- e.g., how to set up the new decision-making process for a given kind of problem. Sometimes I may be arbitrary and autoctatic, sometimes the PERC may be so, and sometimes we may include some or all others in ARC. We'll likely not always be consistent with either past modes or future ideals; but the new system will at least aim to include the means for "due process" change of whatever we do establish. 3d

Soon after I return, I plan to launch a continuing activity

toward developing a complete "framework" of our goals, strategies, tactics, principles, viewpoints, etc. -- this activity would include (especially at first) many seminars and group discussions, and will involve perhaps twenty people in various ways (occassional all-ARC meetings, coordinated through PODCOM. Early in this activity I want to work on the shorter-term framework within which to do the plan-reviewing and resource-allocation steps in LINAC's getting off the ground. 3e

In the meantime, I am quite happy to have the planning teams build up some independent momentum. For instance, don't worry over-much about the possibility of your initial planning framework spilling over onto others' domains. Besides being consistent with our current momentum, try to integrate the material from and stay consistent with the following: 3e1

with the proposals -- ARPA (7404,), RADC (8347,), and ONR (8278,), 3e1a

with the supporting writeups that went with the ARPA proposal last summer: (7405,), (7406,), (7408), (7409,), (7410,) and (7411,), 3e1b

with the JCN and RWW memos of last Oct (7634,) and (7653,), and 3e1c

with the "Future Plans" sections of our last several years' reports. 3e1d

In this framework activity, I really hope for a lot of active, concerned, and reasoned dialogue among the participants -- that's the way I hope to know who is interested in what, and what it is that the participants understand, believe, are motivated by, are turned on about, etc. Unless I have a feeling for these characteristics, my particular personality finds it essentially impossible to persevere in significant dialogue. 3e2

In this light, then, I actually feel it to be a good thing for the teams to work on planning for awhile whithout my direct involvement. I figure this will raise the level of activity, concern, and reason in the ensuing dialogue. 3e2a

But I want specifically to point out that, within the three parallel pushes of PODAC, LINAC, and the framework activity, our persistent emphasis will be toward "coordinated-system"

aspects of both our way of working and of the augmentation system(s) we develop. The terms "modularity" and "interdependence" with which this memo was opened are very meaningful in this regard. 3f

The framework dialogue may change my attitude about this, but unless/until it does, I intend to be as constant as I can about keeping the interdependence and coordination real. This is just to emphasize that the coordination of LINAC's interdependent, modular approach is expected to get a lot of attention. 3f1

But please realize also that the "modular" term is deemed most important, too -- implying enough independence to operate effectively. 3f2

DCE 7-APR-72 16:27 10034

To Launch LINAC

(J10034) 7-APR-72 16:27; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews, Bonnar Cox, Duane L. Stone/SRI-ARC BC DLS; Sub-Collections: SRI-ARC; Clerk: DCE;

MEETING 1

You are invited to the conference room at 10:00 on Wednesday April 12 for a meeting to discuss assembly of the final report for our contract that covers February 8, 1970 to May 9, 1972. 1a

ASSEMBLY 2

We plan that the report will be assembled as much as possible out of existing documents, either integrated into the text or as figures and appendices. Links to other existing documents will be used as appropriate to provide as effective use of their information as possible 2a

At the meeting we will consider where appendices should go in the overall outline. 2a1

To assemble a readable document we will have to consider carefully the appropriateness of previously written material, in whole or in part, and write transitions carefully. 2a2

There will be little effort at homogeneousness of style between sections except for spelling and punctuati 2a3

TIME COVERED 3

1970 is covered by an interim report (8277,) which will be summarized in the summary. Feel free to allude to the past but cover the period February 8, 1971 through May 9, 1972 3a

PRELIMINARY OUTLINE 4

The following report organization outline will be up for change at the meeting. 4a

The initials in parentheses are tentatively responsible for assembly. In some cases they will redivide the task and subcontract. The initials in angle brackets are responsible for review. 4a1

(Contents) OUTLINE 4b

Head Matter (MEJ) <DVN> 4b1

Abstract (DVN) <JCN> 4b2

Summary (DVN) <JCN> 4b3

Introduction 4b3a

PRELIMINARY SCHEDULE 6

The deadlines that cut across the whole document cannot slip much without slipping the delivery date. 6a

SCHEDULE	Abs trct	Sum mary	SEC I	SEC II	SEC III	SEC IV	SEC V	Refs	Glos sary	appnd ...
APRIL										
Week 1										
Wednes										
Thurs										
Friday	.....Distribute trial outline with schedule, ...									
Week 2										
Monday										
Tues										
Wednes	.....Kickoff meeting.....									
Thurs										
Friday										
Week 3										
Monday										
Tues										
Wednes										
Thurs										
Friday										
Week 4										
Monday										
Tues										
Wednes										
Thurs										
Fri										
MAY										
Week 1										
Mon										
Tues										
Wednes										
Thurs										
Friday										
Week 2 Review ..staggered to avoid spot overload										
Monday										
Tues										
Wednes										
Thurs										
Friday										
Week 3 Rewrite reviewed sections										
Monday										
Tues										

Wednes
Thurs
Friday
Week 4
Monday ••••••••••••••••••••Begin FINAL
PRINTING/MASSAGE----------
Tues
Wednes
Thurs
Friday
JUNE
Week 1
Mon >>>>>>>>>>>>>>>Begin SRI EDITING AND APPROVAL<<<<<<<<<<<<<<
Tues
Wednes
Thurs
Friday
Week 2
Monday --------********DRAFT DUE IN MAIL@@@@@@@@=========-----
Tues
Wednes
Thurs ----------COMPLETED REPORT (AS A FINISHED DRAFT) DUE IN
ROME----------

7 FINAL SCHEDULES
   7a After the meeting I will schedule assembly, review, and re-write for each section. For each of the five main sections I will make a schedule like the master schedule but divided one level finer.
8 ASSEMBLY ASSIGNMENTS
   8a Assembly will be performed by those indicated in branch 4 (and as changed during the meeting).
9 EDITING
   9a Help will be available on request from DVN, MFA, and others.

(J10035) 7-APR-72 16:54; Title: Author(s): Dirk H. van Nouhuys, James C. Norton/DVN JCN; Distribution: Douglas C. Engelbart, Don I. Andrews, Mil E. Jernigan, Marilyn F. Auerbach, Charles H. Irby, William H. Paxton, Harvey G. Lehtman, Richard W. Watson, Ed K. Van De Riet, Don I. Andrews, Donald C. Wallace, J. D. Hopper, Dirk H. van Nouhuys/DCE DIA(please, Don, don't feel obliged to come to the meeting) MEJ MFA CHI WHP HGL RWW EKV DIA DCW JDH DVN; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: <VANNOUHUYS>MEETDRAFT.NLS;5, 7-APR-72 15:30 PL ;

DCE 7-APR-72 17:52 10036

Descriptive paragraph for Joe Rubenson to show Steve Lukasic, Director of ARPA, in selecting agenda for possible visit to SRI

Augmentation Research Center: currently in its tenth year of ARPA sponsorship; long-term development of system for augmenting system development teams; more-recent development and operation of ARPANET Information Center. 1

We have wider-scope activities planned, for future promotion, that will impact on such areas as automatic programming, command and control, training, management of very large organizatons (Air Force, DOD), coordination of widely scattered activities, very complex planning activity, etc. The most direct impact is on the effectiveness of the DOD -- in coping with size, physical distributivity, complexity, and urgency -- while carrying out its planning, management and operations; this would affect the nature of operational military teams, and thus of the types of weapon systems they could best use; and it would also affect the cleverness, economy, and speed with which the DOD could harness its resources toward maintaining a best national defense. 1a

These plans involve the direct extension of what we now have/do, as well as the integration of new technologies that seem ready; e.g. integration of processes for manipulating digitized speech records into those for communicating, storing, accessing, displaying text strings. 1b

Since Dr. Lukasic has never seen our developments first hand (which makes considerable difference in understanding what we say), we would like very much to demonstrate our current developments, and then to show him the extension plans toward the abovementioned types of impact. We have found that it often takes at least an hour to absorb the impressions and information without undue confusion or swamping. 1c

DCE 7-APR-72 17:52 10036

Descriptive paragraph for Joe Rubenson to show Steve Lukasic, Director of ARPA, in selecting agenda for possible visit to SRI

(J10036) 7-APR-72 17:52; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: James C. Norton, Bonnar Cox/JCN BC; Sub-Collections: SRI-ARC; Clerk: DCE;

LPD 8-APR-72 20:31 10037

Reply to 10027

Right on

LPD 8-APR-72 20:31 10037

Reply to 10027

(J10037) 8-APR-72 20:31; Title: Author(s): L. Peter Deutsch/LPD;
Distribution: Don I. Andrews/DIA; Sub-Collections: NIC; Clerk: LPD;

Reply to DIA's Note on NLS Costs

don, your note on NLS costs is right on (10027,). We are definitely in the right direction, what we need is a little more work on efficiency and userinterface so that the balance you point out exists in TNLS as well as it presently does in inDNLS. It will be several years before most of our variuos users can have access to DNLS. It would also be nice sometime to be able to plug real measured numbers into calculations such as you point out adding additional factors such as the possible increased understanding etc one might achieve with NLs. 1

RWW 8-APR-72 20:53 10038

Reply to DIA's Note on NLS Costs

(J10038) 8-APR-72 20:53; Title: Author(s): Richard W. Watson/RWW; Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton, Michael D. Kudlick, James C. Norton, Douglas C. Engelbart, Jacques F. Vallee, Paul Rech, Donald C. Wallace/NPG MDK JCN DCE JFV PR DCW; Sub-Collections: SRI-ARC NPG; Clerk: RWW;

APTERYX

MTHIS IS A MESSAGE HIGH THERE 1

APTERYX

(J10039) 8-APR-72 22:10; Title: Author(s): James M. Pepin/JMP;
Sub-Collections: NIC; Clerk: JMP;

BAD 9-APR-72 9:24 10040

Hello-- Are You There?

Dave, I saw your note to Steve.....Testing...Testing.
Let's see if this works.

1

BAD 9-APR-72 9:24 10040

Hello-- Are You There?

