INDEX-GLOSSARY 1

In this part of the manual, many terms are listed in company with a short explanation or definition and with references to the sections of the document where the term is explained more fully. (Some terms require more extensive reading, beyond the sections cited, for a complete understanding.) These references are given in italics if they are the numbers of the syntax equations in Appendix A. The upright numbers are the section numbers in the body of the text where the terms are discussed. In some cases, the explanation itself contains a verbal reference to another term in this index-glossary. 1a

The first section below treats the "marks and "ideograms. In the alphabetical sections, metalinguistic terms are listed in italics, JOVIAL "primitives and "abbreviations are listed in upright capitals, and possibly unfamiliar English words and phrases are listed in upright lowercase letters. The explanations are to the right of the terms and the reference numbers are below. 1b

Ideograms and Marks 1b1

_+ See "plus:sign. 1b1a

_- See "minus:sign. 1b1b

_/ See "slash. 1b1c

_\ _Arithmetic:operator for the determination of a residue (modulo). 1b1d

_* See "asterisk. 1b1e

_** "Arithmetic:operator for exponentiation. 1b1f

_< "Relational:operator meaning less than. 1b1g

_> "Relational:operator meaning greater than. 1b1h

_<> "Relational:operator meaning less than or greater than, not equal. 1b1i

_>= "Relational:operator meaning greater than or equal, not less than. 1b1j

_<= "Relational:operator meaning less than or equal, not greater than. 1b1k

_= See "equal:sign. 1b1l

_== Operator for exchange in an "exchange:statement. 1b1m

_& Concatenation operator for "character: and "bit:formulas. 1b1n

_@ See "at:sign. 1b1o

_@@ Signal for "attribute:association. 1b1p

"Space, the "mark represented by no ink on the paper. 1b1q

_$ See "dollar:sign. 1b1r

_. Representation of an explicit decimal point in "numeric:constants and "numeric:formats. 1b1s

_, See "comma. 1b1t

_: See "colon. 1b1u

_; Terminator (optional after _END and a "direct:statement) for "statements, "declarations, "directives, "for:clauses, and the introductory conditional clauses of "loop:statements. 1b1v

_! See "exclamation:point. 1b1w

_" See "quotation:mark. 1b1x

_' See "prime. 1b1y

_("Left:parenthesis. See "parentheses. 1b1z

_) "Right:parenthesis. See "parentheses. 1b1a0

_["Left:bracket. See "brackets. 1b1aa

_] "Right:bracket. See "brackets. 1b1ab

A 1b2

_A 1b2a

In a "fixed:constant signals the number of bits after the binary point. 1b2a1

"abbreviation "i, 2.6.1 1b2b

"Symbol. A specific "letter in a "declaration with a meaning depending upon the specific context. 1b2b1

"abnormal:directive "2, 11.7.1 1b2c

Notifies the compiler of data elements that may be affected by interrupt processing or concurrent tasks. 1b2c1

_ABS 4.19.11 1b2d

"Primitive. Initiates an "absolute:function:call, which returns the absolute value of its "parameter. 1b2d1

"absolute:function:call "3, 4.19.11 1b2e

"Intrinsic:function:call whose value is the absolute value of its "parameter. 1b2e1

"actual:define:parameter "4, 7.34.10 1b2f

An optional part of a "definition:invocation. Gives the string of "signs to be substituted for each occurrence of its corresponding "formal:define:parameter. 1b2f1

"actual:input:parameter "5, 4.18.1, 5.11.2 1b2g

An optional part of a "function:call or "procedure:call:statement. Gives the "parameter that matches in kind its corresponding "formal:input:parameter. 1b2g1

"actual:output:parameter "6, 5.11.2 1b2h

An optional part of a "procedure:call:statement. Gives the "variable to be set from the corresponding "formal:output:parameter upon exit from the procedure. 1b2h1

_ALL 5.5.8, 10.4.6 1b2i

"Primitive. Indicates in an "assignment:statement that the full range of every "index:component of the "variable is to be used to give a list of all occurrences of the "variable. 1b2i1

allocation 7.7 1b2j

Refers to one of the two basic ways (fixed allocation and controlled allocation) of associating a data structure with its data space. 1b2j1

Applied to a "formula, it imposes its "description:attribute on the bits of the "formula, causing it to be treated as a "numeric:formula of the stated type, size and precision. 1b2a@1

attribute guidance 4.9 1b2aa

Explicit direction with regard to scaling and conversion of numeric data and operations. Overrides default scaling rules. 1b2aa1

B 1b3

_B 1b3a

As part of a "form:declaration, specifies a "bit:form. Signals a "pattern:constant or "pattern:format. 1b3a1

"back:slash "144 1b3b

_\ A "mark, the "arithmetic:operator for the determination of a residue (modulo). 1b3b1

basic addressable unit 2.9.5 1b3c

A set of bits (usually a byte or a word) corresponding to each machine location; one of the consecutively numbered units of computer memory. 1b3c1

basic structure 7.24 1b3d

Refers to the arrangement of table entries in the words of a computer. The structure may be serial, parallel, or tight. 1b3d1

_BEGIN 1b3e

"primitive. Used with the "primitive _END as brackets to enclose "statements and "declarations, and (when enclosing nothing) as a "null:statement or "null:declaration. 1b3e1

"begin:directive "16, 11.3.1 1b3f

Used with an "end:directive to bracket "statements and "declarations to be conditionally compiled depending upon a "skip:directive. 1b3f1

_BIT 3.3.3, 3.4.1, 4.12.2 1b3g

"primitive. Indicates that certain bits of an item are to be set ("functional; "bit:variable) or to be used ("bit:string:function:call). 1b3g1

bit 2.9, 7.14.1 1b3h

A binary digit, _0 or _1, basic unit of information. Bits of a computer are organized in a hierarchical structure. A bit string is the simplest data structure. 1b3h1

"bit:form "17, 4.17.1, 8.9.1 1b3i

A "formula that consists of a "form:name followed by a parenthesized list of "bit:formulas that are assembled to provide a single bit value. 1b3i1

"bit:formula "18, 4.5.1, 4.12 1b3j

The representation of a string of bits, without regard to any meaning it might have as a numeric or character value. 1b3j1

"bit:number "19, 7.18.6, 7.19.5, 7.30.3 1b3k

In a "simple:item:declaration, gives the first bit of the item in a word. For a "specified:table:item:declaration, this word is a word of an entry; if this table has tight structure, "bit:number gives the first bit of the first entry in each word. 1b3k1

"bit:string:function:call "20, 4.12.2 1b3l

"Intrinsic:function:call whose value is that of a specified string of the bits of its first "parameter. 1b3l1

"bit:variable "21, 3.3.3, 3.4.1 1b3m

Denotes a string of bits without consideration of any numeric or other meaning associated with those bits. 1b3m1

"bits:per:entry "22, 7.30.3 1b3n

An optional part of a "specified:table:heading. For a tightly structured table, gives the size of an entry in bits. 1b3n1

blank 1b3o

A character value represented by no mark on the paper. 1b3o1

"character:form, As part of an "item:description, signals character type for the item. In a "character:format, represents an effective character position where a character value is expected or output. 1b4a1

call 1b4b

Refers to a "function:call or "procedure:call:statement. To request the execution of a function or procedure. 1b4b1

canonical form 1b4c

A standardized form of a "program:declaration exhibiting regularity of both logical structure and arrangement on the page. There is no universally accepted canonical form, but there are many procedures for simplifying and regularizing "program:declarations. 1b4c1

"chain:comparison "24, 4,13,4 1b4d

Refers to a "formula in which some of the contained "formulas are used twice in effecting "comparisons since they have a "relational:operator on either side. 1b4d1

character 2,9,10 1b4e

A type of value that consists of a string of "characters. 1b4e1

"character "25, 2,8,1 1b4f

Any "sign the system will accept from those given in the body of Figure 2-1. 1b4f1

"character:constant "26, 2,8,1 1b4g

Provides a direct means of representing a character value to be manipulated by a program. 1b4g1

"character:form "27, 4,17,2, 8,9,1 1b4h

A "formula which consists of a "form:name followed by a parenthesized list of "formulas that are assembled to provide a single character value. 1b4h1

"character:format "28, 6,6 1b4i

A string of _C's where each _C corresponds to an effective character position of the buffer filled or to be filled with any character value. 1b4i1

"character:formula "29, 4.4 1b4j

Represents a value consisting of a string of "characters and having a size measured in bytes. 1b4j1

"character:function:call "30, 4.4 1b4k

Invocation of a special "procedure:declaration with an implicit output parameter of character type. 1b4k1

"character:variable "31, 3.3.2, 3.4.2 1b4l

A "variable whose "item:description declares it to be of character type by starting with _C or a part of such a "variable specified by using the "primitive _BYTE. 1b4l1

"colon "144 1b4m

_: A "mark used to introduce the first "actual:output: or "formal:output:parameter, an "instruction:allocation:specifier in a "procedure:heading, the "allocation:increment in a "specified: or "ordinary:table:heading, or an overlapping data structure in "independent: and "subordinate:overlay:declarations; to terminate a "statement:name at the point of definition, or a "lower:bound in a "dimension:list; to separate in an "index:component:range, a "qualified:status:constant, and in "interference: and "pointer:directives. 1b4m1

"comma "144 1b4n

_, A "mark widely used as a separator between elements that appear in various kinds of lists, to precede the R or "precision:specifier in an "item:description, or to signal the end of a path in a "switch:statement. The occurrence of a "comma in an "actual:define:parameter makes it necessary to enclose the "definition in "quotation:marks. 1b4n1

"comment "32, 2.5.2, 2.10 1b4o

"Symbol. Annotates a "program:declaration explaining what is going on. Equivalent to a "space in most places. 1b4o1

"comparison "33, 4.13 1b4p

A "bit:formula consisting of a left operand, a "relational:operator, and a right operand. 1b4p1

compool 1.3.2, 7.2.2 1b4q

A communication pool, a table or dictionary of definitions used by a system of related programs to supply the compiler with a central source of data descriptions. 1b4q1

"compool:directive "34, 11.2 1b4r

Notifies the compiler that "names whose attributes exist in a compool or library are hereby "declared". 1b4r1

"compool:name "35, 11.2.1 1b4s

As part of a "compool:directive, identifies the particular compool or library to which the "directive applies. 1b4s1

compool scope 7.3.2 1b4t

The broadest of the possible scopes, compool, external, main, and procedure. "Names declared using a "compool:directive are of compool scope. 1b4t1

"compound:statement "36, 5.3 1b4u

A "statement whose essential character is bound up in containing one or more other "statements (and possibly "declarations and "directives as well) as a part of itself. 1b4u1

concatenation 4.4.3, 4.14.2 1b4v

An operation signaled by the "ampersand. Applies to "bit:formulas or "character:formulas and causes the bits (bytes) of the "formula on the right to be appended to the right of the bits (bytes) of the "formula on the left. 1b4v1

"conditional:formula "37, 4.3 1b4w

A "formula following the "primitives _IF, _WHILE, or _UNTIL or occurring in a "trace:directive. Its value is the value of its rightmost bit. 1b4w1

"conditional:statement "38, 5.7 1b4x

A "statement providing either one or two

Notifies the compiler to introduce JOVIAL source code from an external source at this point in the "program:declaration, 1b4af1

"count "47 1b4ag

Indicates a number of concatenated repetitions of the following string of "signs enclosed in "primes when used in a "character:constant or "pattern:constant, In a "format, indicates the number of repetitions of the "sign it precedes, In a "constant:list or "format:list, a "count indicates the number of repetitions of the string of "signs enclosed in "parentheses, and "comma separators are implied, A "count of _1 is always understood when no "count is given, 1b4ag1

D 1b5

_D 1b5a

Indicates dense packing in a "packing:specifier, In a "numeric:format, _D indicates an effective character position where a digit is output and expected (usually) on input, 1b5a1

"data:allocation:specifier "48, 8,6,6 1b5b

As part of a "procedure:heading, _@ makes the data space of the procedure pointed to, 1b5b1

data block 7,14, 7,32 1b5c

A convenient structure for grouping and allocating simple items, tables, and other data blocks, primarily used for controlling data allocation, 1b5c1

"data:block:declaration "49, 7,32 1b5d

Uses the introductory "primitive _BLOCK to declare a data block, 1b5d1

"data:block:name "50, 7,32 1b5e

The "name declared after _BLOCK in a "data:block:declaration and used in referencing the data block, 1b5e1

"data:declaration "51, 7,6 1b5f

Names and describes the data structures on which the program is to operate including inputs, intermediate results, and final results. 1b5f1

data element 1b5g

Refers to an instance of a data structure (a simple item, indexed item or entry) used as a variable. 1b5g1

"data:name "52, 11,7 1b5h

In "directives, refers to any previously declared item, table or data block. 1b5h1

"data:size:function:call "53, 4,19,22 1b5i

"Intrinsic:function:call whose value is the number of words in the data space of the cited procedure. 1b5i1

data structure 7,14 1b5j

A collection of variable data, named and organized in a specific arrangement. 1b5j1

"decimal:point "144 1b5k

.. A "mark used to represent an explicit decimal point in "numeric:contants and "numeric:formats. 1b5k1

"declaration "54, 7,4 1b5l

The principal means of naming and defining the various parts of a program. 1b5l1

_DEF 9,1 1b5m

"Primitive. Precedes a "declaration to make the declared entity available to other, independently compiled programs. 1b5m1

def 9,1,3 1b5n

Describes an entity as being available as an externally defined entity. 1b5n1

_DEFINE 7,34 1b5o

"primitive. Introduces a "define:declaration. 1b5o1

"dimension:list "61, 3,2,2, 7,22, 7,23, 10,2,1 1b5y

As part of a "table:declaration, gives the number of dimensions (implicitly) of the table and the extent (size or number of entries) of the table in each dimension. 1b5y1

_DIRECT 5,14 1b5z

"Primitive. Introduces a "direct:statement. 1b5z1

"direct:statement "62, 5,14 1b5a@

A means for breaking out of the JOVIAL language within a "program:declaration and writing some instructions in another language more directly related to the organization of the computer on which the program is to run. 1b5a@1

"directive "63, 11,1 1b5aa

A means of providing supplemental information to a compiler about the "program:declaration being compiled, information such as externally defined "names, debugging requests, or code optimization possibilities. 1b5aa1

"directive:key "64, 2,5, 11,1,2 1b5ab

"Symbol. A key word (preceded by an "exclamation:point) that introduces a "directive and states its primary meaning. 1b5ab1

"dollar:sign "144 1b5ac

_$ A "mark that may introduce or occur within a "name, and that introduces the two-"character codes and three-"character codes required to represent certain "characters in "character:constants. 1b5ad

_DSIZE 4,19,22 1b5ae

"Primitive. Initiates a "data:size:function:call, which returns the number of words in the data space of the cited procedure. 1b5ae1

dynamic allocation 1b5af

Same as controlled allocation. 1b5af1

E 1b6

_E 1b6a

In a "fixed: or "floating:constant, precedes the power of ten which is a multiplier to give the value of the "constant. In a "floating:format, indicates an effective character position for an _E (or a space). 1b6a1

effective character position 6,4,1 1b6b

In an output buffer, character positions filled in ways dependent on the value of the corresponding data element. Other (inserted) character positions are ignored on input from the buffer. 1b6b1

_ELSE 5,7 1b6c

"Primitive. Introduces the optional second "controlled:statement in a "conditional:statement. 1b6c1

_END 1b6d

"Primitive. See _BEGIN. 1b6d1

"end:directive "65, 11,3,1 1b6e

See "begin:directive. 1b6e1

_ENTER 8,8 1b6f

"Primitive. Introduces an "alternate:entrance:declaration which establishes an alternate way in which the code of the procedure may be executed. 1b6f1

"entries:per:word "66, 7,30,3 1b6g

In a tightly structured, specified table, tells how many entries go in each word. 1b6g1

entry 7,14,2 1b6h

A data structure, the set of all the items in a table with the same "index. It may be accessed as a unit. 1b6h1

"entry:variable "67, 3,2,1, 7,26,7, 7,30,5 1b6i

A reference to an entire entry of a table as a single "variable. 1b6i1

environmental data 7,10 1b6j

Refers to data private to some outer scope and protected while that outer scope is active. Its permanence is greater than that of data private to the local scope. 1b6j1