(J10040) 9-APR-72 9:24; Title: Author(s): Bruce A. Dolan/BAD;
Distribution: David H. Crocker/DHC; Sub-Collections: NIC; Clerk: BAD;

L. Peter Deutsch
Xerox Research Center
3180 Porter Drive
Palo Alto, California 94304

To:
Access Copy

10042

LPD 9-APR-72 10:07 10042

Full tilt into the heffalump trap

(J10042) 9-APR-72 10:07; Title: Author(s): L. Peter Deutsch/LPD; Distribution: James G. Mitchell, William H. Paxton, L. Peter Deutsch, Butler W. Lampson, Charles H. Irby/JGM WHP LPD BWL CHI; Sub-Collections: NIC; Clerk: LPD;

LPD 9-APR-72 10:07 10042

Full tilt into the heffalump trap

This note summarizes some serious dissatisfactions with MPS which I feel have gotten shouted down or otherwise ignored in the course of recent discussions. 1

If they sound like Larry Barnes type gripes, that may well result from my belief that he was right a lot of the time and we were wrong. 1a

I believe that there is nothing we can do about the mess we have gotten ourselves into, and that the only way out is to work like hell and hope we can avoid another SPL debacle by sheer energy and numbers, since I don't believe we are doing much of anything more sensibly. 1b

We always re-invent the wheel "just one more time, then it'll be right." 2

We essentially went back to the machine level to implement MPS, rather than starting with an established system. 2a

We could have lifted the BLISS compiler, used SIMULA 67 as a semantic base, or written an interpreter in LISP. 2a1

Although Tree-Meta and L10 have helped us write our own code, we haven't used any part of them or any part of any other existing software. 2a2

If there is a successor to MPS, or even if we start to develop application systems within MPS like xNLS, I am sure we will find ourselves writing the same routines all over again. 2b

For example, there are already routines essentially duplicated between the runtime and the debugger, because the calling conventions (and more importantly, the data environment) aren't quite similar enough to share them. 2b1

In xNLS, we are almost certainly not going to be able to implement the marker table or a statement name directory with the "standard" symbol table package, because the resulting tables have to mesh with the structure of the NLS file in a way which we can't arrange. 2b2

In contrast, I constantly re-use LISP functions I have written because their interfaces are so simple. 2c

We never seem to learn that user convenience (as in LISP) is worth a lot more than purity of package boundaries during the intensive developmet phase. 2c1

Full tilt into the heffalump trap

We have done the project in entirely the wrong order even though we should have known better. 3

- We wrote a compiler first before an interpreter. 3a
  - Interpreters are much easier to write than compilers, and they define the semantics of the language much more directly. 3a1
  - We could have brought up a running system in a month if we had been willing to consider implementing it initially as an interpreter in LISP. 3a2
- We have done almost all of the implementation without anything resembling a coherent description of the semantics. 3b
  - The system is so large and complex that we should have learned from SPL that the plunge-ahead approach which worked for QSPL wouldn't work here. 3b1
  - Starting with an interpreter would have allowed much easier experimentation with language and semantic changes, and would have given us a cleaner semantics when we were done. 3b2
- We let efficiency considerations influence the design of the language, at the expense of user convenience. 3c
  - For example, it seems clear already that the compiler and the debugger will have to be monoliths at the level of 20-40 pages of code because it is so hard to share data between modules. 3c1
  - The INCLUDE philosophy is unconvincing as an efficiency argument, since it is also clear that incremental compilation is a mirage: MPS is no better off than BCC SPL, where people resorted to all sorts of grotesque kludges to avoid changing INCLUDE modules. 3c2
    - The present compiler produces 45 object instructions per second of compute time; this means that a 500-instruction module (3-5 source pages) will compile in 1 to 1 1/2 minutes of real time. 3c2a
      - Smaller modules are impractical because of the inconvenience of sharing environment. 3c2a1
      - The modularized compiler is certain to run significantly slower. 3c2a2

Are YOU willing to wait several times that long after every change in a DATA module? 3c2b

Remember also that although the design of BCC SPL was heavily influenced by the desire to provide incremental compilation "later" (and some very expensive decisions were based on this), we had so much trouble tracking down the myriad obscure bugs in the compiler, and further consideration indicated that we would have to add so much more information to the permanent data structures, that the idea was essentially abandoned. 3c2c

Although the more systematic design of the MPL compiler gives us some hope that the bugs won't be so obscure, the complexity of the code generators leads me to believe that we just haven't uncovered many of them yet. 3c2c1

Our desire for fast access via base pointers made us reject the possibility of using something like the LISP A-list as the semantic model, which would have made sharing very easy, and then backing off from that. 3c3

We let considerations of getting a working system for other people by a fixed date seriously distort the time organization of the project. 4

In fact, a good part of the reason for the six-month overrun was that we saw that our initial ideas wouldn't stand up. 4a

Under time pressure we are now going ahead and implementing things we KNOW don't stand up logically. 4b

JWM 9-APR-72 21:12 10043

JON, IS THERE A DEFINITE MEETING TIME & PLACE SCHEDULED FOR THHE NETWORK MEETING NEXT WEEK AT UCLA? I WOULD LIKE TO GET MY TRAVEL ARRANGED FISSRT OF WEEK. WILL CALL IF NO ANSWER BY TUESDAY. 1

(J10043) 9-APR-72 21:12; Title: Author(s): John W. McConnell/JWM; Distribution: Jonathan B Postel/JBP; Sub-Collections: NIC; Clerk: JWM;

INTRODUCTION 1

The ONR Research Contract No. N00014-70-C-0302 is a development project on a small computer-augmented information system oriented toward serving the "intelligence" needs of a research (and/or development) community. We call the system "RINS" (Research INtelligence System). 1a

Over the years, the Augmentation Research Center (ARC) has developed an extensive set of computer tools and techniques. Among these is an emerging set designed to aid the management of our computer-held files and memos. Developments toward this end have been made (mainly by ARPA-supported activity) in the following areas: 1b

(1) Special catalog files, with structure and syntax conventions for encoding arbitrary types of data elements into individual "entries," each of which describes some discrete item that is to be kept track of, searched for. 1b1

(2) Special computer processes for: 1b2

(a) Analyzing a catalog entry for the nature and content of its data elements 1b2a

(b) Collecting a desired set of entries from the catalog files by scanning a specified set of catalog files and selecting entries according to specified content analysis (which may be directly programmed and compiled by the user) 1b2b

(c) Sorting the entries selected by content analysis into new order depending upon (multilevel) sort keys extracted and generated during the analysis of each entry 1b2c

(d) Formatting information extracted (or conditionally generated) from an entry by an analysis process into an arbitrary display/printout format 1b2d

(3) Methods for producing hard-copy listings and indices for any given sub-collection of items, using special versions of all of the above processes. 1b3

Within the ARC, RINS is a relatively small project in a long-term activity, all of whose components are continuously developing. RINS is intended to become an operating intelligence system that will supply an active community of system developers with what they need to know about their

outside world. Initially (during the current ONR-supported phases), RINS is being developed to serve the 35 people in ARC. 1c

It is ARC's plan to expand steadily the number of R&D groups that interact and collaborate to mutual advantage via computer-network and on-line services. In the planned future, RINS would serve the aggregate needs of these groups for collecting and digesting intelligence data about products, techniques, concepts, and activities pertaining to computer-systems development and operation. 1c1

The fact that ONR is supporting development work on a research intelligence system carries no implication as to who will support the subsequent operation of such a system. ARC's assumption is that the operating costs will be borne by the party or parties making use of the system. 1c2

SUMMARY OF RINS ACTIVITY 2

During this second year, ARC has put its major effort into three of the four categories in its investigation effort: the development of augmented management and operational techniques for running a research intelligence system, the further building of the data base, and the improvement of the computer aids supporting the processes. 2a

We have explicitly established a "People Services Operation," providing organized supporting operations, with developing procedures that aid in the throughput of incoming information and its entry into the data base. 2a1

We have continued the building of a reference data base. Procedures have been developed for improved citation form and citation file building, and many documents have been recorded with these procedures. 2a2

We have also directed effort toward the development of a coordinated automatic process for entry and storage of catalog data and for catalog and index production. 2a3

A fourth activity -- integration of the RINS developments into the working life of ARC researchers and ARPA Network Information Center (NIC) users -- has been delayed. 2b

Use of the ARPANET has been slower to evolve than we expected, and the efforts required of ARC in that activity were much heavier than expected -- consequently, the ARC staff has been too involved with operational tasks to

participate in the research use of an intelligence data base. 2b1

In regard to ARC's giving NIC users access to the RINS developments, it should be noted that because of the recent extension plans for the ARPANET membership, it may well prove unsuitable to offer RINS data and tools to the whole community being served by the NIC. ARC plans instead to involve only selected Network users. 2b2

PEOPLE SERVICES OPERATIONS (PSO) 3

During the past year ARC has developed several service functions (mainly under our ARPA-supported contract) that are now becoming operational for ARC users and in some cases providing service to external users. 3a

These functions (from activities such as RINS, NIC, Baseline Record, and Journal) and the forthcoming use of new Deferred EXecution (DEX) techniques have created several new types of needs for people services support. 3b

As a result, we concentrated some of our effort on reorganizing these activities to allow more effective and efficient handling of routine and other tasks and to allow for easier expansion of the group size to meet needs for an increasing amount of throughput. The three aims were: 3c

Getting the throughput up to meet demands. 3c1

Getting in position to be rapidly expandable (in throughput quantity) to meet fluctuating service demands. 3c2

Working at minimizing costs while maximizing responsiveness to customers' needs/values. 3c3

We launched a new approach to ARC's "people services operations". (see -- 7834,1a)
The main thrusts were: 3d

Organization 3d1
Physical Location and Configuration 3d2
Procedure Establishment and Documentation 3d3
Transcription Activities 3d4
Terminals 3d5
Personnel 3d6
Training 3d7

Organization 3e

A group with skills in handling paperwork and messages, in using TNLS and DEX, was explicitly identified as PSO, and a group of advisors with skills in administration, documentation, and training was assigned to assist in getting PSO into formal operation. 3e1

Physical Location and Configuration 3f

Office and workroom areas were expanded and relocated, to give the growing support operations more efficient location and arrangement. New tables, shelves, cabinets, and files were acquired and their configurations worked out. 3f1

Procedure Establishment and Documentation 3g

Manuals and procedures were written for use of TNLS (see -- 7470,) and DEX (see -- 9934,). 3g1

Procedures were established and written for handling of transcription and other service requests. 3g2

Procedures for all related ARC activities, clerical and secretarial, were established and documented. 3g3