"environmental:specifier "68, 7.11, 8.6.4 1b6k

As part of a "data:declaration, restricts the permanence of the data by making it private to some scope. As part of a "procedure:heading, restricts the permanence of the procedure's data space. 1b6k1

"equals:sign "144 1b6l

_= A "mark used as an "assignment:operator in an "assignment:statement or "simple:assignment:statement, as a "relational:operator meaning equal to, or to introduce a "constant or "constant:list used in presetting values. Two "equal:signs together _== signal an "exchange:statement. 1b6l1

_EQV 4,14,3 1b6m

"Primitive. The "logical:operator giving the bit-by-bit logical equivalence of two "bit:formulas. 1b6m1

"evaluation:control "69, 4.9.3 1b6n

Applied to a "formula or "arithmetic:operator for attribute guidance, it causes the value of the "formula to be converted to the numeric configuration required by its "description:attribute. 1b6n1

"exchange:statement "70, 5.5.10 1b6o

Specifies that the old value of each of two "variables is to become the new value of the other "variable. 1b6o1

"exclamation:point "64, "144 1b6p

The introductory "mark for "directive:keys. Indicates instances of "formal:define:parameters in a "definition. 1b6p1

_EXIT 5.11.9, 5.12 1b6q

"Primitive. Introduces the "exit:statement, and introduces an "actual:input:parameter serving as an alternate exit from a procedure. 1b6q1

exit routine 1b6r

The set of instructions that wrap up the execution of a procedure by setting the output parameters, unwinding one step of a recursive chain, and returning control to the calling point. 1b6r1

"exit:statement "71, 5.12.8 1b6s

Transfers execution control to the exit point of the program structure whose "name it references. 1b6s1

exrad 2.8.13, 2.9.9 1b6t

A part of a "floating:constant or a floating value, giving the exponent of the understood radix (10 for a "constant, system dependent for a value). 1b6t1

"exrad "72, 6.13 1b6u

Part of a "floating:format that shows the format of the exrad. 1b6u1

"exrad:function:call "73, 4.19.13 1b6v

An "intrinsic:function:call whose value is the exrad of the floating value of its "parameter if the "parameter is floating; otherwise, its value is the number of bits the point must be moved to obtain the significand. 1b6v1

"exrad:specifier "74, 7.16.3 1b6w

Optional part of the "item:description of a floating item. Gives a minimum size of the exrad in bits--excluding the sign bit. 1b6w1

external 9.1 1b6x

Available to or accessible from other programs. 1b6x1

"external:declaration "75, 9.1 1b6y

Establishes items, tables, data blocks, procedures, functions, alternate entrances and named locations in programs as external. 1b6y1

external program 1b6z

Another program. 1b6z1

external scope 7,3,3 1b6a@

Covers those entities made common to more than one program by the use of an "external:declaration. External scope assumes that a linking loader will resolve all external references. 1b6a@1

F 1b7

_F 1b7a

In an "item:description, signifies an item of floating type. 1b7a1

"field:width "76, 8,9,1 1b7b

As part of a "form:declaration, gives the number of bits in a "bit:form field or the number of bytes in a "character:form field. 1b7b1

filler bits 2,9,7 1b7c

Extra bits (more than those specified by the programmer) allocated by the compiler to an item with medium packing or no packing. 1b7c1

fixed 2,8,18 1b7d

A type of value that is an approximate numeric value represented in the computer as a string of bits with an assumed binary point within or to the left or right of the string. 1b7d1

fixed allocation 7,7 1b7e

Refers to association of data space with a particular data structure at compile time. The space is provided during the load process. 1b7e1

"fixed:constant "77, 2,8,19 1b7f

Provides a direct means of representing a fixed value to be manipulated by a program. The "scale following _A tells how many bits are to be retained after the point in a binary representation of the value. If the "scale is negative, the meaning is that some of the least significant bits to the left of the binary point are to be truncated. 1b7f1

"fixed:format "78, 6,12 1b7g

A "numeric:format giving the effective character positions that may be used for integer and fraction digits, Does not provide for an exrad, 1b7g1

"fixed:function:call "79 1b7h

Invocation of a special "procedure:declaration with an implicit output parameter of fixed type, 1b7h1

"fixed:variable "80, 3,5, 7,16 1b7i

A "variable whose "item:description declares it to be signed _S or unsigned _U and in addition provides a "precision:specifier following the "size:specifier and separated from it by a "comma, 1b7i1

floating 2,8,13 1b7j

A type of value represented within the computer by two parts, the significand and the exrad, such that the value equals the significand multiplied by the result of the radix (fixed in any system) raised to the power given by the exrad, 1b7j1

"floating:constant "81, 2,8,15 1b7k

Provides a direct means of representing a floating value to be manipulated by a program, A "scale following _M may optionally give the minimum number of magnitude bits in the significand of the internal representation, 1b7k1

"floating:format "82, 6,13 1b7l

A "numeric:format providing for representation of numeric values in terms of a significand and a decimal exrad, 1b7l1

"floating:function:call
"83 1b7m

Invocation of a special "procedure:declaration with an implicit output parameter of floating type, 1b7m1

"floating:variable "84, 3,5, 7,16 1b7n

A "variable whose "item:description declares it to be of floating type by starting with _F, 1b7n1

corresponding "actual:output:parameter upon exit from the procedure. 1b7w1

_FORMAT 6.1.3, 6.1.7 1b7x

"Primitive. In an "assignment:statement, signals a reference to a "format:variable or a "format:function:call to provide format-directed translation between a character buffer and data elements. 1b7x1

"format "92, 6.3.1 1b7y

Describes the data in a buffer, telling how to interpret or generate a string of characters. 1b7y1

"format:function:call "93, 6.1.4 1b7z

Provides a list of values of various types and sizes to be assigned to a list of "variables as in input. 1b7z1

"format:list "94, "95, 6.14 1b7a0

An optional part of a "format:function:call or "format:variable. Indicates that format-directed translation between data elements and a character buffer is desired. 1b7a01

"format:variable "96, 3.3.1, 6.1.7 1b7aa

Enables a list of values to be converted to character type and assembled into a character value for possible output. 1b7aa1

"formula "97, 4.1 1b7ab

The means for expressing a value. The value may be used for assignment, for comparison and for other selections of courses of action. Since "constants and "variables denote values, they are also "formulas. 1b7ab1

_FRAC 4.19.19 1b7ac

"Primitive. Initiates a "fraction:part:function:call, which returns the fractional part of its "parameter. 1b7ac1

"fraction:part "98, 6.12 1b7ad

Part of a "fixed:format that shows the format of the fractional part of the value. 1b7ad1

"index:component:range "115, 10,4 1b10n

As part of an "index:range, gives implicitly or explicitly the range of sequential values an "index:component is to take. 1b10n1

"index:range "116, 10,4 1b10o

A special kind of "index (used only in "assignment:statements and "number:of:entries:function:calls) where one or more "index:components are replaced by "index:component:ranges. 1b10o1

indexed item 1b10p

An item declared to be part of an entry of a table. 1b10p1

"indexed:variable "117, 3.2,1 1b10q

A "named:variable that generally includes an "index to select the particular occurrence of the "variable being referenced. 1b10q1

"indexed:variable:range "118, 10,4,3 1b10r

A means of indicating a list of sequential occurrences of a "variable in an "assignment:statement. 1b10r1

"initial:phrase "119, 5,8,5 1b10s

An optional part of a "control:clause. Provides an initial value for the "control:variable. 1b10s1

inner scope 7,3,6 1b10t

A term for expressing relative scope. Refers to "names declared in a more restricted scope within the scope of the referenced point. 1b10t1

"insert:format "120, 6,4 1b10u

A "format not corresponding to any data element, but indicating characters to be inserted between effective character positions on output or to be ignored on input. 1b10u1

"instruction:allocation:specifier "121, 8,6,11 1b10v

An optional part of a "procedure:heading introduced by a

signed _S or unsigned _U, and that does ,B=1; not,B=0; provide a "precision:specifier, 1b10ad1

"interference:directive "129, 11,7,6 1b10ae

Notifies the compiler of data elements that interfere with each other in ways not obvious to the compiler, 1b10ae1

interrupt 1b10af

To temporarily disrupt the normal execution of a program by special signals from the computer, Usually execution can be resumed from that point later, 1b10af1

interrupt processing 1b10ag

The processing that a system does in response to an interrupt, 1b10ag1

"intrinsic:function:call "130, 4,19 1b10ah

A call to a function that is built in as a part of the compiler, 1b10ah1

_ISIZE 4,19,21 1b10ai

"Primitive, Initiates an "instruction:size:function:call, which returns the number of words in the load module for the cited procedure, 1b10ai1

_ITEM 7,18, 7,19 1b10aj

"Primitive, Introduces an "item:declaration, 1b10aj1

item 3,1, 7,14 1b10ak

Basic element of data named for distinguishing one from another, A bit string of specified length with a specified interpretation, 1b10ak1

"item:declaration "131, 7,15, 7,18, 7,19 1b10al

Uses the introductory "primitive _ITEM to name and describe simple items and items in tables, 1b10al1

"item:description "132, 4,9, 7,16, 8,5,3 1b10am

In an "item:declaration or the heading of a "table:declaration, gives the type, size, and other

information about the declared item or table. In a "procedure:heading or "alternate:entrance:declaration, describes the implicit output parameter of the function. In attribute guidance, provides a way of giving a "description:attribute. 1b10am1

"item:name "133, 7.18, 7.19 1b10an

One of the "names following _ITEM in an "item:declaration and used in referencing the declared item. 1b10an1

J 1b11

_JOVIAL 5.14 1b11a

"Primitive. Signals the end of a "direct:statement and a return to JOVIAL source code. 1b11a1

L 1b12

"left:bracket "144 1b12a

_[A "mark. See "brackets. 1b12a1

"left:parenthesis "144 1b12b

_(A "mark. See "parentheses. 1b12b1

"less:than:sign "144 1b12c

_< A "mark, the "relational:operator meaning less than. 1b12c1

"letter "134, 2.3.1 1b12d

One of the 26 letters of the English alphabet, written in the form of a roman capital. 1b12d1

"letter:control:variable "135, 5.8.3, 5.10 1b12e

"symbol. A special "variable defined in a "letter:loop:control for the purpose of iteration control and having meaning only within the immediate "loop:statement. 1b12e1

"letter:loop:control "136, 5.8.4 1b12f

A form of "loop:control that uses a single "letter

defined just for the "loop:statement as the "control:variable. 1b12f1

level of BEGIN END nesting 1b12g

Equals the number of other BEGIN END brackets that enclose this set of BEGIN END brackets. 1b12g1

library 7.2.2 1b12h

A collection of complete procedures. If a "program:declaration calls one of these procedures, it is copied from the library and made a part of the program. 1b12h1

"linkage:directive "137, 11.7.8 1b12i

Notifies the compiler that a procedure uses non-standard linkage. 1b12i1

_LOC 4.19.9 1b12j

"Primitive. Initiates a "location:function:call, which returns the machine location of its "parameter, taking into consideration applicable "pointer:formulas and "indices, and the relative position of the named entity in its structure. 1b12j1

local scope 7.3.6 1b12k

A term for expressing relative scope. Refers to "names declared in the same scope as the reference point. Other relative scopes are inner scope and outer scope. 1b12k1

"location:function:call "138, 4.19.9 1b12l

"Intrinsic:function:call whose value is the machine location of its "parameter. Relative positioning of the "parameter within its structure, relative positioning due to its "index (if any), and the value of the "pointer:formula (if any) are added to obtain the value. 1b12l1

"logical:operator "139, 4.14.3 1b12m

One of the operators (logical product, logical sum, equivalence, or non-equivalence (exclusive _OR)) that produces a "bit:formula from the two "formulas to which it is applied as an infix operator. 1b12m1

"loop:control "140, 5.8.4 1b12n

A part of a "for:clause. Consists of a "control:variable (either a "named:variable or a "letter) followed by a list of "control:clauses enclosed in "parentheses. 1b12n1

"loop:statement "141, 5.8, 5.9 1b12o

Consists of a means of specifying and controlling "control:variables and a "controlled:statement that is to iteratively operated. 1b12o1

"low:point "142, 10.4.1 1b12p

An integer value (greater than or equal to the "lower:bound for the corresponding dimension) that gives the explicit lower range value in an "index:component:range. 1b12p1

"lower:bound "143, 7.22.1 1b12q

An optional part of "dimension:list. It is followed by a "colon and gives the lowest value that an "index:component for the corresponding dimension may have. The default value is zero. 1b12q1

M 1b13

_M 1b13a

In a "floating:constant, optionally introduces the minimum number of magnitude bits in the significand of the internal representation. Indicates medium packing in a "packing:specifier. 1b13a1

main scope 7.3.4 1b13b

Applies to data explicitly declared in a "program:declaration, but not within any "procedure:declaration. 1b13b1

manifold 7.21.1 1b13c

A row, a plane, a volume, etc, of a table. 1b13c1

"mark "144 1b13d

A special "character other than a "letter or "numeral that may be a JOVIAL "sign. See Ideograms and Marks at front of the index-glossary. 1b13d1

Change of value from positive to negative, or vice versa, indicated by a "minus:sign; change of value from _1 to _0, or vice versa, indicated by _NOT. 1b14j1

_NENT 4.19.4, 10.4.8 1b14k

"Primitive, Initiates a "number:of:entries:function:call, which returns the product of multiplying the extent of the cited table in all its dimensions unless an "index:range is given to limit the extent for some dimensions of the table. 1b14k1

nested "loop:statement 1b14l

A "loop:statement within a "loop:statement. The inner "loop:statement goes through its full series of iterations for each iteration of the outer "loop:statement. 1b14l1

no packing 7.12.1 1b14m

packing (signaled by _N in a "packing:specifier or by default in some cases) such that items do not share words. Item accessibility is enhanced at the cost of storage requirements. 1b14m1

noise bits 4.11.2 1b14n

Any bits to the right of the rightmost significant bit of a "variable or "formula, representing a value less in absolute value than a _1 bit as the rightmost significant bit. 1b14n1

_NOT 4.14.1 1b14o

"Primitive, An operator applied to a "bit:formula to produce a derived "bit:formula in which each _1 in the value of the "bit:formula is replaced with _0 and each _0 is replaced with _1. 1b14o1

_NULL 5.2, 7.5 1b14p

"Primitive, Optionally introduces the form of the "null:statement or "null:declaration that does not contain empty BEGIN END brackets. 1b14p1

null 7.13.3 1b14q

A part of an expanded "constant:list that occurs whenever

there is an extra "comma in the list; i.e., when a "comma starts or terminates the list, when there are two "commas with no "constant between them, or when a "comma precedes or follows an "index with no "constant intervening. Each null represents an entry (or item in the entry) whose initial value is undefined. 1b14q1

"null:declaration "151, 7.5 1b14r

A means for satisfying a language requirement for the appearance of a "declaration even when no significant "declaration is desired. 1b14r1

"null:format "152, 6.7 1b14s

Consisting of nothing but possibly a string of "spaces and indicated by an extra comma in a "format:list, a "null:format indicates that conversion on input or output is the same as for list-directed formatting. 1b14s1

"null:statement "153, 5.2 1b14t

A "statement used where no significant "statement is desired. It is most useful as the "controlled:statement following _ELSE when the _ELSE is required in a "conditional:statement embedded in another "conditional:statement, or when multiple values of a "numeric:formula of a "switch:statement are desired to cause branches to the same "statement. 1b14t1

"number "154, 2.7.2 1b14u

"Symbol. A string of "numerals, without "spaces. A "number can stand alone as an "integer:constant; or it may stand alone as a "symbol in a "data:declaration but not be considered a "constant; or it can be a part of another "symbol such as a "character:constant (providing the optional "count) or a "fixed:constant. 1b14u1

"number:of:entries:function:call "155, 4.19.4, 10.4.8 1b14v

"Intrinsic:function:call whose value is the product of multiplying the extent of the cited table in all its dimensions unless an "index:range is given to limit the extent for some dimensions of the table. 1b14v1

"numeral "156, 2.3.1 1b14w

One of the ten arabic numerals. 1b14w1

negative of the number of entries per word for a tight table. 1b14ac1

O 1b15

object program 8,3,1 1b15a

The result of compiling a source program to produce a collection of machine instructions and data. 1b15a1

operand 1b15b

One of the two values combined by an "arithmetic:operator or the concatenation operator "ampersand, or compared by a "logical:operator. _NOT and the unary operators _+ and _- may apply to a single operand. 1b15b1

operator 1b15c

One of a set of "symbols and "primitives used to indicate the application of a relatively small set of mathematical functions. Most operators stand between two values or operands and indicate that the two values are to be combined in a particular way to yield a single, derived value. In a few cases, an operator stands before a single operand and yields a single value derived from the value of the operand. Or a similar "symbol used to set or select a value. 1b15c1

_OR 4,14,3 1b15d

"primitive. The "logical:operator giving the bit-by-bit logical sum of two "bit:formulas. 1b15d1

order 2,8,9, 6,8,1 1b15e

The "numeral preceding _B in a "pattern:constant or "pattern:format. Indicates the number of bits associated with each "pattern:digit. 1b15e1

"order:directive "163, 11,7,4 1b15f

Notifies the compiler that "formula computation order must be from left to right and in accordance with precedence rules, and that any "function:call within the "formula must be evaluated even though the eventual result is known. 1b15f1

ordinary table 7,25 1b15g

A table for which the compiler determines the size and composition of an entry based upon the information in its "declaration. Other tables are specified tables. 1b15g1

"ordinary:table:body "164, 7,27 1b15h

An optional part of an "ordinary:table:declaration that lists the "item:declarations and "subordinate:overlay:declarations which make up an entry of the table. 1b15h1

"ordinary:table:declaration "165, 7,25 1b15i

One of the two kinds of "table:declarations. Names and describes a table and its items but permits the compiler to determine the exact composition of an entry. 1b15i1

"ordinary:table:heading "166, 7,26 1b15j

Uses the introductory "primitive _TABLE to name and describe an ordinary table. 1b15j1

"ordinary:table:item:declaration "167, 7,19 1b15k

Names and describes an item (or items) of an ordinary table. 1b15k1

outer scope 7,3,6 1b15l

A term for expressing relative scope. Refers to "names declared in a more extensive encompassing scope than the scope of the reference point. 1b15l1

_OVERLAY 7,28, 7,33 1b15m

"primitive. Introduces an "independent: or a "subordinate:overlay:declaration. 1b15m1

"overlay:declaration "168, 7,28, 7,33 1b15n

A "data:declaration used to arrange a sequential relation of items, tables or data blocks; to overlay these sequences on one another; and to assign these overlays to specific machine locations. 1b15n1

P 1b16

_P 1b16a

In a "pattern:format, represents an effective character position where a "pattern:digit is expected or output, As a table "structure:specifier, indicates that the basic structure of the table is parallel. 1b16a1

packing 7,12 1b16b

One of three kinds--no packing, medium packing, dense packing, The state of sharing of computer words by disjunct items as prescribed in a "packing:specifier, 1b16b1

"Packing:specifier "169, 7,12, 7,18,5, 7,19,4, 7,26,6, 7,30,4 1b16c

An optional part of an "ordinary: or "specified:table:heading; or a "packing:specifier may optionally follow any "item:descrption that occurs in a "declaration, Directs the compiler in the positioning of items or entries in a word and provides information for accessing items or entries efficiently. 1b16c1

parallel (1) 5,8,4 1b16d

Refers to control of a "loop:statement in which the "for:clause contains more than one "loop:control, All "control:variables are modified or tested as indicated on each iteration of the "loop:statement. 1b16d1

parallel (2) 7,24 1b16e

Refers to a basic structure of tables in which the first words of all the entries in an "allocation:increment are stored contiguously, followed by the second words of those entries, etc, Parallel tables allow more efficient indexed operations than serial or tight tables. 1b16e1

parameter 1b16f

A means of providing a different value to be used (or perhaps a different variable to be set) at each invocation of a program structure. 1b16f1

"parameter "170 1b16g

Refers to a parameter occurring in a "procedure:call:statement, "function:call, "definition:invocation, "define:declaration, "alternate:entrance:declaration or "procedure:heading. 1b16g1

"parentheses "144 1b16h

( ) Two "marks used in pairs as shown to enclose expressions for a wide variety of purposes, "Parentheses around "formulas control precedence and may, at times, be significant in determining the type of a "formula. They delimit the "formula to which "attribute:association is applied. All other uses of "parentheses are shown in the various syntax equations. 1b16h1

pattern "172 1b16i

A string of bits equal in length to the order of a "pattern:constant or "pattern:format and giving the bit value of each "pattern:digit permitted for that order. 1b16i1

"pattern:constant "171, 2,8,9 1b16j

Provides a direct means of representing values consisting of strings of bits. 1b16j1

"pattern:digit "172, 1,8,9 1b16k

One of the "characters that constitute the value of a "pattern:constant or the character string corresponding to a "pattern:format. 1b16k1

"pattern:format "173, 6,8 1b16l

Provides a means of translating from a string of bits representing a value to effective character positions containing "pattern:digits of the order indicated, or vice versa. 1b16l1

permanence 7,10 1b16m

The longevity of data allocated in a fixed manner. Private data exist only so long as the relevant scope is active. Environmental data exist even when the relevant scope is not active (a relative longevity). Reserved data exist so long as the program is loaded. 1b16m1

"plus:sign "144 1b16n

_+ A "mark, the "arithmetic:operator for addition. As a unary operator before a "numeric:formula has no effect. Also, a "plus:sign may optionally precede a "numeric:constant used as a preset value, numeric:format, the "scales following _E, _A, or _M in

"fixed: or "floating:constants, the "precision:specifier in an "item:description of a "fixed:variable, or a starting "number for a "status:list or a "switch:statement. 1b16n1

pointer 5.9, 7.8, 7.13.3 1b16o

Refers to a position in a "control:clause list in the discussion of "loop:statement execution, and to a position in an expanded "constant:list in the discussion of presetting entries (items) of a table. In all other sections, pointer refers to a means of locating a controlled allocation (pointed-to) structure. 1b16o1

"pointer:directive "174, 11.7.3 1b16p

Notifies the compiler that reference to data via the given "pointer:formula should be considered a reference to the "data:names listed. 1b16p1

"pointer:formula "175, 7.8 1b16q

Describes the address of a pointed-to structure. The value of the "formula (truncated to an integer) is used in referencing the structure. 1b16q1

"pointer:variable "176, 7.8.3 1b16r

A "variable that contains the address of some program element. 1b16r1

precedence 4.15 1b16s

Refers to the ordering of operations to determine the value represented by a "formula, and applies also in the assignment of values. 1b16s1

precision 2.8.12 1b16t

Means the number of bits to the right of the point in binary representations of numeric values. Integer values are treated as if they have a fractional part with value zero to infinite precision. 1b16t1

"precision:specifier "177, 7.16.4 1b16u

An optional part of the "item:description of a signed or unsigned item. Gives (together with its sign, if

present) the number of fraction bits in the item and makes the item of fixed type. 1b16u1

"prime "144 1b16v

_' A "mark, used in pairs (one at either end) to delimit the string of "characters of a "character:constant or the "pattern:digits of a "pattern:constant. Also permitted as a "sign in a "name after the first "sign. 1b16v1

"primitive "178, 2.5 1b16w

A "symbol. A key word of the JOVIAL language often used to give the primary meaning of a "statement or "declaration. "Names must never be the same as "primitives. 1b16w1

private data 7.10 1b16x

Refers to data available only while its local scope is active, and consequently of less permanence than environmental data. 1b16x1

_PROC 8.5 1b16y

"primitive. Introduces a "procedure:heading and consequently a "procedure:declaration. 1b16y1

procedure 1b16z

A subroutine defined by a "procedure:declaration and invoked by a "procedure:call:statement or "function:call. A procedure is a function if its "declaration includes an implicit output parameter. 1b16z1

"procedure:body "179, 8.7 1b16a@

Comprises the "statements and "declarations that give rise to the instruction set of the "procedure and its local environment. 1b16a@1

"procedure:call:statement "180, 5.11 1b16aa

The means of invoking a procedure that is function. 1b16aa1

"procedure:declaration "181, 8.4 1b16ab

Sets up a closed body of code (of procedure scope)

invoked by "name in explicit "procedure:call:statement or "function:calls. "Parameters may supply different values at each call. 1b16ab1

"procedure:heading "182, 8.5 1b16ac

Part of a "procedure:declaration that names the procedure, optionally provides direction for controlling the allocation of both the instructions and data of the procedure, lists any "formal:input: and "formal:output:parameters, and describes the implicit output parameter of a function. 1b16ac1

"procedure:name "183, 8.5 1b16ad

The "name following the "primitive _PROC in a "procedure:heading and used in invoking the procedure. 1b16ad1

procedure scope 7.3.4 1b16ae

Applies to data declared within a "procedure:declaration. "Procedure:declarations can be nested one inside the other and the procedure scopes defined by each are correspondingly nested. 1b16ae1

"processing:declaration "184, 8.2 1b16af

Establishes a program, procedure or function which generally contains other "declarations and "statements that specify computations, but these computations are performed only when the particular "processing:declaration is invoked by name. 1b16af1

_PROGRAM 8.3 1b16ag

"Primitive. Introduces an "independent:program:declaration. 1b16ag1

program 8.3 1b16ah

A collection of computer instructions. Also called an object program. 1b16ah1

"program:declaration "185, 8.3 1b16ai

Consists of a string of "declarations and "statements that specify rules for performing computations with sets of data. These are compiled into a machine language (or

object) program. A "program:declaration is also called a source program. 1b16ai1

"program:name "186, 8,3 1b16aj

The "name following the "primitive _PROGRAM in an "independent:program:declaration and optionally used in an "environmental:specifier. 1b16aj1

Q 1b17

"qualified:status:constant "187, 4,20 1b17a

A "status:constant for which a qualifying "name is given to avoid ambiguity since the same "status:constant may appear in more than one "status:list. 1b17a1

"quotation:mark "144 1b17b

_" A "mark, used in pairs (one at either end) to delimit a "comment, a string of "characters used in an "insert:format, a "definition in a "define:declaration, and some "actual:define:parameters if the "definition conatins one or more "commas or "right:parentheses. 1b17b1

R 1b18

_R 1b18a

In any "numeric:format, optionally appears at the end to signal that a decimal or binary rounding is to be performed depending upon whether the translation is for output or input. In an "item:description for a numeric item, an _R may optionally appear (separated from the _F, _S or _U by a "comma) to specify that binary rounding is to occur before setting the item if the "formula providing the value has extra bits. 1b18a1

radix 2,8,13 1b18b

A system dependent constant (usually 2) giving the base of a floating value. The value equals the significand times the result of the radix raised to a power given by the exrad. The base of a number system. 1b18b1

record 1b18c

The unit of data in a file for input or output at one time. 1b18c1

recursive definition 1b18d

Definition in which an element of the definition is the term to be defined, perhaps indirectly through a chain of two or more definitions. To be meaningful, a recursive definition must incorporate alternative definitions, at least one of which is not recursive. The recursive element then defines structures of arbitrary length or complexity. Some of the syntax equations are recursive, 1b18d1

"recursive:directive "188, 11.7.5 1b18e

Notifies the compiler that the current procedure may be called recursively or reentrantly. 1b18e1

recursive procedure 11.7.5 1b18f

A procedure that calls itself either directly (by using its own "name or that of one of its alternate entrances in a "procedure:call:statement or a "function:call) or indirectly by calling another procedure which calls (possibly through a chain of procedure calls) the first procedure. 1b18f1

reentrant procedure 1b18g

A procedure that can be executed concurrently by two or more independent invocations. To make this possible, the only bits modified by the procedure must be in data space designated by the invoking process. 1b18g1

_REF 9.1 1b18h

"Primitive. Precedes a "declaration to indicate that the declared entity is defined externally but is to be referenced in this program scope. 1b18h1

ref 9.1.3 1b18i

Describes an entity as defined externally to this "program:declaration so that addresses must be resolved by some form of linking loader. 1b18i1

"reference "189, 11.3 1b18j

An optional part of a "skip: or "begin:directive that permits skipping "statements within "begin: and "end:directives only when the "begin:directive has the same "reference as a "skip:directive. 1b18j1

"return:statement "193, 5.12.3 1b18s

Occurs within a "procedure:body to terminate the execution of the procedure, set the "actual:output:parameters from the "formal:output:parameters, and return control to the "statement following the call in whatever program invoked the procedure. 1b18s1

"right:bracket "144 1b18t

_] A "mark. See "brackets. 1b18t1

"right:parenthesis "144 1b18u

_) A "mark. See "parentheses. The occurrence of a "right:parenthesis in an "actual:define:parameter makes it necessary to enclose the "definition in "quotation:marks. 1b18u1

round 1b18v

Rounding applies to either binary or decimal values having more precision than is required and is based on absolute values. A correction is added to the given value. The correction is half the smallest value that can be represented by the required precision. The addition may cause a carry into the area of the required precision. The value now represented by all the excess precision is replaced with zero. 1b18v1

S 1b19

_S 1b19a

In an "insert:format, indicates where a blank is output between effective character positions or where a character is skipped on input. In an "item:description, signifies a signed item that may be of integer or fixed type. 1b19a1

"scale "194, 2.8.16, 2.8.17, 2.8.19 1b19b

Following _E in a "fixed: or "floating:constant, gives the exrad; following _M in a "floating:constant, gives the minimum number of magnitude bits in the significand of the internal representation; following _A in a "fixed:constant, gives the number of bits to the right of the point. 1b19b1

scaling 4,7, 4,10 1b19c

The computation of the number of bits worth saving in a "numeric:formula and the position of the point. 1b19c1

scope 5,10, 7,3 1b19d

The segment of code over which a "name has meaning, generally defined by means of a "processing:declaration. Starting with the broadest, the scopes are compool, external, main, procedure, and nested procedure to any level. 1b19d1

"semicolon "144 1b19e

_; A "mark, the terminator (optional after _END and a "direct:statement) for "statements, "declarations, "directives, "for:clauses, and the introductory conditional clauses of "conditional:statements. 1b19e1

serial 7,24,2 1b19f

Refers to a basic structure in which all the words for an entry of a table are allocated contiguously in storage. Serial tables lend themselves to more efficient item-by-item operations. 1b19f1

"sets:directive "195, 11,7,2 1b19g

Notifies the compiler that a "direct:statement or a "procedure:declaration sets the data elements whose "names are listed. 1b19g1

_SHIFT 4,12,3 1b19h

"Primitive. Initiates a "shift:function:call, which returns a "bit:formula derived from the first "parameter by shifting it in accordance with the value of the second "parameter. 1b19h1

"shift:function:call "196, 4,12,3 1b19i

"Intrinsic:function:call whose value is obtained by shifting its first "parameter to the left or right according to the value of its second "parameter. 1b19i1

_SIG 4,19,14 1b19j

"Primitive. Initiates a "significand:function:call,

significant bits 4,11,2 1b19s

The bits included in the size of fixed and integer "variables and "formulas and the bits included in the significand of floating "variables and "formulas. 1b19s1

_SIGNUM 4,19,15 1b19t

"Primitive. Initiates a "signum:function:call, which returns a value indicating whether its "parameter value is positive, negative, or zero. 1b19t1

"signum:function:call "202, 4,19,15 1b19u

"Intrinsic:function:call whose value is zero if its "parameter is zero, _+1 if its "parameter is greater than zero, and _-1 if its "parameter is less than zero. 1b19u1

"simple:assignment:statement "203, 5,5 1b19v

Specifies that the value of a "variable be changed to the current value of a "formula. A simplified form of the general "assignment:statement. 1b19v1

"simple:integer:variable "204 1b19w

A variable that is both a "simple:variable and an "integer:variable. 1b19w1

simple item 7,14,3 1b19x

An item that is not part of an entry of a table. 1b19x1

"simple:item:declaration "205, 7,18 1b19y

A "declaration that names and describes an item (or items) not associated with a table. 1b19y1