Transcription Activities 3h

Types of work to be handled: 3h1
- Handwritten drafts 3h1a
- Tape recordings 3h1b
- Dictation notes 3h1c
- Off-line documents 3h1d
- On-line documents to be edited 3h1e

Techniques for transcribing material into on-line files were developed: 3h2

Deferred Execution (DEX) 3h2a

This process (developed on an ARPA-supported contract) makes use of terminal and magnetic tape recording equipment for initial input of data with actual entry into computer files deferred until periods of relatively low system use (thereby resulting in less expensive use of the system for the processing of this work). 3h2a1

DEX is preferred for most work. Pieces of work can be spooled by priority. 3h2a2

Where and how long to store entered tapes for backup, the conventions for hierarchical statement entry treatment, and when the transcriber should try to put hierarchical structure into documents are still under development. 3h2a3

TNLS 3h2b

In some cases TNLS is used, particularly for high-priority items during off-peak load hours. 3h2b1

DNLS 3h2c

Display NLS is used for otherwise difficult final formatting and other appropriate tasks. 3h2c1

Receiving process 3h3

We set up a central receiving station. 3h3a

There is one person with an alternate who can handle users' questions regarding job status, time and cost estimates, etc. 3h3b

Priority determination process 3h4

A requester specifies his preference for priority: 3h4a

Immediate service (1-4 hours) 3h4a1
Normal service (4-12 hours) 3h4a2
Deferred service (a week or two) 3h4a3

Temporary storage of unassigned work 3h5

A log system using appropriate work request forms has been set up. 3h5a

We have a central storage place, organized for control of work by priority. 3h5b

Assignment process for transcription work 3h6

A work scheduler assigns incoming work to group members, balancing priority request with members' capabilities and workload. 3h6a

Later, priorities may be established by a bidding scheme. 3h6b

It is contemplated to enlarge this effort to allow assignment to an outside pool of workers trained in DEX, both SRI people and contract manpower. 3h6c

Output processes 3h7

We have developed conventions for naming of temporary input files (special and separate for the catalog process) with provision for special instructions from the author. 3h7a

We have developed procedures for delivery of completed work to the requester. 3h7b

Terminals 3i

We have made a thorough study of available teletype terminals and magnetic tape devices, and after experimenal use of several, have leased nine TI terminals and six Termicettes, for use with DEX. 3i1

Personnel 3j

We have added several new staff members with contributions to make to RINS. Two writers who can also teach were active in PSO development. Three new staff were added to the document preparation, transcription and distribution efforts. 3j1

Training 3k

Classes in TNLS and DEX were held for ARC and network people. Manuals were prepared. 3k1

BUILDING A REFERENCE DATA BASE 4

Selection of additions to the data base 4a

The ARC Master Catalog is a group of files containing the catalog-entry statements for all informational items that we hold for purposes of control, retrieval, and access. 4a1

Active experimentation in the collection of information items and interaction with other existing data bases is still in the future plans of ARC. However, during the past year ARC took the opportunity to input the contents of some

data bases gathered elsewhere, and to output the contents in new formats. 4a2

Data bases thus added include: 4a3

A bibliography prepared for use of the attendees at the January 1971 AFIPS Workshop on the User Interface. The bibliography and indexes processed by ARC programs were published in the volume of Proceedings of the Workshop. (see -- 9474,) 4a3a

An extensive bibliography on networking prepared by Peggy Karp of MITRE. Each reference cited was obtained in full-size copy and was coded and entered in the Master Catalog. (see -- 6025,) 4a3b

Special "subcollection catalogs", such as for the NAS Information Sciences Panel, for the AFIPS Workshop, for the ARC Journal or for the Network Information Center, are created by (automatically) collecting a copy of every entry statement in the Master Catalog having a descriptor code of NAS, AFI, JOU or NIC respectively in its "*z2 field." 4a4

Design of data elements 4b

Usefulness of a data base of citations to information items depends on the elements of data selected to describe the items. The selection criteria and their implementation become even more important when the items of information include forms of information other than published books, articles and reports, e.g., films, slides, letters, photos, ads, meeting agenda, maps. 4b1

A continuing effort has been the refinement of a set of data elements. The requirements are: 4b2

Data elements should be adequate to describe all species of information items which are anticipated to be added to the RINS collection. 4b2a

Data elements should be adaptable to economical use by programs developed for gathering and formatting the citations into catalogs and listings and for on-line retrieval. 4b2b

The present list of data elements and guidelines defining their application is appended. (see -- 9868,) 4b3

Entry of items into the data base 4c

As noted, items of information relevant to ARC appear in many forms. Reference to these items is simplified by assigning a master catalog number, a serial number, to each. To record the item to which the catalog number refers, a description of the item using the data elements noted above is coded by ARC and entered as a "statement" in an NLS file. 4c1

Procedures necessary to ensure a consistent, clean, data base are vital and difficult to hammer out. Much effort has gone into this area over the past year. 4c2

An example of a catalog-entry statement with typical coded data elements: 4c3

(A6088) *a1 A. W. Whiteney *a2 W. E. Blasdell #2 org *b2 General Electric Company #3 Electronics Laboratory #5 Syracuse, New York *c1 Study of Computer Graphics and Signal Classification Applications #1 Final Technical Report #6 147p. *d1 September 1970 *d3 17 March 1969 to 17 April 1970 *f1 r *f2 o *r2 RADC-TR-70-148 *s1 Rome Air Development Center #3 Air Force Systems Command #5 Griffiss Air Force Base, New York #6 F30602-69-C-0227 #7 5581 #9 Task 558104 #w2 2-2-71 *y1 Signal classificaton problems, Technical or signal preprocessing and classificaton, Functional description of a system, Software requirements and system design. *z3 new * 4c3a

Design of catalog formats 4d

A set of special programs has been written at ARC to collect, sort, analyze, and reformat the entry statements to produce catalogs and indices such as those in the Current Catalog of the NIC Collection, (see -- 5145,) and those used in NAS Panel and AFIPS Workshop meetings. 4d1

These programs, described below, are the result of much thinking and experimentation to produce catalogs and indexes of maximum usefulness, given the present printing constraints. 4d2

Examples of the listings and indexes now produced are: 4d3

Catalog listing by number: 4d4

Production of incremental and cumulative, hardcopy and on-line indices to various collections. 5a2c

Overall Design Goals and Elements 5b

The basic goals relevant to providing aids to these processes are: 5b1

Maintaining integrity of the master catalog files with maximum protection from both human and mechanical errors. 5b1a

Making possible a smooth flow of input from ARC clerks with good facilities for proofing and correcting all clerical input. 5b1b

Removing as much load as possible from the computer system during prime use times through the use of Deferred Execution techniques. 5b1c

The initially implemented element of the Catalog Support System is the Catalog Production Processor (CPP). 5b2

The CPP is the basic output port of the CSS and is designed to allow the production of on- and off-line, incremental and cumulative, indices and listings of various kinds, using the Master Catalog as the ultimate data base. 5b2a

One objective in the design of the CPP, in fact of most of the CSS, is not to add new basic capabilities to our augmentation system, but rather to bring together existing ones in such a way as to reduce our commitment of resources to clerical tasks. 5b2b

The basic design goals which the CPP must meet are the following: 5b2c

It should permit flexible specification of the types and frequencies of production of the various catalog indices and listings needed by DSS, NIC, DPCS, etc. 5b2c1

It should function as automatically as possible and with a minimum consumption of ARC personnel and equipment resources. 5b2c2

The CPP implementation has now progressed to the stage of final testing and is expected to be used

operationally in the production of the next ARC Journal and NIC Catalogs in the next few weeks. 5b2d

Use with the entire ARC Master Collection as an aid to completely integrating the various subcollection citations will follow. The CPP will then be available for ARC use on any desired subcollection catalog-production work, either Journal, NIC, or special subsets. 5b2d1

SUMMARY OF INVESTIGATION PLANNED DURING THE COMING YEAR 6

ARC plans the following activities for the next (third) year of ONR-sponsored development of our Research Intelligence System. 6a

We plan to continue on our present course, with the following developmental tasks: 6b

(1) Add to our developing research-intelligence data base over a limited subject domain. 6b1

(2) Continue integrating the data base and tools of RINS into the working life of ARC researchers and selected Network users. 6b2

(3) Add to or modify the computer aids that will be used to support RINS processes. 6b3

(4) Continue developing augmented management and operations techniques for running the research-intelligence process. 6b4

We assume that a steady addition of other resources will become available for the development of the RINS data base and supporting techniques -- a cooperative activity that ARC at present considers calling its System Developer's Intelligence Service (SDIS). 6c

The SDIS data base will be directly oriented to the needs of people doing research in or development of computer-based information systems. 6c1

ONR's funding will represent the initialization resource for what is expected to become a set of resources from a number of sources. 6c2

REFERENCES

1. ARC 7834, J. C. Norton, "Outline for Establishing People Service Support Team (PSST)," Augmentation Research Center, Stanford Research Institute, Menlo Park, California, 2 November 1971. 7a

2. ARC 7470, "NIC TNLS User Guide," Functional Document, Augmentation Research Center, Stanford Research Institute, Menlo Park, California, 23 September 1971. 7b

3. ARC 9934, "Deferred Execution User Guide," Augmentation Research Center, Stanford Research Institute, Menlo Park, California, April 1972. 7c

4. ARC 9474, "Interactive Bibliographic Search: the User Interface," Proceedings of the Workshop, AFIPS Press, 1971. 7d

5. ARC 6025, P. M. Karp, "Bibliography of Literature on Computer Networking," (at MITRE Corporation), December 1970. 7e

7. ARC 5145, "Current Catalog of the NIC Collection," Functional Document, Augmentation Research Center, Stanford Research Institute, Menlo Park, California, April 1972. 7f

BIBLIOGRAPHY

1. ARC 3906, D. C. Engelbart, "Augmenting Human Intellect: A Conceptual Framework," Summary Report, Contract AF 49(638)-1024, SRI Project 3578, Stanford Research Institute, Menlo Park, California, AD 289 565, October 1962. 8a

2. ARC 5139, D. C. Engelbart and Staff of Augmentation Research Center, "Computer-Augmented Management-System Research and Development of Augmentation Facility," RADC-TR-82, Final Report of Contract F30602-68-C-0286, SRI Project 7101, Stanford Research Institute, Menlo Park, California, April 1970. 8b