"simple:item:name "206 1b19z

The "name following _ITEM in a "simple:item:declaration. A "formal:output:parameter can be only a "simple:item:name. 1b19z1

"simple:statement "207, 5,1,3 1b19a@

One of 14 types of "statements, each designed to perform a specific task. 1b19a@1

"simple:variable "208, 3,2 1b19aa

A reference (for the purpose of using or changing its value) to a "variable declared to be a simple item. 1b19aa1

_SIZE 4,19,16 1b19ab

"Primitive. Initiates a "size:function:call, which returns a value (dependent upon the type of its "parameter) indicative of the size of the "parameter. 1b19ab1

"size:function:call "209, 4,19,16 1b19ac

"Intrinsic:function:call whose value depends upon the type and the size of its "parameter. For a "parameter of character type, the value is the number of bytes in the "formula; for floating, the number of bits in the significand plus the number of bits in the exrad (excluding sign bits); for bit, integer, or fixed types, the number of bits in the "parameter (not including the sign bit if there is one). For a "parameter that is a "data:block:name, the value is the number of words in the data block. 1b19ac1

"size:specifier "210, 7,16 1b19ad

An optional part of an "item:description. For character items, gives the number of bytes in the item; for integer and fixed items, gives the number of bits in the item--excluding the sign bit for signed items. 1b19ad1

"skip:directive "211, 11.3,2 1b19ae

Notifies the compiler that "statements within the related "begin: and "end:directives (indicated by a "reference for the "begin:directive corresponding to a "reference for the "skip:directive) are to be skipped and not compiled. 1b19ae1

"skip:format "212, 6,5 1b19af

Causes the corresponding data element to be skipped on input or output. There is no field in the character buffer corresponding to the "format. 1b19af1

"slash "144 1b19ag

_/ A "mark, the "arithmetic:operator for division. In an "insert:format, "slash followed by a "letter or

"numeral is a system-dependent indicator of line, page, or other device control function. 1b19ag1

source program 8,3,1 1b19ah

Refers to a "program:declaration in the form of JOVIAL code; it may be an independent source program or a dependent source program. Compiles to produce an object program. Source programs can also be written in other languages. 1b19ah1

space 2,2 1b19ai

Refers to an element of the descriptive language. Synonymous with blank. 1b19ai1

"space "144 1b19aj

A "mark, indicated by not marking the paper. An element of the JOVIAL language used to separate "symbols, as part of a "comment, or as part of the value of a "character:constant. 1b19aj1

"space:directive "213, 11,7,7 1b19ak

Notifies the compiler that minimizing execution space is more important than minimizing execution time at this point in the "program:declaration. 1b19ak1

"spacer "214, 7,33,2 1b19al

As an "independent:overlay:element, defines a number of words of storage to be skipped before another overlay element is assigned a location. 1b19al1

specified table 7,29,1 1b19am

A table for which the composition of an entry is completely described by the user. Other tables are ordinary tables. 1b19am1

"specified:table:body "215, 7,31 1b19an

An optional part of a "specified:table:declaration required when the "specified:table:heading does not declare an item. Declares the items that make up an entry of the table. 1b19an1

"specified:table:declaration "216, 7,29 1b19ao

In an ordinary table, provides for the sharing of space in an entry by the items of the table. 1b19be1

"subordinate:overlay:element "229, 7.28 1b19bf

Data element (or a grouping of them) for which nonoverlapping space within the entries of a table is prescribed in a "subordinate:overlay:string. 1b19bf1

"subordinate:overlay:expression "230, 7.28 1b19bg

Expresses a requirement that data elements in a "subordinate:overlay:string share space within an entry with data elements of one or more other "subordinate:overlay:strings. 1b19bg1

"subordinate:overlay:string "231, 7.28 1b19bh

A list of "subordinate:overlay:elements used in a "subordinate:overlay:expression to provide for sharing of the space in an entry. 1b19bh1

_SWITCH 5.13 1b19bi

"Primitive, introduces a "switch:statement. 1b19bi1

switch 1b19bj

A multipath branch of execution control depending upon the value of a "formula. 1b19bj1

"switch:statement "232, 5.13 1b19bk

Provides a switch to other "statements contained within it. 1b19bk1

"symbol "233, 2.4.1 1b19bl

A word of the JOVIAL language, "statements, "declarations, and "directives are composed of "symbols, which can be separated from one another by "spaces. 1b19bl1

"system:dependent:character "234, 2.5.3 1b19bm

Any "character, other than a JOVIAL "sign, that the particular system and compiler can read and write. 1b19bm1

T 1b20

"loop:controls for the designated "control:variable and all those which follow it, transferring execution control. 1b20i1

_THEN 5,8,5 1b20j

"Primitive. Introduces the optional "replacement:phrase of a "control:clause. 1b20j1

three-"character code 2,8,4 1b20k

A means of using three "characters (the first, a "dollar:sign) to represent character values not more readily translatable in a "character:constant. 1b20k1

tight 7,24,3 1b20l

Refers to a basic structure in which there are one or more table entries per computer word. Storage space for the table may be reduced, but the indexing may be more complex. 1b20l1

"time:directive "240, 11.7.7 1b20m

Notifies the compiler that minimizing execution time is more important than minimizing execution space at this point in the "program:declaration. 1b20m1

"trace:directive "241, 11.4 1b20n

Notifies the compiler that dynamic tracing of flow control and the recording of data is desired for the "names listed. An optional "conditional:formula may prevent the trace if its value is zero. 1b20n1

truncate 1b20o

Remove or delete unusable bits or bytes. In reference to bits representing excess precision, the deletion occurs without rounding. 1b20o1

two-"character code 2,8,5 1b20p

A means of changing the recognition mode for "letters within a "character:constant. In every "character:constant, the mode is initially general, meaning that uppercase and lowercase "letters are recognized as themselves. The occurrence of _$L or _$l causes the following "letters in the string to be

recognized as lowercase, and the occurrence of _$U or _$u causes the following "letters in this "constant to be recognized as uppercase, 1b20p1

_TYPE 4,19,17 1b20q

"Primitive, Initiates a "type:function:call, which returns a value indicating the type of its "parameter, 1b20q1

"type:function:call "242, 4,19,17 1b20r

"Intrinsic:function:call whose value indicates the type of its "parameter, An intrinsic "status:constant is associated with each type value, 1b20r1

U 1b21

_U 1b21a

In an "item:description, signifies an unsigned item that may be of integer or fixed type, 1b21a1

unnamed data space 8,6,2 1b21b

The part of the data space for a procedure that includes housekeeping space required by the compiler, unnamed pointers to table and data block parameters, and inner scope data declared to be private to this procedure, 1b21b1

unsigned 3,5 1b21c

Refers to a "variable or "numeric:formula that may assume only positive or zero values, 1b21c1

_UNTIL 5,8,5 1b21d

"Primitive, One of two "primitives that may introduce the optional "terminator:phrase of a "control:clause, 1b21d1

"upper:bound "243, 7,22,1 1b21e

A part of a "dimension:list that gives the highest value permitted for an "indexed:component for the corresponding dimension; the number of "upper:bounds gives, implicitly, the number of dimensions in the table, 1b21e1

"uses:directive "244, 11,7,2 1b21f

Notifies the compiler that a "direct:statement or a

"procedure:declaration uses the data elements whose "names are listed. 1b21f1

V 1b22

_V 1b22a

When followed immediately by a "left:parenthesis, signals the occurrence of a "status:constant or "qualified:status:constant. 1b22a1

"value:formula "245, 5.8.5, 5.8.8 1b22b

A "formula (including, of course, a "numeric:formula) that is part of a "control:clause and enclosed in "brackets indicating that the "formula is evaluated once upon entering the "control:clause and that this value is used repeatedly until the "control:clause is exited. 1b22b1

"value:terminator "246, 5.8.5 1b22c

A special form of "terminator:phrase in which one of the operands of the "relational:operator is a "value:formula whose value is determined when the "control:clause is entered and remains constant thereafter. 1b22c1

variable 3.1.1 1b22d

A data element whose value can be changed by means of an "assignment:statement. Its value can, of course, be used also. 1b22d1

"variable "247, "248, 3.1.2 1b22e

A designation, within a "program:declaration, of a variable to be manipulated within the computer. Most "variables are named and described in "item:declarations. 1b22e1

W 1b23

_WHILE 5.8.5 1b23a

"Primitive. One of two "primitives that may introduce the optional "teminator:phrase of a "control:clause. 1b23a1

word 2.9.4 1b23b

A system-dependent grouping of bits convenient for describing data allocation. 1b23b1

word length 1b23c

A system-dependent number. The number of bits in a word, 1b23c1

"word:number "249, 7,19,5 1b23d

An optional part of a "specified:table:heading or "specified:table:item:declaration. Following "bit:number and separated from it by a "comma, it tells the word of the entry (starting with zero) in which the item resides or begins. 1b23d1

"words:per:entry "250, 7,30,3 1b23e

In the "specified:table:heading of a serial or parallel table, tells how many computer words are occupied by each entry. 1b23e1

"words:per:entry:function:call "251, 4,19,12 1b23f

"Intrinsic:function:call whose value is the number of words in an entry for a cited serial or parallel table, or the negative of the number of entries in a word for a tight table. 1b23f1

X 1b24

_X 1b24a

In a "format:list, signals a "skip:format indicating that the corresponding data element is to be skipped on input or output. 1b24a1

_XOR 4,14,3 1b24b

"primitive. The "logical:operator whose effect is the opposite of _EQV. It gives the bit-by-bit logical nonequivalence of two "bit:formulas, and is sometimes referred to as the exclusive _OR. 1b24b1

_XRAD 4,19,13 1b24c

"Primitive. Initiates an "exrad:function:call, which returns the exrad of a floating "parameter, the size of the integer part of other numeric "parameters. 1b24c1

Z 1b25

_Z 1b25a

In a "numeric;format, indicates an effective character position where the suppression of zeros is desired on output. On output or input, it may contain a digit, a blank or a sign (_+ or _-). 1b25a1

_ZAP 5,6 1b25b

"Primitive. Introduces the "zap;statement. 1b25b1

"zap;statement "252, 5,6 1b25c

A "statement that sets all items of all entries of the designated table (or all items in the designated entry) to null values, zeros or blanks, depending upon the type, 1b25c1

zero suppression 6,9,6 1b25d

The replacement of zeros with blanks in effective character positions. Character suppression except for _+ or _- is tied to _Z. Zeros and insert characters may be supresessed, _+ or _- may be moved. 1b25d1

J73 - Index Glossary - Completed Edited

(J30846) 6-JUN-74 10:35; Title: Author(s): Roberta J. Carrier/RJC;
Distribution: /DLS; Sub-Collections: NIC; Clerk: RJC;
Origin: <CARRIER>JOVIALINDEXGLOSEDIT.NLS;1, 6-JUN-74 10:32 RJC ;

MIKE 6-JUN-74 14:53 30847

proposed tXt of memo from MIKE to KSH re developments at Sears.

I might want to add something about getting something rolling wrt (that's With Respect To!!!) a work from home trial, based either on the premise that it would help older people and invalids earn a living, or it would be a time and energy saver for the majority of their order takers, and a money saver for Sears. Comments ?

proposed txt of memo from MIKE to KSH re developments at Sears.

TO: K.S. Hoyle, Assistant Vice-President (Planning)
FROM: M.T. Bedford, Supervisor- Business Planning 1

RE: our current involvement with the Sears Automated Order Service 2

June 6, 1974 3

In April I met with Sear's National Communications Manager, Mr. Tony Tyler. Also present at the meeting was Mr. Shanker Sanyal of BNR Systems Engineering. The purpose of the meeting was to introduce Mr. Sanyal and Mr. Tyler and to open a dialogue between them, thus giving BNR greater insights into some of the problems being faced by Sears in the expansion of the Automated Order Service from a prototype system into a fully operational, widespread service. 4

1.) Possible effect of a rotary-dial-based end-to-end signalling device on the promotion of TouchTone sets. 5

It is clear that the current Automated Order Service concept is limited to the extent that that only those customers with 12-button TouchTone phones are able to participate. Mr. Tyler expressed great enthusiasm over Mr. Sanyal's proposal of developing an device that would permit end-to-end signaling with a rotary dial set. 5a

By providing Sears customers with a battery-powered tone generator coupled to the mouth-piece of a rotary-dial phone set, and by equipping their interface equipment with a device to receive and interpret the interruptions in this generated tone, Sears would be able to greatly expand their potential user base for this service, at what appears to them to be a very reasonable cost. (Initial estimates for the cost of the tone-generator are in the neighborhood of $2.00 per unit, based on a production run of several thousand units.) 5b

Systems Engineering has developed a prototype of this end-to-end signaling package, and believes that Northern Electric would be interested in producing it. Preliminary patent investigations have begun. I am concerned about the possible impact that this type of interface might have on current views of the market for TouchTone service. Two alternative interpretations have come to mind: 5c

The initial reception of the Automated Order Service in Toronto, and Sears decisions to expand the service into Montreal (and possibly Ottawa) this summer indicate that the service is popular and that many people will look forward to particpating in it. By participating in an unsophisticated manner with a tone generator and rotary-dial set, they may

proposed txt of memo from MIKE to KSH re developments at Sears.

learn to distnguish between the concepts of dialing a number and inputting data to that number connected. The benefits of TouchTone as a data-entry terminal should become increasingly apparent as customers spend tedious minutes inputting dozens of digits through a rotary-dial interface. As this distinction becomes increasingly widespread, demand for TouchTone service can be expected to increase. 5c1

Alternatively, a case can be built for the proliferation of this type of interface for the rotary-dial set having a depressing effect on the demand for TouchTone service. As it becomes clear to subscribers that many similar types of services (that can be expected to develop) have facilities for accepting both TouchTone signalling and rotary-dial-initiated signalling (with the aid of the subscribers tone generator), the comparative costs of the two alternatives may be reflected in a subscriber decision to go with the one-time expense of the tone generator rather than the recurring expense of the TouchTone premium. 5c2

2.) Apparent lack of cooperation by Bell Canada in supplying Sears with an effective means of identifying their subscribers with TouchTone service. 6

History of this aspect of the relationship follows: 6a

Sears approached the C.C. Marketing people in Toronto with a request for a list of all our Toronto Area subscribers with 12-button TouchTone service. We declined, offering instead to look at a list of their customers, and indicate which had the TouchTone service. The cost to Sears was to be $.15 per name searched by us. Sears partially accepted this offer. They requested a list of the TouchTone exchanges in Toronto Area, then went through their files and manually extracted all those customers with the requisite exchanges. The high costs involved in this manual search prohibited them from searching more than a quarter or their files. They turned over approximately 50,000 names and phone numbers to the C.C. Marketing people. It soon became apparent that we had erred in the provision of the TouchTone exchanges to Sears; approximately 10,000 of the numbers were in exchanges not equipped with TouchTone Service, although we had indicated these exchanges as indeed TouchTone-equipped. Several girls in a Bell records office went to work on the remaining 40,000 names, manually checking to see if those sbscribers were currently paying premiums for TouchTone service. As indicated, the cost to Sears for this search on our part was $.15 per name, for a total cost of $6,000. The search turned up slightly over 2000 names that were useful to the Sears people. 6a1

proposed txt of memo from MIKE to KSH re developments at Sears,

For some time I had been under the false impression that the Sears people were happy wth their list of Toronto names, although somewhat upset at the cost. This is not the case. They still possess records for approsimately thrr-quarters of their customers that they would like to update with information on TouchTone service in the customers home. Furthermore, they are planning on expanding the Automated Order Service into Montreal this summer, and would like us (H.O. Planning at this stage) to cooperate with them by providing more information to them, at a lower cost (both their costs of manually going through their records, and our costs imposed on them.) 6b

In talking with people in Andy MacMahon's Group in Toronto, I have learned that the cost to Bell of supplying the names to Sears in the first run-through was approximately two to three cents per name searched. A price of fifteen cents was set arbitrarily after they contacted Gord Innes and obtained permission to release the information, but on a "what-the-market-will-bear" basis. This action has apparently set a precedent which other groups are reluctant to question. 6c

Andy MacMahon apparently believes that this area of information need not be kept under the present tight security blanket, and he would welcome a breath of fresh air in this environment. 6d

Is there anything that we in H.O. Planning can do to help the Sears people in their continuing research into this type of service ? They have already expressed to us a willingness to exchange information at a research level. (I have enclosed one of their confidential studies outling initial user reaction to the Service for your review.) 6e

MIKE 6-JUN-74 14:53 30847

proposed txt of memo from MIKE to KSH re developments at Sears.