3. ARC 5140, D. C. Engelbart and Staff of Augmentation Research Center, "Advanced Intellect-Augmentation Techniques," Final Report NASA Contract NAS1-7897, SRI Project 7079, Stanford Research Institute, Menlo Park, California, July 1970. 8c

4. ARC 5255, D. C. Engelbart, "Intellectual Implications of Multi-Access Computer Networks," paper presented at the Interdisciplinary Conference on Multiple-Access Computer Networks, Austin, Texas, April 20-22, 1970. 8d

5. ARC 8276, D. C. Engelbart, "Experimental Development of a Small Computer-Augmented Information System," Annual Report, Office of Naval Research (ONR) Contract N00014-70-C-0302, SRI Project 8622, Stanford Research Institute, Menlo Park, California, April 1971. 8e

6. ARC 8277, D. C. Engelbart and Staff of Augmentation Research Center, "Network Information Center and Computer-Augmented Team Interaction," Interim Report, Air Force (RADC) Contract F30602-70-C-0219, SRI Project 8457, Stanford Research Institute, Menlo Park, California, July 1971. 8f

APPENDIX 9

ARC 9868, J. B. North, "Codes Used in the Master Catalog," Augmentation Research Center, Stanford Research Institute, Menlo Park, California, January 1972. 9a

Annual Report for ONR Research Contract N00014-70-C-0302

(J10045) 3-MAY-72 17:53; Title: Author(s): Douglas C. Engelbart, S.R.I. - Augmentation Research Center/DCE &SRI-ARC; Distribution: A. Kenneth Showalter, James C. Norton/AKS JCN; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>J10045.NLS;1, 4-APR-72 9:57 JCN ; HJOURNAL = "SRI-ARC 17 MAY 72 10045";

Responsibilities and Procedures for the ARC Recruiting Process

This is a suggested plan for how ARC will conduct the recruiting process. I would like to get your reactions, suggestions by May 1, so that we can make this part of our operating set of procedures. 1

OVERALL RESPONSIBILITY 2

The prime responsibility for coordination of the overall recruiting process rests with the EMC. Assistance will be provided by Operations and selected coordinators from within ARC. 2a

It is assumed that the various Operations responsibilities outlined below will be carried out by JCN, DVN, and the appropriate PSO people. 2a1

DETERMINING JOB OPENINGS 3

Our various projects, developmental thrusts, and operations will generate needs for new people to be added to the ARC staff. 3a

The EMC is responsible for coordinating such needs and determining (with Operations-administration help) whether or not to seek applicants to fill such needs. 3b

RECRUITING COORDINATORS 4

After we have decided to seek new people, an appropriate recruiting coordinator for that job will be selected. In Hardware and Software areas, this person will normally be someone from the potential new employee's peer group. In the case of Software staff additions, CHI and WHP will usually be the coordinators (chosen by the EMC). 4a

THE RECRUITING PROCESS 5

The process of actually finding applicants involves contacts with friends or acquaintances of present ARC or other SRI people, reviewing applications sent by Bob Wing's office - from SRI personnel usually - some advertising through SRI Personnel. 5a

APPLICATIONS 5b

We should supply applicants who have not sent us applications with the appropriate forms before proceeding very far with our discussions. 5b1

Operations will send forms as requested. 5b1a

As applications are received, Operations will enter the basic information in an APPLICANT LOG and at the request of the appropriate coordinator, route them around to other ARC members as desired by the coordinator. 5b2

INTERVIEW ARRANGEMENTS 5c

When interest is high enough for ARC to invite the applicant to come for inteviews, the coordinator and EMC will decide together whether and when to do so. This will be cleared with Bob Wing's office by Operations and arrangements made as seem best for contacting the applicant and negotiating the visit details. 5c1

The date and times of the visit will be noted on the ARC activities board, a tentative agenda will be made by the coordinator, assisted by Operations, and the agenda will be taken around to each person for confirmation. The agenda will then be made available for others in ARC who may wish to participate. 5c2

There may be some applicants who are not ready to have their job-seeking widely known. In these cases, Journal entries will not be made. 5c2a

Bob Wing's office will be contacted by Operations to set up the Wing/Cox interview schedule (usually late in the day of the visit). 5c3

The final agenda will then be printed and distributed to those involved, with an entry in the Journal as appropriate. 5c4

Normally the coordinator will summarize with the applicant the next steps in the process as they involve him. This includes giving some indication of the date of our next contact with him and securing any timing factors from his decision standpoint. 5c5

On the day of the visit, Operations will check with those to be part of the process to re-confirm the date and tentative interview times. 5c6

This will be facilitated by reference to an APPLICANT CALENDAR by Operations. 5c6a

INTERVIEW OBJECTIVES 5d

To get as well acquainted with the applicant's personal and professional qualities as we can in the limited time available. 5d1

To establish a initial general understanding of ARC's goals and activities in the applicant's mind. 5d2

This includes communicating ARC's present state, future plans, working environment, and the applicant's initial and potential work assignments as best we can. 5d3

To give details of SRI employment benefits and working modes. 5d4

To learn dates of the applicant's availability and when he needs to have an offer, if it is made. 5d5

AFTER THE INTERVIEW 5e

After the interview, Operations will see that the interview forms supplied by Bob Wing's office are completed and sent to him. 5e1

There will be a meeting to discuss to interview and reactions of ARC people as soon after the visit as possible - within the hour or the next morning seems best. 5e2

The applicant log will be updated with notes on the status of the applicant as we see them after the meeting. The coordinator is responsible for supplying this summary to Operations. He is also responsible for bringing the question of whether to hire or not to the EMC for decision - EMC including DCE in most cases. 5e3

If we decide to make an offer, DCE will work out the salary level with Bob Wing. 5e4

If we decide not to offer, the coordinator or Operations as appropriate will let Bob Wing's office know and make sure that either ARC or Wing's people notify the applicant in a timely (and gracious?) manner. 5e5

RESPONSES TO OFFERS - CONCLUDING THE PROCESS 5f

When we receive offer acceptances or rejections, Operations will notify ARC people of the result. 5f1

At that time, Operations will make plans for the necessary

office, furniture, telephones, and orientation arrangements so as to be ready when the new staff member arrives. 5f2

For details of our planned orientation process, see (auerbach,xxxx,) in preparation in the next few weeks by JCN and MFA. 5f3

Responsibilities and Procedures for the ARC Recruiting Process

(J10046) 19-APR-72 17:22; Title: Author(s): James C. Norton/JCN; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>RECRUITING.NLS;1, 19-APR-72 7:54 JCN ;
HJOURNAL="*** DRAFT *** JCN 4 MAY 72 6:26AM 10046";

I would greatly appreciate any comments or suggestions you may have regarding this design and plan. I plan to put at least the project number part of the plan into action May 10th with the start of our new contracts.

INTRODUCTION 3

ARC has been accounting for its labor and non-labor costs through operational use of a limited set of SRI project numbers and subnumbers and overhead accounts for many years. 3a

The account numbering scheme, the techniques for its use, and their actual application have recorded information of minimal value as aids to the management of the Center. 3b

Charges to our various contracts have provided some help in overall funding/cost management, but useful information about the costs of our various activities and the tasks being carried out has been almost totally lacking, in cases where recorded, providing inaccurate pictures of our situation. 3b1

Charges to our overhead accounts have been difficult to separate when the benefits of our overhead efforts are shared with contracts. We have not used the SRI overhead account system to advantage even as presently designed. 3b2

We are therefore starting to design a new ARC accounting system that hopefully will provide the needed aids to management of the Center on many levels and from many standpoints. 3c

OBJECTIVES 4

With the recent ARC reorganization and the start of new contracts for all of ARC's support, we need to design an accounting system that meets several key objectives. 4a

They are: 4a1

1. To properly account for all costs we incur (and commit) as they relate to each sponsored contract and SRI overhead activity 4a2

2. To accurately account (as best we can) for the costs of sub-projects within our various contracts, such as the NIC part of the ARPA/RADC contract 4a3

This includes effective allocation of costs of shared tasks and activities to the various contracts and sub-projects 4a3a

3. To accurately account (as best we can) for the costs of broad developmental activities and the tasks being conducted within them. 4a4

4. To conduct the accounting process in the environment of an evolving "ARC marketplace" situation that includes the dynamics of buyer/seller negotiations, aided by and integrated with the developing Baseline Record System 4a5

5. To effectively use the SRI Accounting system for meeting our contract accounting responsibilities to our clients and SRI while still getting the information ARC needs for internal financial management. 4a6

6. To effectively indoctrinate, train and further develop ARC people in contributing to and using the accounting data base. This should become as much a part of our daily working mode as the Journal, Baseline, and Intelligence systems under development. 4a7

TRIAL NUMBERING SCHEME 5

Here is a numbering scheme for ARC consideration. It is needed for use starting May 10th when the new ARPA and RADC contracts begin. As better design ideas become clear, we can do some changing of the pattern, but it is best that we do some good thinking about what we need and want now to minimize future disruptive changes that might occur. 5a

The numbers in asterisks (*100*) will not recieve direct charges for labor or non-labor costs. Rather, they will be used to provide summary data for cost analysis purposes. Costs will be allocated to those numbers on the basis of pre-assigned percentages of the actual costs charged to the other numbers - such as 101, 102, 103, etc. 5b

A workable account numbering system appears to be: 5c

FOR PROJECTS: 5d

1868 Contract ARPA/RADC: (not to be charged until May 10th) 5e
- *100* OPERATIONS 5e1
  - 101 Administration 5e1a
  - 102 CSO - Hardware 5e1b
  - 103 CSO - Software 5e1c
  - 104 CSO - Operators 5e1d
  - 105 PSO - General (unallocated) 5e1e
  - 106 User Interface 5e1f
- *200* DEVELOPMENT 5e2
  - 201 Development Coordination 5e2a
  - 202 Delivey and Marketing 5e2b
  - 203 DSS - Dialog Support System 5e2c
  - 204 DPCS - Documentation Production and Support SYstem 5e2d
  - 205 BRS - Baseline Record System 5e2e
  - 206 SDHS - System Developers Handbook System 5e2f
  - 207 SEAS - Software Engineering Augmentation System 5e2g
  - 208 General development (not included in thrusts) 5e2h
- *300* MINI-CONSOLE 5e3
  - 301 Administration 5e3a
  - 302 System Development 5e3b
- *400* IPT 5e4
  - 401 Administration 5e4a
- *600* NIC 5e5
  - 601 Administration 5e5a
  - 603 CSO 5e5b
  - 605 PSO 5e5c
  - 606 Net interface 5e5d
    (includes station agent and Net participation) 5e5d1
  - 607 NIC Development 5e5e

700 XEROX 5e6
701 Administration 5e6a
702 MPS development 5e6b
8622 Contract ONR: 5f
800 SDIS (RINS) 5f1
801 Administration 5f1a
808 SDIS - System Developers Intelligence System 5f1b
xxxx Contract NewRADC: 5g
900 RADC 5g1
901 Administration 5g1a
905 Baseline Management System Development Support 5g1b
FOR OVERHEAD: 5h
The following are present SRI overhead codes and some explanation of their use: 5h1
OVERHEAD ACTIVITY CODES: SUMMARY 5h1a

Code No.	Title	
511	Administration and Planning - General	5h1a2
512	Administration and Planning by Project Professionals	5h1a3
521 (+W.O.)	Institute Publication	5h1a4
522	Technical Papers	5h1a5
523 Non-SRI	Symposia	5h1a6
523 (+W.O.)	Institute-Sponsored Symposia and Seminars	5h1a7
525	Client Liaison	5h1a8
531-01,-02, -03,-04 (+ Sub No.)	Institute Research and Development	5h1a9
541	Formal Education Courses	5h1a10
542	Orientation and Staff Training	5h1a11
543	Staff Development	5h1a12
544	Overseas Travel	5h1a13
551	Recruiting	5h1a14
552	Relocations and Transfers	5h1a15
561	Facilities Expense and Support Services	5h1a16
562	Laboratory Equipment Calibration and Repair	5h1a17
563	Other Maintenance	5h1a18
564 (+W. O.)	Minor Construction Work Orders	5h1a19
571	Interim Technical Study	5h1a20
*581-xx	Proposal Liaison	5h1a21
*582-xx	Concept Formulation	5h1a22
*583-xx	Proposal Preparation	5h1a23

For more discussion of SRI Overhead codes, see (10193,). 5h1b

ABOUT TIME CHARGES 6

Each week's time charges and non-labor costs must be recorded in a manner that accurately reflects the use of our resources as they are applied toward overhead and contract work. 6a

This has proven difficult in the past not just due to the lack of an adequate numbering scheme, but because of the amount of effort required of ARC people to make frequent and continuous conscious decisions about where and how to allocate the costs of their efforts and the tedious record-keeping that would be required to account for them. 6a1

Many tasks are performed in 15 minute or hour periods on a randomly recurring basis . 6a1a

Many are of a shared-buyer nature and not easily recorded as such. 6a1b

It is much easier to account for longer-term high level of effort tasks, activities - as we have in the past. 6a1c

The shared-buyer nature of even these tasks has also made good accounting difficult, however. 6b

ABOUT ARC INTERNAL ACTIVITY SUMMARIES 7

Assuming that we can establish a contract and overhead account numbering system that has features to reasonably easily record the use of all of ARC's resources, we must also provide for a system for allocating shared charges among the various "master accounts". 7a

It appears that we should start with somewhat arbitrarily set allocation percentages. These can be changed periodically as needed, but it will take a lot more development before such changes can be made dynamically as specific task negotiations are made. 7b

Perhaps the way to start is to negotiate the overall % support of the shared developmental thrusts in this manner: 7c

For DSS, 7c1

50% to summary account 400 (IPT), 7c1a

50% to summary account 600 (NIC) 7c1b

Or another way of looking at it: 7c2

Summary account 600 (NIC) would be made up of the following charges: The percentages are completely arbitrary - not at all calculated for now. 7c2a

Non-shared 7c2b

601 100% 7c2b1

603 100% 7c2b2

605 100% 7c2b3

606 100% 7c2b4

607 100% 7c2b5

Shared 7c2c

100 Operations 50% ? 7c2c1

based on 7c2c1a

Operations labor 50% 7c2c1b

Operations non-labor 50% 7c2c1c

As we develop means for allocating system use costs these would be charged directly to the using account numbers, thereby reducing the amount of Operations charges to be allocated to the projects. 7c2c1d

201 Devel Coor 30% ? 7c2c2

203 DSS 50% ? 7c2c3

204 DPCS 30% ? 7c2c4

206 SDHS 20% ? 7c2c5

207 SEAS 30% ? 7c2c6

208 General 30% ? 7c2c7

7c3

SCHEDULE FOR ACCOUNTING SYSTEM DEVELOPMENT 8

These tentative Phases and their timing are only a first cut to get the process started - highly tentative and incomplete 8a

Phase I: May 8th for 3 months 8b

Use new account numbering scheme 8b1

Start development of system use allocation scheme 8b2

Get and use SRI summary accounting data, 8b3

distribute to pushers 8b3a

Phase II August 1st for 4 months 8c

Direct charge of system use to activities 8c1

Reflect more negotiation effects in the % cost allocations to contracts 8c2

Phase III December 1st to next Phase 8d

Have effective use of accounting data by Pushers 8d1

Good system of system use allocations 8d2

plus ---? still thinking about this section JCN 4/19 am 8d3

ARC Accounting System: Project, Overhead, and Activity Numbering

(J10047) 20-APR-72 13:16; Title: Author(s): James C. Norton/JCN;
Distribution: Paul Rech, J. D. Hopper, Douglas C. Engelbart, Richard W. Watson, Charles H. Irby, William H. Paxton, Donald C. Wallace, Ed K. Van De Riet, Walt Bass, Dirk H. van Nouhuys, Marilyn F. Auerbach, William R. Ferguson, Kenneth E. Victor/PR JDH DCE RWW CHI WHP DCW EKV WLB DVN MFA WRF KEV; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>ACCOUNTS.NLS;1, 20-APR-72 13:10 JCN ;
HJOURNAL="*** DRAFT *** JCN 5 MAY 72 5:32AM 10047";

INTRODUCTION 1

Our ARC system development team has the same basic needs for planning, coordinating, documenting, and accounting for a constantly changing set of interrelated tasks as do other groups of people working in goal-oriented endeavors. 1a

We constantly face more opportunities for changes or additions to our evolving system than we have resources to carry out. Therefore we must find ways to obtain as effective utilization of our ideas, and of our people, system, and material resources as we can so as to make the best progress toward our goals. 1a1

Planning requires a framework within which information about goals, needs, possibilities, resources, and related dialog can be recorded, studied, and modified usefully. 1a2

The result of such coordinated analysis is the adoption of a current visible plan, or "baseline" of expected events, agreed upon system developments, their external configurations, and resource allocations. 1a3

ARC planning and task activity will be conducted in the organizational framework outlined in Doug Engelbart's recent LINAC document: (10034,) 1a4

We need to develop a system for recording relevant information about the plans, requirements, designs, implementations, status, and resources planned for use on the tasks and higher level ARC activities, 1b

THE BASIC OBJECTIVES OF A BASELINE RECORD SYSTEM (BRS) ARE: 2

1. To provide a central place for recording Baseline data in an organized way. 2a

2. To prepare useful views of such data 2b

3. To provide a system for updating the Baseline data base. 2c

The main responsibility for the data actually being complete and current resides with the pushers for the various tasks and activities. 2c1

THE PRESENT SYSTEM: 3

The Baseline Record is a special subcollection of the Journal.

It consists of a series of files specially formatted to contain task and resource allocation information, including particularly files of plans, specifications, analyses, designs, etc. 3a

Other BRS descriptions are in draft documents: (norton,j7656,) and (auerbach, base,). 3a1

It was intended that it would contain the portion of our currently accurate working records that represents our best definition of tasks we plan to perform in the future, how we are planning to do them, and what uses of resources (people, system service, materials) are expected. 3a2

The present Baseline record is produced from central planning data contained in online files at ARC, and contains various views of that information as needed to give meaningful representation of our situation. 3a2a

The basic set of Baseline record views should include: 3a2a1

(1) Schedule: by activity group (NIC,NLS,TENEX) 3a2a2

(2) Schedule: all tasks by person 3a2a3

(3) Baseline record by task, formatted as "status" report, with elements such as: 3a2a4

Information: (about nature of task and agreements) 3a2a4a

Buyer(s): (for whom or what task is this task being performed) 3a2a4b

Requirements: (agreed upon needs this task will fulfill and certain design criteria as needed) 3a2a4c

Design: (details of design--or links to such--user interface features, internal implementation) 3a2a4d

Milestones: (significant delivery/evaluation points used when relevant) 3a2a4e

Subtasks: (smaller segments made visible for

more detailed planning purposes as needed) 3a2a4f

SubContracts: (other tasks initiated in direct support) 3a2a4g

We will keep some or all of the Baseline Record within a specially organized subcollection of the Journal, shelved separately, and we will use as a "Shelf List" a topically organized Table of Contents. Sections of the Baseline Record that are superseded by new Journal entries will be retired to obsolete status. Changes will be approved and recorded as in configuration management of hardware designs. 3a3

NOTES: 4

Input must be easy for: 4a

Task setups - whether agreed upon as officially on the Baseline of planned tasks or just as possibilitites (needs) up for consideration 4a1

Data inputs - 4a2

Requirements
Designs
Status
People
Other 4a2a

Views must be "easy" to generate - both by the Operations people and by individual ARC users wanting access to special views 4a3

The Record must be up to date 4a4

Routinely produces views must be meaningful and useful to a wide range of users' needs. 4a5

Users must be guided - trained - in the use of the BRS 4a6

Users' opinions must be gathered and appropriate ones fed back into the BRS design process 4a7

Data stored in readable, but general formats to permit Operations' scanning for proofing purposes, user-browsing, and flexible, but strictly formatted storage for future

automatic processes to access and use in preparation of routine views, summaries of the information 4a8

Previous BRS troubles: 4b

The ARC users were not trained in BRS use 4b1

The system did not produce useful views - mainly because most of the needed data was not in the system 4b2

Missing data were requirements, designs (links) partly because they did not exist, partly because of carelessness of the user population 4b2a

The management of the Baseline: 4c

Need for clearly established methodology of use - in daily working efforts of ARC researchers 4c1

Tasks must not be started without buyer agreement, written requirements and task pusher agreement first. 4c2

This could be a source of many problems - non-acceptance or use due to too much red tape - etc, but with careful training, effective provision for small tasks to get going in an orderly way without the red tape, we can make such a system work. 4c2a