(J30847) 6-JUN-74 14:53; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD; Sub-Collections: NIC; Clerk: MIKE;

MIKE 6-JUN-74 14:56 30848

proposed memo to KSH re individual business line to Huntingdon,

might want to save part of this for personell review later this year,,,especially like the part about my "experiences will contribute very significantly to the evaluation.....etc,, etc,)

MIKE 6-JUN-74 14:56 30848

proposed memo to KSH re individual business line to Huntingdon,

TO: K.S. Hoyle, Assistant Vice-President (Planning) 1

FROM: D.M. Atkinson, General Supervisor- Business Planning 2

RE : Installation of individual business line to Michael Bedford's home in Huntingdon, Quebec. 3

June 3, 1974 4

As you are aware, our participation in the Office-1 Computer Augmented Management System (developed by SRI's Augmentation Research Center) has significantly altered the work styles of many of the members of my group. It is not uncommon for members of the group to work from their homes several days a month, as work loads dictate. Also, many members are working on weekends and at odd hours during the evening, hours that would otherwise be unavailable to them, were it not for their involvement in this research venture. 5

Michael Bedford (Supervisor- Business Planning) has participated in the development of this capability in Business Planning since his first visit to California for this group in March, 1973. His knowledge of the general Office-1 system, and its individual components surpasses that of the other members of the group, and he is approaching a level of sophistication with the system equal to that of some of the ARC training staff. 6

It is our desire that Mike be able to continue to grow with this system, as we believe that his experiences will contribute very significantly to the evaluation of this research project. We would like to provide him with the opportunity to work from the home with our portable terminal facilities, but he is unable to do so at present because the phone service in his rural neighborhood is not yet sufficiently developed to the the point where individual-line service is available. He currently has access only to party-line service, making participation in any sort of time sharing application impossible. 7

Our contacts with the engineers responsible for construction in that neighborhood indicate that there are no plans for stringing any new cable there for at least two years. They further indicated that the cost of putting in a line to Mike's home at this time would be $2000. 8

We are proposing that an individual business line be installed in Michael Bedford's home to permit him to access the Office-1 system and related CAMS operations. This line would be an official Bell Canada number. The bill for the installation of the line, and the subsequent monthly bills would be directed to H.Q. Planning for settlement. 9

proposed memo to KSH re individual business line to Huntingdon.

At your convenience, I would like to discuss this proposal with you in greater detail.

10

MIKE 6-JUN-74 14:56 30848
proposed memo to KSH re individual business line to Huntingdon.

(J30848) 6-JUN-74 14:56; Title: Author(s): Michael T. Bedford/MIKE;
Distribution: /LHD; Sub-Collections: NIC; Clerk: MIKE;

Gov't Property Misappropriation,

Who swiped my terminal? 1

EJK 7-JUN-74 11:08 30854

Gov't Property Misappropriation.

(J30854) 7-JUN-74 11:08; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /RADC; Sub-Collections: RADC; Clerk: EJK;

JCN 10-JUN-74 09:49 30857

Bell Canada Office-1 Use: Jan thru May '74

Inez: Here are some figures you may find interesting and useful in your planned NLS-use all-day meeting this week:

The following is the use record by Bell Canada users at Office-1:

JANUARY 1974

CPU	Connect	(in hours:minutes:seconds)
BEDFORD	0: 9:11	9: 7:30
BELL	0: 1:40	0:55: 0
DAY	0: 8:24	14: 6:40
FELDMAN	0: 1: 7	0:56: 9
MATTIUZ	0: 3:38	4:49:11
NAPKE	0: 0:37	0: 8: 2
WEINTRAUB	0: 1: 5	1:36:59
TOTAL	0:25:42	31:39:31

FEBRUARY 1974

CPU	Connect	(in hours:minutes:seconds)
BEDFORD	0:35:59	37:19:56
BELL	0: 1:10	0:42:58
DAY	1:14:19	44:37:33
DDAY	0: 0: 9	0: 3:31

Bell Canada Office-1 Use: Jan thru May '74

FELDMAN	0:18:35	30:17:45	20
HOYLE	0: 5:11	5:37:20	21
KOLLEN	0: 0:17	0: 7: 7	22
MATTIUZ	0:31: 8	32:16:28	23
NAPKE	0: 7:19	8:27:15	24
WEINTRAUB	0:14: 7	14: 2:23	25
-------	--------		25a
TOTAL	3: 8:14	173:32:16	26
			27

MARCH 1974 28

29

CPU	Connect	(in hours:minutes:seconds)	29a
ATKINSON	0:10:55	9:35: 8	30
BEDFORD	0:53:18	35:24:49	31
BELL	0: 9:11	6:47:37	32
DAY	0:44:25	70:24: 1	33
FELDMAN	0: 8:22	7:31:20	34
HOYLE	0:42:19	29:27: 6	35
MATTIUZ	0:46: 7	39: 3:10	36
NAPKE	0: 8:24	4:31:35	37
VU	0: 1:59	0:58:50	38
WEINTRAUB	0:15:57	15:18: 3	39
-------	--------		39a
TOTAL	4: 0:57	219: 1:39	40
			41

Bell Canada Office-1 Use: Jan thru May '74

APRIL 1974

CPU	Connect	(in hours:minutes:seconds)
ATKINSON	0: 2:43	3:55:51
BEDFORD	2: 6: 2	107:57: 8
BELL	0: 9:58	5:18:15
DAY	0:41:35	41:30:15
FELDMAN	0:30:28	25:49:40
HOYLE	0: 9:57	6:34:28
KOLLEN	0: 0:20	0: 4:45
MATTIUZ	1: 0: 1	56:29:12
NAPKE	0: 1:29	1:28:27
VU	0: 1: 7	0:57:38
WEINTRAUB	0: 1:43	2: 5:28
TOTAL	4:45:23	252:11: 7

MAY 1974

CPU	Connect	(in hours:minutes:seconds)
ATKINSON	0:12:18	10:29:59
BEDFORD	1:15:40	82: 7: 6
BELL	0: 4:12	2:18:23
DAY	0:49:28	48:50:48
FELDMAN	0: 5:15	4: 0:12

Bell Canada Office-1 Use: Jan thru May '74

HOYLE	0:23:16	15: 5: 9	64
KOLLEN	0: 4:33	7:59:38	65
MATTIUZ	1:26:36	84: 3:42	66
NAPKE	0:14:22	11:44:22	67
VU	0: 0:56	0:22: 3	68
WEINTRAUB	0:40:38	30:10:21	69
-------	--------		69a
TOTAL	5:17:14	297:11:43	70
			71
			72
			73

Let me know if you have any questions concerning the above, Jim Norton 74

------- 75

JCN 10-JUN-74 09:49 30857

Bell Canada Office-1 Use: Jan thru May '74

(J30857) 10-JUN-74 09:49; Title: Author(s): James C. Norton/JCN;
Distribution: /IMM; Sub-Collections: SRI-ARC; Clerk: JCN;

EFH 10-JUN-74 15:55 30858

ARI--

I ASSUME YOU ARE AT SDC THESE DAYS,

I AM SETTING UP A TRIAL ACCOUNT FOR YOU -- SHOULD HAVE IT TODAY,

DO YOU HAVE A MAILBOX SOMEWHERE? YOUR ISI ONE SEEMS TO HAVE

VANISHED

ERIC HARSLEM@RAND-RCC

(J30858) 10-JUN-74 15:55; Title: Author(s): Eric F. Harslem/EFH;
Distribution: /ARI; Sub-Collections: NIC; Clerk: EFH;

NWGletter

NMG Note #21
NIC #30509

H. Opderbeck
UCLA-NMC

1

As most of you might know, the NIC will discontinue its distribution of Network Measurement Notes on July 1, 1974. We at the UCLA-NMC feel that this inportant service should not be dropped completely but rather replaced by a new (probably less ambitious) arrangement. However, we first would like to know whether or not there is enough interest in the NMG to warrant a general distribution scheme. If this should be the case we would offer to provide for some distribution of NMG notes (if possible on an on-line basis). Please let me know by June 24, what your feeling about this is. My network mailbox is OPDERBECK@SRI-AI. 2

Mailing address: 2a

Holger Opderbeck
UCLA - 3532 Boelter Hall
School of Engineering and Applied Science
Los Angeles, California 90024 2a1

LYNN 10-JUN-74 16:41 30859

NWGletter

(J30859) 10-JUN-74 16:41; Title: Author(s): Lynn A. Rossiter/LYNN;
Distribution: /MLK; Sub-Collections: NIC; Clerk: LYNN;

RJC 11-JUN-74 06:22 30860

tickler for the month of may, 1974

roger this is for your info

tickler for the month of may, 1974

(maywi) 1 May - Wednesday 1

ISIM/R, Panara - Re: 6.3 Advanced Computer Technology Dry Run to be held in Washington - Must forward list of topics and briefers to Lt Col McGinnis - X2364 - Dry Run to be held 8 May 1a

Luncheon for Major Engstrom (Retirement) - Holiday Inn - 1200 hrs. 1b

ISC Confessions 1500 hrs. 1c

News Brief items due into Becky Today.(KJOURNAL, 19533, 1:W) 1d

Bobbie: Personnel Strength Rpt, due, COMPLETED 1e

Blue Cross Representative - call X4246 for appointment - Bldg 14 - 2nd Floor 1f

(maythi) 2 May - Thursday 2

0830 hrs, Branch Chief's Meeting 2a

Meeting for TPO Managers - ISI/Frank - Bldg, 106 - Room C-102 -0900 hrs, 2b

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600,(JJOURNAL,30511,1:w) 2c

D COMPLETEDue Date - ISIM - Unsol, Prop,, DO 162-74 "Secure GCOS Environmental within Multics". 2d

(mayfi) 3 May - Friday 3

Dry Run - Project 5550 - Panara et al - 1000 hrs, in Bldg, 106 (6.3 Review) 3a

Due Date - ISI/Tom B, - Excess property list(Do not return to ISM), 3b

Due Date - ISIM/ISIS - Attendance at On-Site Review - Submit Names Only, 3c

(maym2) 6 May - Monday 4

Ed LaForge - Jury Duty 4a

0930 hrs - OPSEC and COMSEC Movies Conf Rm 1 4b

COL THAYER - TDY 4c

tickler for the month of may, 1974

(mayt2) 7 May - Tuesday 5

1300 hrs, Branch Chief's Meeting 5a

Ed Laforge - Jury Duty 5b

Due Date - ISIM/LIUZZI - Hughes Request to release RADC-IS-TM-73-1(DM/TEST & EVALUATION) COMPLETED 5c

DUE DATE - ISIS/CELLINI - Hughes Request to Release RADC-IS-TM-73-2 DOD COBOL COMPILER VALIDTION SYSTEM, TEST, etc, 5d

COL THAYER - TDY 5e

(mayw2) 8 May - Wednesday 6

Due Date - IR/ISIS - AFM 800-XX - Computer Resources Acquisition, Use& Maintenance - PREPARE FOR DO SIGNATURE 6a

6.3 - Advanced Computer Technology - AFSC Dry Run - RADC to prepare briefing - Time and Place of Dry Run will be forwarded later date, 6b

ISF Confessions 0830 hrs, 6c

Ed LaForge - Jury Duty 6d

COL THAYER - TDY 6e

AL BARNUM - TDY (after 1500) 6f

(mayth2) 9 May - Thursday 7

Due Date - ISI/FJT & ISIS - Thayergram Re: UCLA Ltr dtd, 22 Apr 74 Requesting Support Hierarchical Structured Program Language COMPLETED 7a

0830 hrs, Branch Chief's Meeting 7b

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600,(JJOURNAL,30511,1:w) 7c

Dr, Heilmeier - 6.3 Review in Washington - Proj 5550 7d

Ed LaForge - Jury Duty 7e

COL THAYER - TDY 7f

tickler for the month of may, 1974

AL BARNUM - TDY 7g

(mayf2) 10 May - Friday 8

Luncheon for -Grant Strength - Holiday Inn - 1200 hrs, - $3,00 - Contact Marilyn Rossi or Dick VanDresar by Noon - 9 May 74, 8a

Timecards due today 8b

Bobbie: Travel figures due by noon, 8c

Ed LaForge - Jury Duty 8d

(maym3) 13 May - Monday 9

Dr, Reder from Israel to VISIT William Rzepka (& 14th also) 9a

Due Date - ISIM/ISIS - AFAL/CA Letter - Dated: 8 April 1974 - RE - Fall Meeting of the Avionics Section - ADPA, Point Mugu, Calif,, 20-21 November 1974, 9b

Ed LaForge - Jury Duty 9c

Due Date - Ed LaForge - ESD FY-75 Support Requirements COMPLETED 9d

The Mohawk Valley IEEE Computer Society in conjunction with the Rome-Utica Chapter and in cooperation with RADC - Dinner Meeting at the GAAFB Officers' Club - followed by the presentation of Experimental Computer Facility(Bldg 3). See Bob Walker x2501 or Larry Blaising ext7361 - Deadline for reservations is 6 May, 9e

(mayt3) 14 May - Tuesday 10

OPSEC Film - 1:30 - Tuesday - Conference Room, Those who didn't attend should! 10a

Due Date - ISIM/R, Iuorno - Final Report - Contract F30602-73-C-0223 for Technical Review 10b

Collect topic write-ups today by noon for confessions, 10c

Ives - OER COMPLETED 10d

1300 hrs, Branch Chief's Meeting 10e

Ed LaForge - Jury Duty 10f

(mayw3) 15 May - Wednesday 11

tickler for the month of may, 1974

ISI/Tom B, - Due Date - 16 May 74 - Return CA/CRL Listing (Signed) to TUMSE 11a

Submit 1152s for Summer Term Courses at Utica College, 11b

Dr, Heilmeier - 6,2 Review 11c

Ed LaForge - Jury Duty 11d

CPMIS Questionnaire - Due - ISIM/ISIS 11e

(mayth3) 16 May - Thursday 12

DUE DATE - ISM/ISIS -AFIT Meeting to be held 22 May - 9:00 - 106-C-102 - Provide estimate No, of people planning to attend to ISC/Capt Bouvier, ASAP but NLT 16 May 12a

0830 hrs, Branch Chief's Meeting 12b

Australian Team to visit Rocco Iuorno 12c

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600.(JJOURNAL,30511,1:w) 12d

Ed LaForge - Jury Duty 12e

Dr, Allen Reiter, Israeli National, to visit ISIM 12f

(mayf3) 17 May - Friday 13

Due Date - ISIM/R, IUORNO - Tech Eval - PR-B-4-3259 - Prop, for Research in Large Scale Info Proc Sys, 13a

Due Date - ISI/ISIM/ISIS - To ISM NLT 17 May 74 - Subject: Civilian Career Development (Submit Names,) 13b

R & T Selection of the Month is due in ISI, (KJOURNAL, 19531, 1:w) 13c

Bobbie: Travel figures due by noon, 13d

Due Date - AF Form 1152s for Summer Term MVCC Courses Submitted to ISM NLT by today, COMPLETED 13e

Due Date - ISIS/Robinson - Determination of Final Invention Rpt - Contract F30602-73-C-0161 - Abacus Prog Corp, 13f

Ed LaForge - Jury Duty 13g

tickler for the month of may, 1974

Excess Property List - TOM/ISI 13h

Dr, Allen Reiter, Israeli National, to visit ISIM 13i

(maym4) 20 May - Monday 14

ISM - Forward Suggested Items for Commander's Supervisory Call (in writing.) COMPLETED 14a

Due Date - ISIS/ISIM to ISM NLT 20 May - "Significant RADC Achievements of FY-74", 14b

R & T Selection of the Month is due in ISM, 14c

DUE DATE - Final Report - Contract, F30602-73-C-0272, "MODELING OF DATA MGT SYSTEMS" for Tech Review - ISIM/Wingfield COMPLETED 14d