The ARC Development Coordinator role is needed here to assure that a central person is continually reviewing the overal Baseline Record for completeness and consistency. 4c3

The recording of agreements reached between buyers and task pushers at the outset and at requirement or design revision times needs to be worked out. How do we record agreements? initialed entries? On or off line?? 4c4

The evolutionary stages of tasks as: needs/possibilitites, ongoing tasks with agreed requirements, designs in progress, accepted designs, implementations in progress, delivered products - completed tasks - documentation and testing, and final user /buyer acceptance -- needs describing for all to see and understand as the way we expect each new ARC development to come about. 4c5

This does not preclude surprise features from ever coming out, but does imply that we need to produce most

of our work in a planned, orderly manner as an integrated-system building team. 4c5a

Roles must be defined for: 4d

Pusher - see (norton,roles,) on old dump tape - see JCN for location 4d1

Buyer/seller - both are pushers, but from different tasks as they relate to each other. 4d2

Designs: what are they, their elements?? 4d3

Implementation - same ?? 4d4

Approvals: what do they mean? why do we need them, who is responsible for them? 4d5

Associated needs: 4e

Estimating techniques, accuracy, and what they mean to us need description and ARC people need to learn more about how to make predictions of start, end and other dates, resource use estimates in our changing, rather unpredicatable environment 4e1

Resource accounting system is needed to aid in estimating, and the decision processes in Baseline management 4e2

Developing a system for the input of data is a real challenge, but must be worked out 4e2a

A number system that will be shared with the BRS must be designed - it must be openended and also lend itself to overlapping task, activity interests 4e2b

An example needed? 4e3

Perhaps use of a good example of the kind of Baseline task planning we want to have would be helpful. Is there one? If not, can we set one up from the start.... one of our BRS teams'? 4e3a

*** DRAFT *** Baseline Record System -BRS- ARC Needs and Notes

(J10048) 19-APR-72 17:36; Title: Author(s): James C. Norton/JCN; Distribution: Paul Rech, J. D. Hopper, Douglas C. Engelbart, William H. Paxton/PR JDH DCE WHP; Sub-Collections: SRI-ARC; Clerk: JCN; Origin: <NORTON>BRSNEEDS.NLS;2, 19-APR-72 17:33 JCN ; ID=XXX; HJOURNAL=" JCN 4 MAY 72 6:29AM 10048";

DVN 11-APR-72 11:45 10049

1971 Report Planning Meeting at 9:00 instead of 10:00

We will meet tomorrow at 9:00 instead of 10:00 to plan writing the 1971 final report because Redwood POD meets at 10:00 1

DVN 11-APR-72 11:45 10049

1971 Report Planning Meeting at 9:00 instead of 10:00

(J10049) 11-APR-72 11:45; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: James C. Norton, Marilyn F. Auerbach, Charles H. Irby, Richard W. Watson, William H. Paxton, Don I. Andrews, Ed K. Van De Riet, Donald C. Wallace, Mil E. Jernigan, Harvey G. Lehtman, Dirk H. van Nouhuys/JCN MFA CHI RWW WHP DIA EKV DCW MEJ HGL DVN; Sub-Collections: SRI-ARC; Clerk: DVN;

KEV 11-APR-72 16:29 10050

psrty annoucemnet

there will be a party this friday, april 14, to celebrate the leaving of bruce and john 1

it is going to be a barbaque starting around four pm at jim nortons 1a

directions are on the round table in the display area 1b

KEV 11-APR-72 16:29 10050

psrty annoucemnet

(J10050) 11-APR-72 16:29; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: KEV;
Origin: <VICTOR>PARTY.NLS;2, 11-APR-72 16:22 KEV ;

you are all invited to see an exhibition of my photographs at the UPSTAIRS GALLERY in Sunnyvale during the month of april. Directions are on the bullitin board next to the blackboard in the display area.

1

(J10051) 11-APR-72 16:33; Author(s): Kenneth E. Victor/KEV; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: KEV;

Bruce L. Parsley
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025

To:
Access Copy

10075

BLP 14-APR-72 5:03 10075

NEW OUTPUT PROCESSOR

(J10075) 14-APR-72 5:03; Title: Author(s): Bruce L. Parsley/BLP; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: LLL;

BLP 14-APR-72 5:03 10075

NEW OUTPUT PROCESSOR

Thereis a new Output Processor If there are problems tell me (BLP). If I'm not around merely delete the highest version of <SUBSYS>OUTPRC. 1

NEW OUTPUT PROCESSOR

Thereis a new Output Processor If there are problems tell me (BLP). If I'm not around merely delete the highest version of <SUBSYS>OUTPRC. 1

Michael D. Kudlick
Stanford Research Institute
333 Ravenswood Ave.
Menlo Park, California 94025

To:
Access Copy

10077

MDK 14-APR-72 9:16 10077

TNLS: A Reply to RWW (HJOURNAL,9946,1:w)

(J10077) 14-APR-72 9:16; Title: Author(s): Michael D. Kudlick/MDK; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>TNLS.NLS;13, 13-APR-72 15:49 MDK ;

MDK 14-APR-72 9:16 10077

TNLS: A Reply to RWW (HJOURNAL,9946,1:w)

This is in response to RWW's request for suggestions on improving TNLS utility, learnability, and user interface. 1

I have been utterly frustrated in trying to learn TNLS. Frankly I gave up because in my opinion it is so unnecessarily cumbersome. Since I did give up, after an admittedly incomplete try, there are many areas of it that I'm not familiar with. 1a

However, I feel that anyone can learn anything given enough time and motivation. The issue I'm addressing is how do we cut down on the time and increase the motivation by making it worthwhile for the neophyte. 1b

The text of RWW's journal request follows, and then comes my reply. 1c

WATSON'S REQUEST (HJOURNAL,9946, 1:w) 2

SRI-ARC is presently considering what changes to TNLS syntax and capabilities are necessary to improve its utility, learnability, and user interface. 3

We would very much appreciate any suggestions which network users may have in the above areas. Please communicate your suggestions, by phone, letter, NIC Journal, etc., to: 3a

Dick Watson (IDENT=RWW)
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025
(415) 326-6200 x2013 3a1

MDK'S REPLY 4

The changes I propose for TNLS fall into several categories, as follows: 5

(1) Re-design TNLS to be a truly one-dimensional (i.e., typewriter-oriented) command language. 5a

The present design attempts to emulate DNLS syntax, but without the mouse and keyset and two-dimensional screen the result is at best extremely awkward. 5a1

For example, address specification other than by line number or content should be eliminated. Counting words and/or characters is an abomination, and shouldn't even be allowed. 5a1a

The present design incorporates the file link syntax of DNLS as best it can, but the result is in my opinion unacceptable for typewriter users. 5a2

The phrase "jump [to] file link" and "jump [to] file return (or ahead)" have no obvious connotation in the real world of file operations. Why not just "read file" or "load file" or "get file", and "write file" or "output file" or "forget file" ? There is no "jumping" being done, as far as the user is concerned. 5a2a

Also, jumping to file ahead or return is too cryptic. My guess is that a typewriter user would rather be able to ask what files are open (if he's forgotten) and select one by typing a command such as READ FILE X, if X is the name of the file he wants. 5a2b

My reaction to the syntax of using links in TNLS (with up-arrows, at-signs, ampersands, etc) is one of wanting to stay away from it. I wonder if others feel the same. 5a2c

(2) Re-design TNLS to have several components, with the user paying for only those he uses. 5b

The present design requires the user to pay for the editing features, for the journal, output processor, file link mechanisms, viewspecs, and I don't know what else. It seems to me that there ought to be a simple text editor, a structural text editor, a file handler (copying, merging, sorting, assimilating), etc. Perhaps there could be a "simple" version of TNLS, and a "sophisticated" version, the latter having all the features that we can think of wanting to have, and the former having a simple subset of these. The user ought to be able to bring into play only those parts he wants, and pay for only those parts. 5b1

There ought to be a novice mode, in which the computer prompts and the user answers; there ought to be a normal mode, in which the computer doesn't prompt, but the user must type the full commands; and there ought to be an expert mode, in which the computer recognizes commands by the first letter (or first initial letters) and echoes the full command. 5b2

The output processor and the journal (and perhaps other subsystems that I'm not familiar with) ought to be run as independent processes, e.g. parallel forks. In other words, once invoked by the user they ought to run independently of whatever else he's doing. He should even be able to log out while they're running. 5b3

incidentally, it would be nice if one didn't have to load a file in order to submit it to the journal. In other words, the command I'd like is "Submit File X", where X correctly specifies filename, statement, and viewspecs in some systematic way. 5b3a

The Journal should be accessible in a totally different way from the present mechanism. This idea comes from the observation that it is a nuisance to attempt to submit an item to the journal and be told that the journal system is temporarily not available. 5b4

It really doesn't have to be available to submit an item, in my opinion. 5b4a

Rather, a simple pre-journal process could gather all the necessary information from the user and create a process which would in turn submit the request to the journal system whenever it DID become available. 5b4b

This would require one significant change to the journal mechanics: One would have to be able to say "Submit File X" where X correctly specifies filename, statement, and viewspecs. This would supersede the current requirement that the file being submitted already be "open", i.e. "loaded". 5b4b1

Another significant change would be that the user wouldn't be given the journal item number assigned to his item. He couldn't be given this until the journal actually ran and placed the reference in his initial file. I don't think that this is any big loss to the user, but I'm not as familiar with journal usage as others may be. 5b4b2

(3) I think there are too many sophisticated commands in the language, and I wonder if they're used. 5c

I think it is imperative that we take statistics on command usage, to discover what the distribution of usage really is. Putting my neck out, I'd guess that the following

operations are among the seldom- if-ever- used variety (and here I'm thinking of real-world users, not ARC users): 5c1

execute viewchange, 5c1a

xset, 5c1b

viewspecs after the command accept 5c1c

The double "command accept" (to allow various options to be tagged onto a command, especially viewspecs options) should be eliminated. Every command should end in a single command accept. Options presently incorporated after the first command accept should be made into a separate command, or at the least requested by the computer via question-and-answer format. The double addresses required for text and group could be delimited by commas, rather than command accepts, for example. 5c1c1

visible, invisible, and number (perhaps others also) as objects of copy, move, transpose, etc. 5c1d

jump to file working copy 5c1e

the whole concept of working copy, or partial copy, should in my opinion not even be known to the user; it is a damned confusing concept to people who don't know, or care, how the computer does what it does 5c1e1

(4) I think the command language needs overhaul in the choice of words used for syntax. For example: 5d

Output Device Printer ... why not just Output To Printer 5d1

Execute Status Link Stack ... why not just List Current Files ? 5d2

Execute this, that, or the other thing ... why not just "Call" (a very commonly used word for getting to a subroutine or subsystem). 5d3

The principal reason for use of Execute seems to be that we've run out of single letters with which to specify a command uniquely, so we've gone to a submode of commands, all of which begin with Execute. That's one way to handle the dilemma. But a more satisfactory way would in my opinion be either to go to two or three letter commands throughout, or (as in the old 940

syntax) go to a variable number of letters, using more than one letter where one leads to ambiguity, more than two where two leads to ambiguity, etc. 5d3a

Reset File ... Here the connotation is not as intended. Why not just Clear File, or Delete File Contents ? 5d4

The explicit use of the control marker (CM) is difficult for most users who aren't oriented to the way computers process text. All the commands that require the user to specify (and know he's specifying) CM position should be eliminated. 5d5

In DNLS one never needs to worry explicitly about CM location, and that's the way it should be in TNLS. Addressing within a statement should be by content only, and the CM should always be at the place where your last content reference was made. There are probably some pathological cases that make this a difficult rule to follow, but it would seem wiser to eliminate the pathological cases rather than institute the heavy mechanism of CM's. 5d5a

(5) In DNLS the command syntax to change character size is exceptionally unwieldy. Why isn't character size a viewspec? Also ... 5e

Jump to The Journal ... why not Jump To Statement ? What's an Item ? 5e1

Jump to anything ... why "Jump" ? Why not "Display" (analogous to "Print" in TNLS) or "Show" ? 5e2

DNLS error messages appear too briefly on the screen. If you turn your head, you might miss the message. Why not have the error message blink continually until the user acknowledges with a command accept? 5e3

EXEC messages of urgency (such as, "please log out in five minutes, the system is being taken down") should appear in a window at the top of the screen while the user is in DNLS. Otherwise, it's just luck if he escapes to the EXEC in time to get the message. This could be handled in TNLS by printing a message from the system immediately after the next occurrence of the "herald". 5e4

(6) Privacy 5f

The issue of privacy has two aspects, files and terminal

usage. I think TNLS, DNLS, and TENEX do not address this issue adequately. I have spoken to Charles Irby about file privacy, and for the record I repeat my comments below. I understand from him that some of the things I recommend are already handled in Tenex, but not all. I urge ARC to make this a top-priority issue for implementation. 5f1

Terminal Usage. 5f2

Think of using a telephone. When you're talking To Mr. A, Mr. B can't cut in on you; his dial phone registers a busy signal, as it should. But suppose Mr. B could just dial you and automatically get connected to your phone, able to listen in on your conversation with Mr. A, without your knowledge or consent. A ludicrous concept? Consider the following. 5f2a

With the TENEX Link mechanism Mr. B can do just this: Link to you and automatically get connected to you and have your typing and manipulations and file contents displayed on his terminal while you're doing your private work. And he can do all this without your knowledge or consent. This IS ludicrous. 5f2b

I propose we do away with the present Link mechanism immediately. We should then implement a procedure whereby to establish a link requires a handshake. Mr. X tells the system he wants to link to Mr. Y, the system flashes an appropriate message to Mr. Y, Mr. Y says either "I'm busy, call me later" or "OK, I'll accept the link now", Mr. X is informed of the reply and only then could a link be established. 5f2c

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read access (can open it but not update or copy it); 5f3d1c

execute access (can only run it, like NLS). 5f3d1d

MDK 14-APR-72 9:16 10077

TNLS: A Reply to RWW (HJOURNAL,9946,1:w)

This is in response to RWW's request for suggestions on improving TNLS utility, learnability, and user interface. 1

I have been utterly frustrated in trying to learn TNLS. Frankly I gave up because in my opinion it is so unnecessarily cumbersome. Since I did give up, after an admittedly incomplete try, there are many areas of it that I'm not familiar with. 1a

However, I feel that anyone can learn anything given enough time and motivation. The issue I'm addressing is how do we cut down on the time and increase the motivation by making it worthwhile for the neophyte. 1b

The text of RWW's journal request follows, and then comes my reply. 1c

WATSON'S REQUEST (HJOURNAL,9946, 1:w) 2

SRI-ARC is presently considering what changes to TNLS syntax and capabilities are necessary to improve its utility, learnability, and user interface. 3

We would very much appreciate any suggestions which network users may have in the above areas. Please communicate your suggestions, by phone, letter, NIC Journal, etc., to: 3a

Dick Watson (IDENT=RWW)
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025
(415) 326-6200 x2013 3a1

MDK'S REPLY 4

The changes I propose for TNLS fall into several categories, as follows: 5

(1) Re-design TNLS to be a truly one-dimensional (i.e., typewriter-oriented) command language. 5a

The present design attempts to emulate DNLS syntax, but without the mouse and keyset and two-dimensional screen the result is at best extremely awkward. 5a1

For example, address specification other than by line number or content should be eliminated. Counting words and/or characters is an abomination, and shouldn't even be allowed. 5a1a

The present design incorporates the file link syntax of DNLS as best it can, but the result is in my opinion unacceptable for typewriter users. 5a2

The phrase "jump [to] file link" and "jump [to] file return (or ahead)" have no obvious connotation in the real world of file operations. Why not just "read file" or "load file" or "get file", and "write file" or "output file" or "forget file" ? There is no "jumping" being done, as far as the user is concerned. 5a2a

Also, jumping to file ahead or return is too cryptic. My guess is that a typewriter user would rather be able to ask what files are open (if he's forgotten) and select one by typing a command such as READ FILE X, if X is the name of the file he wants. 5a2b

My reaction to the syntax of using links in TNLS (with up-arrows, at-signs, ampersands, etc) is one of wanting to stay away from it. I wonder if others feel the same. 5a2c

(2) Re-design TNLS to have several components, with the user paying for only those he uses. 5b

The present design requires the user to pay for the editing features, for the journal, output processor, file link mechanisms, viewspecs, and I don't know what else. It seems to me that there ought to be a simple text editor, a structural text editor, a file handler (copying, merging, sorting, assimilating), etc. Perhaps there could be a "simple" version of TNLS, and a "sophisticated" version, the latter having all the features that we can think of wanting to have, and the former having a simple subset of these. The user ought to be able to bring into play only those parts he wants, and pay for only those parts. 5b1

There ought to be a novice mode, in which the computer prompts and the user answers; there ought to be a normal mode, in which the computer doesn't prompt, but the user must type the full commands; and there ought to be an expert mode, in which the computer recognizes commands by the first letter (or first initial letters) and echoes the full command. 5b2

The output processor and the journal (and perhaps other subsystems that I'm not familiar with) ought to be run as independent processes, e.g. parallel forks. In other words, once invoked by the user they ought to run independently of whatever else he's doing. He should even be able to log out while they're running. 5b3

Incidentally, it would be nice if one didn't have to load a file in order to submit it to the journal. In other words, the command I'd like is "Submit File X", where X correctly specifies filename, statement, and viewspecs in some systematic way. 5b3a

The Journal should be accessible in a totally different way from the present mechanism. This idea comes from the observation that it is a nuisance to attempt to submit an item to the journal and be told that the journal system is

**temporarily not available. 5b4

It really doesn't have to be available to submit an item, in my opinion. 5b4a

Rather, a simple pre-journal process could gather all the necessary information from the user and create a process which would in turn submit the request to the journal system whenever it DID become available. 5b4b

This would require one significant change to the journal mechanics: One would have to be able to say "Submit File X" where X correctly specifies filename, statement, and viewspecs. This would supersede the current requirement that the file being submitted already be "open", i.e. "loaded". 5b4b1

Another significant change would be that the user wouldn't be given the journal item number assigned to his item. He couldn't be given this until the journal actually ran and placed the reference in his initial file. I don't think that this is any big loss to the user, but I'm not as familiar with journal usage as others may be. 5b4b2

(3) I think there are too many sophisticated commands in the language, and I wonder if they're used. 5c

I think it is imperative that we take statistics on command usage, to discover what the distribution of usage really is. Putting my neck out, I'd guess that the following

operations are among the seldom- if-ever- used variety (and here I'm thinking of real-world users, not ARC users): 5c1

execute viewchange, 5c1a

xset, 5c1b

viewspecs after the command accept 5c1c

The double "command accept" (to allow various options to be tagged onto a command, especially viewspecs options) should be eliminated. Every command should end in a single command accept. Options presently incorporated after the first command accept should be made into a separate command, or at the least requested by the computer via question-and-answer format. The double addresses required for text and group could be delimited by commas, rather than command accepts, for example. 5c1c1

visible, invisible, and number (perhaps others also) as objects of copy, move, transpose, etc. 5c1d

jump to file working copy 5c1e

the whole concept of working copy, or partial copy, should in my opinion not even be known to the user; it is a damned confusing concept to people who don't know, or care, how the computer does what it does 5c1e1

(4) I think the command language needs overhaul in the choice of words used for syntax. For example: 5d

Output Device Printer ... why not just Output To Printer 5d1

Execute Status Link Stack ... why not just List Current Files ? 5d2

Execute this, that, or the other thing ... why not just "Call" (a very commonly used word for getting to a subroutine or subsystem). 5d3

The principal reason for use of Execute seems to be that we've run out of single letters with which to specify a command uniquely, so we've gone to a submode of commands, all of which begin with Execute. That's one way to handle the dilemma. But a more satisfactory way would in my opinion be either to go to two or three letter commands throughout, or (as in the old 940

syntax) go to a variable number of letters, using more than one letter where one leads to ambiguity, more than two where two leads to ambiguity, etc. 5d3a

Reset File ... Here the connotation is not as intended. Why not just Clear File, or Delete File Contents ? 5d4

The explicit use of the control marker (CM) is difficult for most users who aren't oriented to the way computers process text. All the commands that require the user to specify (and know he's specifying) CM position should be eliminated. 5d5

In DNLS one never needs to worry explicitly about CM location, and that's the way it should be in TNLS. Addressing within a statement should be by content only, and the CM should always be at the place where your last content reference was made. There are probably some pathological cases that make this a difficult rule to follow, but it would seem wiser to eliminate the pathological cases rather than institute the heavy mechanism of CM's. 5d5a