Due Date - ISIM/Bergstrom - F30602-69-C-0193 - Auerbach - PASN 205, 084 - Sys & Method for Proc Data Within a Generalized Purpose Computer, COMPLETED 14e

(mayt4) 21 May - Tuesday 15

1300 hrs, Branch Chief's Meeting 15a

ELECTROMAGNETIC COMPATIBILITY, GROUP MEETING, Tuesday May 21, 1974, Holiday Inn, Rome, New York, Luncheon - 12:00 Noon, Program - 12:30 pm, Buffet - $2.40, TOPIC: "Performance Monitors for Digital Communications Links", By: Dr, Benjamin J, Leon, Professor of Electrical Engineering, Purdue University, 15b

(mayw4) 22 May - Wednesday 16

Meeting to be held - AFIT - 9:00 Bldg, 106-C-102 16a

DUE DATE - ISI - DUE ISM FY-75 Prompt/Early Release Requirements - P3080 and P3600 Funds - Tom, COMPLETED 16b

ISI Confessions 16c

(mayth4) 23 May - thursday 17

0830 hrs, Branch Chief's Meeting 17a

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600,(JJOURNAL,30511,1:w) 17b

tickler for the month of may, 1974

Due Date - ISIM/ISIS - Reporting requirement, CDS Memo dated 16 May 74, COMPLETED 17c

(mayf4) 24 May - Friday 18

Red Cross Bloodmobile Program scheduled 24 May - Return Appointment Cards by 20 May - ISIM/ISIS, 18a

DUE DATE - ISIS - UNSOL PROP DO 72-74 "Automated Software Validation" COMPLETED 18b

Timecards due today 18c

Bobbie: Travel figures due by noon, 18d

(maym5) 27 May - Monday - HOLIDAY 19

(mayt5) 28 May - Tuesday 20

Due Date - ISIM/ISIS - Nominations for Specialized Short-Term Courses for 1st half FY-75, COMPLETED 20a

1300 hrs, Branch Chief's Meeting 20b

28 May - Due Date - ISIM - Unsol, Prop, 164-74 "Modeling of Data Management System" COMPLETED 20c

28 May - Unsol Prop 165-74 "A Security Model of Operating Systems" COMPLETED 20d

Due Date: ISIM/ISIS - Re: Procurement Management Seminar - Submit nominations (name only) COMPLETED 20e

(mayw5) 29 May - Wednesday 21

Due Date - ISIM - Due in DO - 31 May - Eval, of SAC ROC 1-74, Computer Multilevel Security - prepare for DO Signature w/DOT Coordination, 21a

Due Date - ISIM/ISIS - Subject - Two-Wheeled Vehicle Accident Prevention Course, 21b

Due Date - ISIS/ISM - memo - Authorization to Sign for and Receive Classified Material - Request each Division submit a listing of authorized personnel who will have occasion to sign for reproduction work to 416 CSG/DAPR through RADC/DAP by 3 June 74, The following format is requested: Name Grade Social Security No, Office Symbol Extension Sample Signature, 21c

tickler for the month of may, 1974

(mayth5) 30 May - Thursday 22

Commander's Supervisors Call - 30 May - 1000 hrs. - 106 - Auditorium, 22a

Due Date - ISI/FJT, ISIM/R, Iuorno, ISC/M, Kesselman - Subject: WWMCCS - Ltr from AFSC/DLC - Support for System Dmt Notification (SDN) - AF-025-Under Project 2108; Prepare document or cancel mini computer ffort; and finally - 1634 for the Study - 1 Atch RDP ltr, dtd, 3 apr 74 w/atch, 22b

0830 hrs, Branch Chief's Meeting 22c

ISIM/ISIS - University of Michigan brochures - Nominations (AF Form 1152) for FY 75 courses should be submitted to this office (ISI) by 30 May 74, School application forms should be submitted also, Catalog on file in ISI, 22d

Laboratory Activity Reports due today: Bucciero must have them by 1000, ISM must have them by 1100, and DOT must have them by 1600,(JJOURNAL,30511,11W) 22e

(mayf5) 31 May - Friday 23

CONGESSIONAL VISIT - Donald J. Mitchell, 31st District, N.Y. - Mitchell will visit Bldg 3, with concentration on the "proposed" new laboratory area, The Commander and Joseph G. Vincent, Special Asst to the Commander, RADC will accompany him on RADC portion of the visit, Approximate time of visit: 1300 - 1330 - 31 May 1974 - RB/IS advised to clean area and make it as presentable as possible, 23a

Due Date - ISIS/D, Motto - Final Invention - Cont F30602-73-C-0161, COMPLETED 23b

Due Date - ISIM(R, Iuorno) Final Report, Contract F30602-73-C-0223 for technical review, DMS Test Methods for Security & Restart/Recovery, 23c

Form 2's (employee time expenditures) are due today, 23d

Form 6's (projected manpower) are due today, 23e

Bobbie: Travel figures due by noon, 23f

Due Date: ISIM/R, Liuzzi - NLT - Re: Trans action processor Enhancements - indicate approval (Re: RADC Acc Rpt) COMPLETED 23g

RJC 11-JUN-74 06:22 30860

tickler for the month of may, 1974

Due Date: ISIS/D, White - Re: A statistics Gathering Package for JOVIAL Language - Indicate Approval (Re: RADC Acc Rpt) COMPLETED 23h

RJC 11-JUN-74 06:22 30860

tickler for the month of may, 1974

(J30860) 11-JUN-74 06:22; Title: Author(s): Roberta J. Carrier/RJC;
Distribution: /RBP RJC; Sub-Collections: NIC; Clerk: RJC;

NWG/RFC# 642 JDB 11-JUL-74 14:23 30872
Ready Line Philosophy and Implementation

(J30872) 11-JUL-74 14:23; Title: Author(s): Jerry D. Burchfiel/JDB;
Distribution: /RFC; Sub-Collections: NWG NIC RFC; RFC# 642; Clerk: JAKE;
Origin: (FEINLER, RFC-642,NLS;3,), 9-JUL-74 08:27 JAKE ;

RFC #nnnnnn

Ready Line Philosophy and Implementation

Jerry Burchfiel

5 July, 1974

I. Introduction

BBN Report #1822, Specifications for the Interconnection of a Host and an IMP, gives a complete specification of the Host-IMP interface. However, the authors of this document bent over backward to avoid issuing arbitrary dictatorial directives to host interface implementers. They succeeded admirably in this goal by describing the IMP implementation, and suggesting similar behavior on the part of the host.

ARPA has appointed a PDP-11 local host interface standardization committee composed of myself, Dave Retz of SCRL, and Yuval Peduel of MIT Lincoln Labs. During our review of various interfaces designed by the ARPA community, we have found total chaos, confusion, and misunderstanding about the recommended host interface implementation.

This note is an attempt to make explicit the recommendations which are implicit in Report #1822. It provides a cookbook for interface implementers, including a set of recommended do's and don't's in the common problem areas. This document has been reviewed and approved by the BBN IMP group.

II. Ready-line Philosophy

The following is an attempt to spell out in detail a consistent plan for operation of the IMP ready line and host ready line with the following objectives:

1. Reliably resynchronize and resume transmission after a temporary lapse of service and possible loss of state information by either system.

2. Make the programming of the host interface as simple as possible. This will minimize bugs, and make it possible to create a small ROM network-bootstrap loader.

First, consider the IMP ready line. When it drops, the IMP has suffered a possible loss of state, so the message in transit from the IMP to the host (if any) is likely to be incomplete. Similarly, the message in transit from the host to the IMP (if any) is likely to be incomplete. Both the host and the IMP must recognize this explicitly by sending a message intended to be thrown away* (which may be appended to the current message) and throw away the message currently being received. (Both the host - IMP message and the IMP - host message).

The simplest arrangement for the host's interface driver is a pair of processes, one sending messages and the other receiving messages. This drop of the IMP's ready line must be provided as an error status bit to each process. However, the two processes will need to clear this condition independently: the simplest implementation is an Input Error flop and an Output Error flop. Both flops are set by a drop of the IMP's ready line, and they are cleared independently under program control.

When the IMP raises its ready line, each contact bounce will again set the Error flops in the host's interface. To insure that messages are not flowing across the interface at this time, assertions of the signals "there's your IMP bit" and "ready for next host bit" have been delayed sufficiently in the IMP to guarantee that the IMP ready line has stabilized.

- - - - - - - - - -

*The standard convention uses the host-IMP NOP message,

III, Programming

The interface driver processes can be described simply:

INPUT: Wait until an input buffer is available
Wait until IMP ready
Start input
Wait until input is complete
IF Input Error
THEN clear Input Error // Flush smashed message, Input // buffer will be reused,
ELSE queue message on input queue
GOTO INPUT

OUTPUT: Wait until a message is present on output queue

```
Wait until IMP ready                                                    120
Start output                                                            121
Wait until output is complete                                           122
IF Output Error                                                         123
THEN clear Output Error // Smashed message is flushed                   124
ELSE deque message from output queue // Free up //                      125
output buffer                                                           126
GOTO OUTPUT                                                             127
                                                                        128
                                                                        129
```

The only initialization required for system startup or restart is clearing the host READY flop, waiting 1/2 second, and setting the host READY flop. Simply starting (or restarting) the above processes will properly resynchronize host-IMP communication. As explained in RFC #636, the IMP ready line (and error flops) should only affect the two processes above: this resynchronization should be invisible to the NCP, and should have no effect on the connection data base. The NCP will be resynchronized or reinitialized by the type 10 IMP-to-host message "interface was reset."

Actually, it is possible to share a single Error flop between the input and output processes by implementing Input Error and Output Error as software flags. A process testing for error must test both the Error flop and its own flag. An interlock is required (e.g. a mutual exclusion semaphore) to guarantee that only one process at a

time is testing and modifying the flags. If the Error flop is set, the process must copy it into the other process' flag before clearing the flop and its own flag.

IV. Host Ready Line Implementation

When the host drops and raises its ready line, the IMP behaves in a fashion symmetric to that outlined above. Of course, this drop indicates that the state of the host's interface driver, as well as the current incoming and outgoing messages, are likely to be lost. The appropriate action is triggered by setting the Error flop or flops in the host interface, and the processes specified above will correctly resynchronize message flow in both directions. Of course, to guarantee that messages are not flowing across the interface while the host ready line is undergoing contact bounce, the host must delay transmission until its ready line has stabilized. This may be done in two ways:

Hardware: an integrating one-shot driven by the host ready line flop is ANDed with "there's your host bit" and "ready for

next IMP bit" to guarantee that message transfer will not start until the ready flop has been on for 1/2 second.

Software: the initialization program executes a 1/2 second wait after setting the host ready flop before permitting input or output to begin.

V. Summary

This determines the specification READY line controls for the host's interface to the IMP:

1. It contains a program settable/clearable host READY flop which drives a relay closure to the IMP.

2. It detects the IMP's ready signal as a program-readable status condition. (But not an interrupt condition)

3. It contains one or two ERROR flops set when either the host READY flop is off or the IMP ready signal is off. The flop (flops) is a program-readable and program-clearable status condition. (But not an interrupt condition). These status flops must not be cleared by system initialization.

4, If hardware stabilization of the host's READY line is provided, it is a 1/2 second integrating one-shot driven by the host READY flop, This signal is ANDed with "there's your host bit" and "ready for next IMP bit",

JI 12-JUN-74 11:05 30876

A random note

Mike, it will take a day or so to determine if the 240Z is available at the specified price - have not looked at the 70 datsun yet, Cannot call you today, but will try to contact you tomorrow,,,,Cheers and keep a good thought,,things are all set for your arivaal on the first/,,,,Jean

1

JI 12-JUN-74 11:05 30876

A random note

(J30876) 12-JUN-74 11:05; Title: Author(s): Jean Iseli/JI;
Distribution: /MAP JI(just for info); Keywords: message;
Sub-Collections: MITRE-TIP NIC; Clerk: JI;

MAP 13-JUN-74 09:18 30877

My $.04 Worth on USING

Hi-- Some thoughts: 1) Having quite recently (last Friday) accepted an offer from MITRE Washington, and having received both permission and encouragement to continue my involvement with USING after I get there--despite the fact that there will be no direct IPTO support for it there-- my concern over the current USING situation is probably even stronger than it would have been had I been staying at MAC, where I believe there still exists some IPTO support even if not for USING per se. That's meant to be a tactful way of saying that I do kinda wonder what ever became of Craig's promise to get the USING efforts formally sanctioned and supported. Now, as I recall it, the promise was contingent upon our "producing" in the meantime. So what I think we should do is to determine a) whether the promise still holds (because I've become convinced that the "volunteer work" commitment level isn't high enough), and b) if so how we can become more productive. Turning to Craig's (pointed?) reference to the "two reports", I expect at least one of them was mine (on the PML (/"CONUNION")); Well, there's this draft that's been waiting for comments (particularly Craig's) for the last couple of months... and except for two brief notes expressing raves (much appreciated--and I take to be general endorsements as well) and one expressing modified rapture, I haven't heard a thing about it. Should I arbitrarily declare it "finished"? Should I "turn it in"? HOW do I turn it in? ... Now, that's meant to be a tactless way of saying that if we're going to continue, we certainly need some operating principles (or even procedures, if we must). If enough people seem to care (seem=send me mail) I'll even undertake to specify some simple little principles we might be able to live by (e.g., a month after asking for all of USING for comments a committee chairman may, if (s)he is satisfied with the state of a report, turn it in (whatever that means). I hope to be able to continue to use Multic 1

s for mail after July 1, but in any event would like to hear from people about this sooner if possible. So if Craig doesn't get USING-wide mail, how about having our leaders ask him if there's currently any hope for explicit support provided we start doing better (and finding out what "doing better" means, I hope)--because if there isn't I don't think we're going to get anywhere...although I personally remain willing to try. (The point here is that we all seem to have too much "official" work to do to be able to find time even to offer comments on draft reports--muchless finalize NETED.) 2) As for the next meeting, I feel that postponement is the only sensible option. 3) To end on an upbeat note, I remind you all of Great Network One-liner Number Two: "What we're faced with here, gang, is an insurmountable opportunity." Cheers, map 2

MAP 13-JUN-74 09:18 30877

My $.04 Worth on USING

(J30877) 13-JUN-74 09:18; Title: Author(s): Michael A. Padlipsky/MAP; Distribution: /USING; Sub-Collections: NIC USING; Clerk: MAP;

EJK 13-JUN-74 10:52 30878

This is to see if Craig and hyde are on the system to receive mail on---line. 1

(J30878) 13-JUN-74 10:52; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /JWH DTC MLK; Sub-Collections: RADC; Clerk: EJK;

notes on meeting with Fred Paranchyck and Mark; also met with Shankar re Rotary Dial end to end signaling.

meeting with Mark D., Ernie Chadler, Fred Paranchyck, Albert _____, Shankar ; June 13, 1974 1

met with Fred, Bill and Mark in the a.m.; Fred's got a problem is that he's 100% behind the work that mark is doing, but he doesn't have any money to spend for research. 1a

It is relatively easy to be infavor of things if you know it's not going to cost you anything 1a1

Fred had supper the day before with Murray; haven't got any feedback about that yet. 1a2

met with Albert _____, on sabatical from Australian Post Office later 1b

very interesting work on conference T.V. horizontal screen simulates "Across the table " perceptions; no provision for self-view by participants; found that display can be too large (a la Quebec City); felt the same way about Horzepa's work with conf'g via PicturePhone as we did. 1b1

His work on a model of the conferencing situation sounds like a good one. he hopes to have it finished by mid-July, as he's leaving for home at end of July. Would like to get in touch with hime on this. 1b1a

had lunch with Shankar, spen afternoon with him 1c

he's upset about the lack of communications between our two groups; I told thhim that after two years, we'd given up trying to make it work, and that now we weer interested in projects that would take a minimum of monitoring, and yet would provide a maximum of tangible , documented results (ie, no airy-fairy stuff). He's starting to worry more and more about his case, I think. 1c1

We went out to the MIL lab where he showed me the receiver for rotary dal pulses. The tecnical people are at the stage now where they need further input from the sears people 1c2

e.g. what sort of area does sears expect each receiver to cover; the answer will indicate how many local loops (?) the device will have to put up with (in the sense that each loop degrades the signal to a certain extent.) 1c2a

We agreed to invite the Sears people to see it. We'll go to Toronto with the stuff if Anderson (Sears', not ours) would

notes on meeting with Fred Paranchyck and Mark; also met with ShanKar re Rotary Dial end to end signaling.

like to see it, otherwise, their people can come to Ottawa. How does this sound ? 1c3

On this same subject (sort of), WHEN WILL WE KNOW SOMETHING ABOUT THE TOUCHTONE NUMBERS THING? How did that memo to KSH look ? 1c4

MIKE 14-JUN-74 09:14 30880

notes on meeting with Fred Paranchyck and Mark; also met with Shankar re Rotary Dial end to end signaling.

(J30880) 14-JUN-74 09:14; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD; Sub-Collections: NIC; Clerk: MIKE;

ISI Confessions 0830 hrs. 1

RJC 17-JUN-74 05:34 30881

ISI Confessions

(J30881) 17-JUN-74 05:34; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /RJC FJT TJB JLM EJK DLS RBP JPC RFI RAL WER FSL DFB LML DLD2 TJB2; Sub-Collections: NIC; Clerk: RJC;

JI 17-JUN-74 07:23 30882

Response to (30845,) : The Future of USING

"Insurmountable Opportunity?"

Response to (30845,) : The Future of USING

Like MAP expressed it, without funding support, USING productivity will be difficult to ensure. Those of us who have no direct ARPA/IPTO funding face the prospect of "loss of network access." Although the U.S. Mail and Telephone have been with us a long time and do work, they are a poor substitute for collaborative efforts with other network personnel. It seems to me that any real progress will be slowed down appreciably by such conditions. 1

Reflecting on the past two years of USING effort, one is struck with a singular observation - achievement of USING objectives is generally secondary to local site responsibilities - unless USING efforts accrue a degree of "official" sanction, can we really expect meaningful results? 1a

With the loss of the Office-1 account, it seems dubious that further work on a network feedback mechanism can progress with any reasonable degree of assurance. The prototype feedback capability relied on being able to process user input at office-1 to gain further insight into a reasonable design. Since Office-1 will no longer be available, and the distributed feedback program no longer usable without such access, the envisioned period of trial usage to obtain real information on user habits will have to be abandoned. 1b

With respect to the submitted feedback report, response on its possible utility, adequacy, areas of possible improvement, has yet to be received. It would seem somewhat risky to proceed further on the effort without any meaningful feedback relative to the reception of the original report. 1c

I guess what I am trying to say is that the following questions are begging for answers: 1d

(1) How can we know if USING products are useful and worthwhile? 1d1

(2) Since USING products are "reports", how can we judge on the correctness of our approach? - Who supplies the evaluative structure? 1d2

(3) Without funded USING network access, how can we develop

prototypical capabilities and experiment?

1d3

(4) How do USING members who live remotely from meeting sites obtain funding to attend USING meetings?

1d4

(5) Are USING objectives consistent with the current ARPANET environment - should they be re-examined in light of the significant changes in circumstance?

1d5

In closing, I would like to see USING continue because the effective transfer of technology to benefit a wide user population still seems to me to be antecedant to network viability. Postponement of the July meeting appears to be a prudent action - rescheduling of the meeting should be in consonance with answers to the above questions.

1e

JI 17-JUN-74 07:23 30882

Response to (30845,) : The Future of USING

(J30882) 17-JUN-74 07:23; Title: Author(s): Jean Iseli/JI;
Distribution: /USING; Keywords: USING Dialog Future; Sub-Collections:
USING MITRE-TIP; Clerk: JI;

RJC 17-JUN-74 12:52 30883

when ISI confessions are

Confessions are held on 19 June, Wednesday

when ISI confessions are

ISI Confessions 0830 hrs, 1

when ISI confessions are

(J30883) 17-JUN-74 12:52; Title: Author(s): Roberta J. Carrier/RJC;
Distribution: /FJT RJC TJB2 JLM RFI EJK DLS RBP JPC RAL WER FSL DFB LML;
Sub-Collections: NIC; Clerk: RJC;

EJK 17-JUN-74 14:01 30884

English as she is spoke!

You've got to be kidding!!!!! I don't KNOW who did it, but if she was mine I'd spank her.

EJK 17-JUN-74 14:01 30884

English as she is spoke!

RJC 17-JUN-74 12:52 30883
when ISI confessions are
Message: ISI Confessions 0830 hrs. 1

Comments: Confessions are held on 19 June, Wednesday 1a

English as she is spoke!

(J30884) 17-JUN-74 14:01; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /RJC EJK; Sub-Collections: RADC; Clerk: EJK;

EJK 17-JUN-74 14:21 30885

Call To Syvia M.

Shed also like to have JLM at BB&N next wek if possible

EJK 17-JUN-74 14:21 30885

Call To Syvia M.

I called Sylvia Mayer (478-3615) to discuss briefly the CAI for NLS. 1

I told her the following: 2

I had reviewed Laura Gould's report and I felt that the work was very promising. 2a

There was a line-item in the program we are putting together to cover her work for the coming year. However, even though the item was there it still had to survive the culling process of Program reviews. 2b

We would like to get together with her and the BB&N people for a discussion and demonstration, and that we would prefer that this be done at RADC. The reason for this being at RADC is that the people who would go to BB&N would be Mcnamara, Stone, and/or Kennedy. None of these three needed convincing of the overall value of the work. If the demo were at RADC then she would have a chance to show it off to Tomaini, Barnum and others of that sort. 2c

She told me: 3

She's very happy thhhat we like the work done to date, and that we are at least considering furtther support. 3a

She'd love to show us at RADC, but would prefer BB&N. However, in view of the fact that she'd gain little yardage by showing the progress to people who already liked it, she'd certainly consider coming to RADC if it is technically feasible to give a demonstration over the Net. 3b

She'll check with Dr Grignetti and let me know ASAP. 4

5

EJK 17-JUN-74 14:21 30885

Call To Syvia M.

(J30885) 17-JUN-74 14:21; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /JLM EJK DLS RBP; Sub-Collections: RADC; Clerk: EJK;

IMM 17-JUN-74 15:24 30886

book list

BOOKS - The following is a list of some of the books in the Library at the US Dept, of Telecommunications, If there are any you would like please snd mess to me and i will have them ordered for you, The list of books are all in caps because i was using the Digi-log portable terminal and did not know at the time about a command at the Exec level that enables the computer to see lower case, 1

RECORDS, COMPUTERS AND THE RIGHTS OF CITIZENS,(REPORT OF THE SECTY, ADV, COMM, ON AUTOMATED PERSONAL DATA SYSTEMS) HEW JULY 1973 1a

THE ECONOMIC IMPACT OF ALTERNATIVE PATTERNS OF CATV OPERATOR BEHAVIOR (RONALD BRAEUTIGAM) --BOUND WITH A METHODOLOGY FOR ESTIMATING THE MARKET FOR TELECONFERENCING SERVICES, 1b

A BIBLIOGRAPHY OF SELECTED RAND PUBLICATIONS (COMMUNICATION SYSTEMS - COMMUNICATINICATION SATELLITES SEP/JUNE 1971 1c

A SELECTED BIBLIOGRAPHY (N, HOLMBERG; E, GREY; P, MCMANAMON) OT/ITS JULY 1973, (BIBLIO ON CATV,CABLE TELEVISION,BROADBAND CABLE TELESERVICES,) 1d

CABLE TELEVISION BIBLIO, (OFFICE OF TELECOMMUNICATIONS POLICY FEB/72 1e

BIBLIO OF TECHNNOLGICAL FORECASTING, 1f

BIBLIOGRAPHY - TELECOMMUNICATIONS 1g

BIBLIOGRAPHY - URBAN TRANSPORTATION PLANNING (APRIL/72 NORTHWESTERN UNIVERSITY, 1h

COMMUNICATIONS TECHNOLOGY FOR URBAN IMPROVEMENT, (COMMISSION ON TELECOMMUNICATIONS, NAE/HUD, JUNE 1971 1i

CABLE COMMUNICATIONS REVOLUTION FUTURE : BROADBAND COMMUNICATIONS (R.W., PETERS - SRI 1972) 1j

BROADBAND COMMUNICATIONS IN RURAL AREAS : FINAL REPORT AND EXECUTIVE SUMMARY,,,DENVER RESEARCH INSTITUTE/OTP NOV/73 1k

POTENTIAL MARKET DEMAND FOR TWO-WAY INFORMATION SERVICES TO THE HOME 1970 - 1990; (PAUL BARAN; ITS/OFF, OF TEL, DEC/71) 1l

TOWARD A STUDY OF FUTURE URBAN HIGH CAPACITY TELECOMMUNICATION SYSTEMS (PAUL BARAN : IFF/OFF, OF TEL, DEC/71) 1m

THE USE OF COMPUTERS IN CATV TWO-WAY COMMUNICATION SYSTEMS (L,J, CAMPBELL : OFF, OF TEL, JUL/73) 1n

book list

FUTURE DEVELOPMENTS IN TELECOMMUNICATIONS (JAMES MARTIN) 1o

A STUDY OF CONSUMER TELECOMMUNICATION SERVICES (CAPLAN ASSOC, INC.; PRESIDENT'S TASK FORCE ON COMMUNICATIONS POLICY;MAR/68) 1p

INTERNATIONAL SYMPOSIUM ON COMMUNICATIONS; TECHNOLOGY, IMPACT AND POLICY PANELS; UNIVERSITY OF PA, MARCH/72) 1q

SLOAN COMMISSION ON CABLE COMMUNICATIONS, 1r

SYMPOSIUM ON URBAN CABLE TELEVISION (VOL 1-1V, MITRE CORP, OCT/72) 1s

INTERACTIVE TELEVISION SOFTWARE FOR CABLE TELEVISION APPLICATION (KEN STRETTEN JUN/71; MITRE CORP.) 1t

PROBLEMS OF COMMUNICATION IN LARGE CITIES, (REPORT TO SEC, SMITHSONIAN INST; APRIL/71) 1u

SYSTEMS INTERCONNECTION; (P.M. MCMANAMON JULY/72) 1v

THE WIRED NATION; CABLE T.V. THE ELECTRONIC COMMUNICATIONS HIGHWAY, (RALPH LEE SMITH) 1w

WIRING THE WORLD; (THE EXPLOSION IN COMMUNICATIONS) JOSEPH NEWMAN, DIRECTING EDITOR, 1971 1x

CABLE TELEVISION: A GUIDE TO THE TECHNOLOGY, (C. PILNICK; W.S.BAER, RAND CORP/NATIONAL SCIENCE FOUNDATION JUNE 1973 1y

TOWARD A STUDY OF FUTURE URBAN HIGH CAPACITY TELECOMMUNICATION SYSTEMS (PAUL BARAN; IFF;OFF. OF TEL, DEC 1971) 1z

CABLE TELEVISION BIBLIOGRAPHY (OFF. OF TEL, FEB/72) 1a@

CABLE T.V. INFORMATION CERTER REPORTS (CABLE T.V. INF. CENTER URBAN INSTITUTE, 1972) 1aa

COMPUTER/COMMUNICATIONS POLICY (CANADA, A POSITION STATEMENT BY THE GOVT. OF CAN.) GERARD PELLETIER APRIL 1973 1ab

PEOPLE IN COMMUNICATIONS WITH IMAGINATION;HOUSING AND URBAN GROWTH DEVELOPMENT, (DEPT OF COMMUNITY INFORMATION SYSTEMS) 1ac

CONTROLLED ACCESSIBILITY BIBLIOGRAPHY (COMPUTER SYSTEM PRIVACY JUNE 1973) 1ad

A PRACTICAL GUIDE TO MINICOMPUTER APPLICATIONS (FRED COURY, N.Y, IEEE PRESS 1972) 1ae

MUST WE TRAVEL? - THE POTENTIAL OF COMMUNICATIONS AS A SUBSTITUTE FOR URBAN TRAVEL, (STANFORD UNIVERSITY GRANT, DAVID JONES; DOT) 1af

COMPUTER COMMUNICATIONS:IMPACTS AND IMPLICATIONS (DERIVED FROM THE FIRST INTERNATIONAL CONFERENCE ON COMPUTER COMMUNICATIONS - OCT 24-26 1972 WASHINGTON D.C.) 1ag

THE SOCIAL EFFECTS OF COMMUNICATIONS TECHNOLOGY (RAND CORP, H, GOLDHAMER; R, WESTRUM MAY 1970) 1ah

THE CONTEXTUAL APPROACH TO TECHNOLOGY ASSESSMENT (L.H, MAYO, GEORGE WASHINGTON UNIVERSITY, PROGRAM OF POLICY STUDIES) 1ai

THE RELATIONSHIP OF TECHNOLOGY ASSESSMENT TO ENVIRONMENTAL MANAGEMENT (L.H, MAYO, GEORGE WASHINGTON UNIVERSITY OCT 1969) 1aj

TECHNOLOGY ASSESSMENT AND FORECAST:EARLY WARNING REPORT OF THE OFFICE OF TECHNOLOGY ASSESSMENT AND FORECAST; (COMMERCE DEC/73) 1ak

ADVOCACY IN TECHNOLOGY ASSESSMENT (E.M, JONES, GEORGE WASHINGTON UNIVERSITY NOV/70) 1al

DIRECTORIES - The majority of these directories are available in our library downstairs, 2

Directories of Libraries in the U.S, (D.O.Commerce, Sep/72) 2a

Research Centers Directory 2b

Directory of Special Libraries and Reseach Centers 2c

Ayer Directory - This is an authoritative directory of print media published in the U.S,, its territories, Canada, Bermuda, Republic of Panama and the Phillipines (Compiled & Published by Ayer Press, West Washington Square, Philadelphia Pa, 19106, USA,),

Lists of Newspapers - Dailies
- Weeklies

Magazines - Consumer
- Business
- Technical
- Trade
- Form 2d

Directory of Special Libraries and Information Centers

(A guide to special libraries, research libraries, information

centers, archives and data centres maintained by Gov't Agencies, business, industry, newspapers, educational institutes, non-profit organizations and societies in the fields of science, technology, medicine, law, art, religion, history, social sciences and humanistic studies.) 2e

American Library Directory

The directory lists in U.S. and Canada
- Public libraries
- University and College libraries

(can be ordered from: R.R. Bowker Co., 1180 Ave of the Americas, New York, N.Y. 10036) 2f

Subject Guide to Books in Print

(Hardbound, paperbacks, trade books, textbooks, adult and juvenile (Bowker N.Y.) 2g

Ulrich - International Newspaper and Periodicals Directory 2h

Standard and poor Corp. - A Register of Corporations, Directors and Executives, 2i

National Referral Center

(Free information service on social sciences. This services tells us who is doing research in certain subject areas. TEL 1-202-426-5670) 2j

IMM 17-JUN-74 15:24 30886

book list

(J30886) 17-JUN-74 15:24; Title: Author(s): Inez M. Mattiuz/IMM;
Distribution: /LHD PIW PF MIKE DMA IMM; Sub-Collections: BELL-CANADA;
Clerk: IMM;
Origin: <MATTIUZ>BOOKS.NLS;1, 17-JUN-74 15:16 IMM ;

minutes from dewittville

Mike opened the meeting with a general overview of each person's use of the system. 1

A lengthy discussion was held on the manner in which we are inputting historical documents into the system, thus building our data base. Presently, we have a girl typing the data offline, Inez converting it into the system and the author doing his own editing. It was the general opinion that the offline mode was the best method to use. DMA suggested we get another typist and cassette unit in order to get the data more quickly into the system. Mary Vu offered to do some editing for others during her spare time and once trained, Heather Wilson could also offer the same support. 2

Present individual work styles were discussed; typing, writing and online. It was again made clear that this system was only a tool to be used to get our job done. For the people who prefer to jot ideas down on paper or prefer to type their reports, we will have a typist re-do it on tape. The author, ofcourse, still has the responsibility for the editing. 3

Not mentioned at the meeting but would be a good daily practice is logging in each morning to check for messages and journal mail. These two methods have already become the mailbox for some of the group. 4

LHD and DMA discussed the limitations of our one slot. If the cost should drop by half, it is probable we could buy another one however, when the time comes and we are forced to one user only, scheduled time and odd hours will become necessary. With the display terminal (DNLS) editing should be much easier and faster. 5

An initial review session will be held to make everyone aware of the many capabilities of the system. Time will be set aside on a weekly basis for group training on specific applications. This should all begin in a couple of weeks. 6

DMA and Dean Meyer discussed their definition of the role of a system's architect. As far as BPG is concerned, IMM will be the interface with SRI for all aspects of training, new applications, problems etc. 7

To get the present abstracts now on the IBM 370 into the system SRI is experimenting this week on a transfer for someone on the Arpa net. If it is successful, we are hoping to employ the same mechanism. New abstracts will have to be put in citation form (Inez working on this) and Penny will be writing the program for the retrieval of the information by keywords. 8

Phil Feldman summarized the group's impressions to date on this

experimental system. Half expressed disappointment in not reaching a fair level of competence by now. DMA felt that 2 years was the minimum time we should take to assess the system completely and to determine its continuation. 9

Inez ended up the meeting by reviewing all the problems we are having with the equipment. DMA will be talking with the CC Group to see where we go from here as something has to be done about the amount of breakdowns we are having. 10

IMM 17-JUN-74 15:52 30887

minutes from dewittville

(J30887) 17-JUN-74 15:52; Title: Author(s): Inez M. Mattiuz/IMM;
Distribution: /KSH MHV DMA LHD MIKE PF PIW JHK2 PAN IMM;
Sub-Collections: BELL-CANADA; Clerk: IMM;
Origin: <MATTIUZ>MINUTES.NLS;1, 17-JUN-74 15:47 IMM ;

NJN DHC 18-JUN-74 09:44 30888

Suspension of USING Activities

To USING--

We have had very little response to our recent note regarding the future status of USING. Only three of the replies addressed the question of the type of activities USING should pursue, and even those people were restricted in their ability to participate. Only half a dozen people felt able to attend the proposed July meeting and not all of these have participated in previous USING activity.