(5) In DNLS the command syntax to change character size is exceptionally unwieldy. Why isn't character size a viewspec? Also ... 5e

Jump to The Journal ... why not Jump To Statement ? What's an Item ? 5e1

Jump to anything ... why "Jump" ? Why not "Display" (analogous to "Print" in TNLS) or "Show" ? 5e2

DNLS error messages appear too briefly on the screen. If you turn your head, you might miss the message. Why not have the error message blink continually until the user acknowledges with a command accept? 5e3

EXEC messages of urgency (such as, "please log out in five minutes, the system is being taken down") should appear in a window at the top of the screen while the user is in DNLS. Otherwise, it's just luck if he escapes to the EXEC in time to get the message. This could be handled in TNLS by printing a message from the system immediately after the next occurrence of the "herald". 5e4

(6) Privacy 5f

The issue of privacy has two aspects, files and terminal

usage. I think TNLS, DNLS, and TENEX do not address this issue adequately. I have spoken to Charles Irby about file privacy, and for the record I repeat my comments below. I understand from him that some of the things I recommend are already handled in Tenex, but not all. I urge ARC to make this a top-priority issue for implementation. 5f1

Terminal Usage. 5f2

Think of using a telephone. When you're talking To Mr. A, Mr. B can't cut in on you; his dial phone registers a busy signal, as it should. But suppose Mr. B could just dial you and automatically get connected to your phone, able to listen in on your conversation with Mr. A, without your knowledge or consent. A ludicrous concept? Consider the following. 5f2a

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MFA 14-APR-72 14:27 10078

NEW/RECENT NLS CHANGES OF INTEREST TO USERS

Hardcopy of this file will be posted on the bulletin board as soon as the printer is well.

MFA 14-APR-72 14:27 10078

NEW/RECENT NLS CHANGES OF INTEREST TO USERS

<NLS>STATUS.NLS;139, 14-APR-72 13:10 MFA ; 1

NEW/RECENT NLS CHANGES OF INTEREST TO USERS

(Folklore) Documentation for users of NLS changes since last User Guide 2

(Changes) New features, commands, etc. 2a

EXECUTE CONTENT ANALYZER DEMISE 2a1

The command Execute Content-analyzer no longer exists. Instead there is now a Goto Program Content-analyzer command. 2a1a

g[oto] p[rograms] c[ontent analyzer pattern compile] CA 2a1a1

This command does everything that Execute Content Analyzer did including instituting the user content analyzer program. 2a1b

USER CONTENT ANALYZER PROGRAM CHANGE 2a2

The use of user Content Analyzer programs is changed. Now a statement "passes" if the content analyzer program returns TRUE and fails if it returns FALSE. SENDS and SPORTS are unaffected. The global variable FLAG is no longer examined. 2a2a

CONTENT ANALYZER PATTERNS IN LINKS 2a3

Content analyzer patterns in links now works,i.e., viewspecs i and k may be specified. 2a3a

USER PROGRAMS AND NLS SYMBOLS 2a4

User programs now have access to all NLS symbols (and each others if more than one is compiled at a time). This was done by providing communication between L10 and DDT's symbol table (which contains all NLS symbols plus those of previously compiled programs using the Goto Program L10/Contentanalyzer compile commands). 2a4a

NEW COMMAND - NULL FILE 2a5

A new command, Null File, has been added to TNLS and DNLS. It requires a file name, and will create an empty file of that name. Upon completion of the command the user is left with the CM / display start at the origin of this new file. 2a5a

n[ull file] FILENAME CA 2a5a1

If a file with the specified name already exists, then the message "File already exists; CA to proceed" is typed. Confirmation (a CA) causes NLS to create a new, empty version of the file. Any other character is interpreted as a new command. 2a5b

MORE NEW IDENTIFICATION SYSTEM COMMANDS 2a6

Several new commands have been added to the identification system: 2a6a

An individual may have two types of affiliation, primary and secondary. 2a6a1

A primary affiliation is exactly what the name suggests. An individual may have only one. When prompted for "Affiliation" while entering a new individual into the identification system, the primary affiliation is meant. In the Modify submode, the command "Af" (for Affiliation) IDENT CA causes the system to replace the current Primary Affiliation with the new ident. 2a6a1a

An individual may have any number of secodary affiliations. Such an affiliation is assigned in the Modify submode, using the "se" (for secondary affiliation) command. The system will print out all current secondary affiliations, then the hearald ">>>". This list of affiliations may be modified by typing 'a(dd), 'd(elete), or 'i(nitialize), followed by a list of idents, as with group membership lists, or the old Modify affiliate command. 2a6a1b

When a new individual is added to IDENTFILE, his ident is automatically added to the membership list of his primary affiliation. 2a6a2

SUBSTITUTE COMMAND CHANGE IN DNLS 2a7

Substitute in DNLS has been enlarged to understand about words, visibles, etc. 2a7a

All of the old commands are still available, and work as they always have. In addition, the commands, Substitute [text entity] in [structure entity] are now available. Text entity may be Character, Word, Visible, etc., and Structure entity may be Statement, Branch, Group, or Plex. 2a7b

s[ubstitute] s[tatement] BUG CA ...
b[ranch]
p[lex]
g[roup]
w[ord in]
v[isible in]
t[ext in]
c[haracter in]
l[ink in]
n[umber in] 2a7b1

If structural entity specified: 2a7b2

[text] BUG BUG CA [for text:] BUG BUG CA
[go?...etc.
LIT CA LIT CA 2a7b2a

If textual entity specified: 2a7b3

s[tatement] BUG CA
b[ranch]
p[lex]
g[roup] 2a7b3a

If textual entity specified was word, visible, link, number, character, or invisible, the remaining syntax is: 2a7b4

[text:] BUG CA [for text:] BUG CA [go?...etc.
LIT CA LIT CA 2a7b4a

If textual entity specified was "text" remaining syntax is the same as for a structural entity: 2a7b5

During the substitution, the delimiters of the candidates for substitution are observed. For example, if the user issues Substitute Word... "the" for "an" in the statement "Do you want an igloo instead of another kayak, dear?", the word "an" will be replaced by "the", but the word "another" will not be changed. 2a7c

Also, this change has not been added to TNLS (yet). 2a7d

NEW RECORD MODE 2a8

A set of commands (and modifications to the user input routines) has been added to implement a control environment. A display session may be recorded on a file, then played back. During the playback, NLS will read the input from the control file instead of from the work station. An attempt is made to replay the commands at the same speed that the user entered them. 2a8a

To record a session -- 2a8a1

g[oto] c[ontrol file record] CA
[record on file] FILENAME CA 2a8a1a

where FILNAME is the file onto which the subsequent session will be recorded. The system automatically sets the extension field of FILENAME to ".CTL". 2a8a1b

To terminate a session -- 2a8a2

g[oto] c[ontrol] q[uit] CA 2a8a2a

When this command is executed the record file is closed and recording is terminated. 2a8a2b

Record mode sessions are also terminated when the user issues the NLS Execute Quit command. 2a8a2c

To play back a session -- 2a8a3

g[oto] c[ontrol] p[layback] CA FILENAME CA 2a8a3a

When this command is executed, further user input is read from the FILNAME specified. 2a8a3b

When a control file is being read back the user is in the "DNLCTL" subsystem. 2a8a3c

NEW COMMAND - EXECUTE LOGOUT 2a9

The new Execute Logout command is equivalent to issuing the Execute Quit command in NLS and following it with a LOGOUT command in the EXEC. 2a9a

e[xecute] l[ogout] CA 2a9a1

TNLS STATEMENT NUMBERS TO THE RIGHT 2a10

TNLS will now print statement numbers on the right if the appropriate viewspecs are on. 2a10a

EXECUTE UNLOCK NEWS 2a11

If the user attempts an Execute Unlock command on a file that is not locked, the system will issue the message: "This file is not locked". 2a11a

If the file is locked by someone else, system will issue message "You do not have this file locked". 2a11b

If the user does not have write privileges for the directory in which the specified file resides, the system will issue the message: "No write access to <DIRECTORY>". 2a11c

SUBCOLLECTION DEFAULT IDENTS 2a12

The default subcollection of a group is the IDENT of that group. 2a12a

MISCELLANEOUS FIXES 2a13

Execute Insert Sequential now handles EOL's properly. 2a13a

Some Bugs fixed in the Journal (mostly in hard copy). 2a13b

The Baseline system should work again. 2a13c

The DEX EOL escape and translation now works properly. 2a13d

The file status command will no longer suggest doing an Output File if there are three or less pages in the file 2a13e

DEX EXPANSION 2a14

DEX now permits the user to make use of the expanded character sets of terminals other than the TTYs by permitting the use of shift characters to change case rather than / and . To make use of this feature, the user specifies a "Terminal type" after specifying the "Device: Off-line DEX-1". Valid terminals are 33- and 35-TTYs (which have single case and thus make use of the DEX capitalization characters) and Execuport, TI Terminal and 37-TTY (which have case shifts). The same symbols as are used in "Device" specification for the terminals to enter NLS are used to specify the Terminal type, (i.e., T for TI terminal, 33 for 33 TTY.) 2a14a

If an improper specificaton is entered, the user will be prompted again for input. If an acceptable device is specified, the user will then be asked for "Input file names as in the old DEX. If a device with uppercase characters is given, the slashes are not considered to be control characters and need not be preceded by the Literal Escape character ('). 2a14a1

DOUBLE QUOTES IN HEADERS 2a15

The Output Processor will now allow double-quotes (") in headers. The text of a header is still begun with a double quote, but the end is indicated by a double-quote followed IMMEDIATELY by a Directive Right Delimiter (DRD). A double-quote which does not have a DRD as the next character is assumed to be part of the text of the header. This applies to all header directives. 2a15a

MFA 14-APR-72 14:27 10078

NEW/RECENT NLS CHANGES OF INTEREST TO USERS

(J10078) 14-APR-72 14:27; Title: Author(s): Marilyn F. Auerbach/MFA; Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MFA;
Origin: <AUERBACH>STATUS.NLS;1, 14-APR-72 13:11 MFA ;

I'll be seeing all of you in the future, I hope. Bye. 1

(J10080) 14-APR-72 16:08; Author(s): John T. Melvin/JTM;
Distribution: Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Robert L. Dendy, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, John T. Melvin, Jeanne B. North, James C. Norton, Cindy Page, Bruce L. Parsley, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JTM;