As a result, we feel that there is not sufficient support to continue, and we hereby declare USING to be in a state of "suspended animation", possibly to be revived by a groundswell of interest in the future. This implies that the July meeting is cancelled, no further work is being done on reports, and no future activities are being planned. Since no one is finalizing the reports due to Craig on June 30, these will not be turned in. Any people who feel that this is the wrong approach are welcome to do some work.

It appears that there is some continued lack of clarity of our position with respect to ARPA/IPT. We quoted from Craig's note on this subject in our recent message to you; we will reproduce it in its entirety here; that should answer the remaining questions:

> NANCY AND DAVE,
> I HAVE ALWAYS CONSIDERED THE USING COMMITTEE TO BE A TECHNICAL ADVISORY GROUP FOR ARPA/IPTO. THIS MEANS THAT YOU WOULD GIVE US TECHNICAL ADVICE ON HOW TO MAKE THE ARPANET BETTER FOR USERS, AND SO
> YOUR "OUTPUT" SHOULD BE REPORTS. SEVERAL THINGS ARE EXCLUDED FROM THIS VIEW. FIRST, I DO NOT CONSIDER IT PROPER FOR YOU TO SUPPLY NON-TECHNICAL ADVICE, SUCH AS FUNDING ADVICE, AS WE MUST CONSIDER A
> NUMBER OF FACTORS IN MAKING FUNDING DECISIONS - MANY NOT TECHNICAL.
> SECOND, I HAVE NEVER CONCEIVED OF THE GROUP AS PRODUCERS OF SOFTWARE OR OTHER PRODUCTS, SUCH AS DOCUMENTS FOR DISTRIBUTION. I KNOW THAT YOU ENGAGE IN SUCH ACTIVITIES AND THEY ARE PRIVATE MATTERS.
> AS AN ADVISORY GROUP I HAVE FOUND USING TO BE HELPFUL. I HAVE QUOTED THE REPORTS I RECEIVED AND FOUND THEM GENERALLY OF GOOD QUALITY. BECAUSE OF THIS GOOD TRACK RECORD I LOOK FORWARD TO RECEIVING THE OTHER REPORTS THAT WERE PROMISED AND HENCE ARE EXPECTED. IN ADDITION I LOOK FORWARD TO THE SUMMER MEETING TO CONSIDER FUTURE ACTIVITIES AND TO TELL THE GROUP WHAT IS HAPPENING WITH THE ARPANET.
> IT IS CURRENTLY AN EXPLICIT DECISION OF THE OFFICE THAT COMMITTEES ARE VOLUNTEER VENTURES, USING BOOTLEGGED RESOURCES. I'M NOT SURE THIS IS A GOOD DECISION, AND IT MAY CHANGE, BUT THAT IS THE WAY THINGS ARE NOW, AS SUCH THE SUPPORT THAT WE ARE

READY TO OFFER IS CONVERSATIONAL IN NATURE - LICK AND I, FOR EXAMPLE, MADE TWO SEPARATE ANNOUNCEMENTS AT THE PI MEETING ABOUT THE IMPORTANCE OF THE USING GROUP AND OUR DESIRE FOR IT TO BE "SUPPORTED" FOR LOCAL PI'S, I AM ALSO READY TO SPEAK TO LOCAL PI'S WHEN RELEVANT TO SEE IF ANYTHING CAN BE DONE TO SOLVE SPECIFIC PROBLEMS, ONLY ONE SUCH CASE HAS ARISEN (D.C.). 4a

TO ANSWER YOUR SPECIFIC QUESTIONS, 4b

1. I WOULD LIKE THE USING COMMITTEE TO PRODUCE THE TWO RECOMMENDATION REPORTS THAT WERE PROMISED, AND TO SUGGEST OTHER TECHNICAL AREAS IN WHICH WE (ARPA) MIGHT SOLICIT USING'S ADVICE,
2. SUGGESTIONS IN THE FUTURE WILL BE USED AS I HAVE USED SUGGESTIONS
IN THE PAST - SELECT THE BEST PARTS AND INCORPORPORATE INTO OUR ARPANET PLANNING,
3. I AM PERFECTLY HAPPY WITH THE CURRENT COMPOSITION OF THE COMMITTEE AND DO NOT FEEL THAT EFFORTS ARE HARMED BY JUNIOR MEMBERSHIP - THEY MAY BE HELPED!
4. SUPPORT FOR THE USING COMMITTEE WILL BE THE SAME AS FOR ALL OTHER
ARPA/IPTO COMMITTEES, AS DESCRIBED ABOVE, 4c

IF YOU HAVE ANY OTHER QUESTIONS PLEASE FEEL FREE TO CALL OR WRITE, 4d

BEST 4e

CRAIG FIELDS 4f

Any protests to our actions should be directed to us (DCROCKER @ ISI and NEIGUS @ BBN), 5

Nancy and Dave 6

NJN DHC 18-JUN-74 09:44 30888

Suspension of USING Activities

(J30888) 18-JUN-74 09:44; Title: Author(s): Nancy J. Neigus, David H. Crocker/NJN DHC; Distribution: /USING CF; Sub-Collections: NIC USING; Clerk: NJN;

EJK 18-JUN-74 09:52 30889

Visit to RADC for discussion and demonstration of CAI for NLS.

I called Sylvia Mayer (478-3615) to discuss briefly the effort on Computer Aided Instruction for NLS. (17 Jun 74 1630) 1

I told her the following: 1a

I had reviewed Laura Gould's report and I felt that the work was very promising. 1a1

There is a line-item to cover her work in the program we are putting together for the coming year. However, even though the item is there it still has to survive the culling process of Program Reviews. 1a2

We would like to get together with her and the BB&N people for a discussion of theri progress and plans and a demonstration, and that we would prefer that this be done at RADC. The reason for doing this at RADC is that the people who would go to BB&N would be Mcnamara, Stone, and/or Kennedy. None of these three needed convincing of the overall value of the work. If the demonstration were at RADC then she would have a chance to show it off to Tomaini, Barnum and Col. Krutz. 1a3

She told me: 1b

She's very happy that we like the work done to date, and that we are at least considering furtther support. 1b1

She'd love to demonstrate it to us at RADC, but would prefer BB&N. However, in view of the fact that she'd gain little yardage by showing their progress to people who already liked it, she'd certainly consider coming to RADC if it is technically feasible to give a demonstration over the Net. 1b2

She'll check with Dr. Mario C. Grignetti, the principal investigator, and let me know ASAP. 1c

Dr. Sylvia Mayer called me (18 May 74 1000) in response to mey call. 2

She told me: 2a

She spoke to Dr. Grignetti, and he assured her that the demonstration could, of course, be given using the ARPA net. 2a1

She wanted to know if we wanted them to stay at BB&N while we went on-line at RADC for the demonstration, or did we prefer that they come to RADC. Either could be done. 2a2

She suggested the second week in June as the most reasonable

time for this visit, since BB&N was only now in the process of getting their program on-line and available to the net. 2a3

I told her the following: 2b

The demonstration should be at RADC. 2b1

The second week in July was not unreasonable, but I would have to check the availability of key people 2b2

Friday, 21 Jun, should be the day for more definite discussion of the time and other details of the visit. 2b3

There was some discussion of who at RADC likes the work they are doing, why we have a line item in, what do we see as the future of NLS, what is RADC's relation to ARPA and the National Software Works??? etc. I pleaded ignorance, without lying, on most of these questions. 2c

Request that you review your schedule and your interests and provide me with any second thoughts before Fri AM. Either on the system, in person, or by phone x3857, 3827 or 7834. (Or you can leave me a note or tell someone else.) 3

4

EJK 18-JUN-74 09:52 30889

Visit to RADC for discussion and demonstration of CAI for NLS.

(J30889) 18-JUN-74 09:52; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /ARB FJT JLM RBP DRL2 WFS RN2 RHT2; Sub-Collections: RADC;
Clerk: EJK;

Remainder of AFM 300-6

Elizabeth, 1

Here is the remainder of AFM 300-6, 1a

I have notified the vendor which produced the tape of the problem with the last 200 lines. If you have any further problems with the file, please contact me,
Elizabeth Riddle

1a1

ing and space requirements for a complete system. In addition, identify any unusual or special physical requirements, if appropriate, 1a1a

(d) Certification from the source of maintenance regarding the present condition of the equipment, estimated costs for needed repairs, if appropriate, and its acceptability for continued maintenance at new location, 1a1b

(3) Equipment vendors require written notification by a prescribed number of days prior to discontinuance of leased equipment. Determine the required advanced notification by reviewing applicable contracts. The possessing MAJCOM/SOA will submit notification of discontinuance to vendors, 1a2

c. Upon receipt of SF 120, MAJCOMs/SOAs will screen their inventories to ascertain if it is advantageous to reutilize the equipment within the command. Commands are authorized to replace leased ADPE with like government-owned ADPE within the command on an individual component basis. HQ USAF/ACDDA will be advised of all intracommand actions. Complete ADPE systems will not be broken and components reused without the approval of HQ USAF/ACDDA, 1b

d. Upon determination that equipment can not be reutilized within the MAJCOM/SOA an AF Form 1123, Reuse Screening of Government-Owned/Leased Automatic Data Processing Equipment (Attachment 50) will be prepared and forwarded to HQ USAF/ACDDA and each MAJCOM/SOA. (Recommend that activities reproduce the SF 120 (and attachments, where applicable) and attach it to the AF Form 1123 in lieu of retyping the body of the form.) Locally reproduce AF Form 1123 on 10 1/2" paper as shown in Attachment 51, 1c

e. Upon receipt of an AF Form 1123, each MAJCOM/SOA will screen their inventory to ascertain reutilization opportunities. In addition, they will insure the widest possible dissemination of AF Forms 1123; i.e., the Research and Development, Intelligence,

Command and Control communities and Air Force Contract monitors located on or near the installation. Upon determining that the advertised equipment will satisfy a validated requirement, the activity will complete the AF Form 1123 and forward it to HQ USAF/ACDDA no later than the suspense date indicated on the form (usually 30 days). Request for government-owned PCAM will be forwarded to the reporting command. During the screening process, activities should consider possible modification to effect model changes, addition/deletion of features or similar actions that would facilitate reuse of excess equipment. 1d

f. Upon receipt of the SF 120, HQ USAF/ACDDA will screen the master USAF ADPE inventory to ascertain possible reutilization opportunities. 1e

g. Upon determination that reutilization opportunities are not available within the Air Force, HQ USAF/ACDDA will forward the SF 120 to DARO for reutilization screening within DOD. If it is determined that no reuse can be made of the equipment within DOD, DARO will report the equipment to GSA for government-wide screening. 1f

h. In unusual circumstances it may be necessary to withdraw equipment, or to change the availability date after the SF 120 has been submitted. The reporting activity will immediately notify HQ USAF/ACDDA by telephone, or message, of the extenuating circumstances, followed by an amended SF 120 and complete justification for the action. The reporting activity will advise any activity that had been designated to receive the ADPE that the equipment has been withdrawn or the availability date has changed. Appropriate inventory transactions reflecting change in availability date or withdrawal from availability will also be submitted (see Paragraph 13-6c(2) (d)). 1g

15-4. Acquisition of Excess ADPE. The following procedures will be used to acquire excess ADPE through the reutilization program regardless of whether the equipment was advertised on an AF Form 1123 or DARO Excess ADPE Bulletin, or was identified as the result of screening using the DD Form 1851 (OCR): 2

a. All requests for excess ADPE, except government-owned PCAM and minor items, will be forwarded through command channels to HQ USAF/ACDDA accompanied by a DD Form 1149. Requests for government-owned PCAM and minor items will be forwarded directly to the owning MAJCOM/SOA or DARO, as appropriate. 2a

b. In addition to the DD Form 1149, the following information must be furnished when a major item of excess ADPE is requested.

(If the request is to replace leased equipment with Government-owned, only items 1 thru 4 are required,): 2b

(1) Organization designation of requester, 2b1

(2) Date required, 2b2

(3) Statement of intended use, 2b3

(4) Estimated resource expenditures required for installation and use (include additional features required), 2b4

(5) Statement of benefits, 2b5

(6) Estimated monthly utilization, 2b6

(7) Facility availability, 2b7

(8) For leased ADPE each request will be processed through the local procurement office and contain a statement that: 2b8

(a) A sole source determination and finding has been made and documented, or 2b8a

(b) The equipment was selected as a result of a competitive solicitation, or 2b8b

(c) There is a documented determination and finding that the equipment represents the lowest overall cost, 2b8c

c. Request will be evaluated by HQ USAF/ACDDA, in conjunction with the appropriate Air Staff functional area(s), to determine allocation of excess ADPE to realize maximum potential benefits, 2c

15-5. Shipping Instructions. The following instructions apply when ADPE equipment is shipped from one installation to another: 3

a. The shipping organization is responsible for costs incurred in transferring ADPE within the Air Force, 3a

b. The receiving organization is responsible for costs incurred in transferring ADPE outside the Air Force, 3b

c. When government-owned equipment is returned to the vendor for rehabilitation prior to an Air Force transfer, the shipping organization is responsible for transportation charges to the vendor and refurbishment costs. The receiving organization is responsible for transportation charges from the vendor to the

required site. These costs included packing, handling and storage, if appropriate. 3c

d. The shipping organization is responsible for packing and crating in accordance with vendor instructions. All cabling and maintenance manuals, including schematics and related drawings, will be shipped with the equipment. 3d

e. The shipping organization will submit appropriate inventory transactions and will comply with paragraph 13-81. 3e

15-6. Disposition of Excess ADPE. The following procedures will be used to dispose of excess ADPE when it is determined that all reuse possibilities have been exhausted: 4

a. Purchased equipment will be transferred to the appropriate Property Disposal Agency (PDA) office in accordance with DOD 4160.19M and DOD 4160.21M, Defense Disposal Manual. The transfer document will be annotated with DSA Case Numbers and the following statement: 4a

"This equipment has been screened in accordance with the provisions of DOD 4160.19M and is surplus to the needs of the Government." 4b

b. Normally, leased equipment will be discontinued as soon as it becomes excess to the using activity. However, in some cases it may be advantageous to retain certain leased equipment: 4c

(1) If maximum equity has been achieved, the MAJCOM/SOA Command ADP Program Single Manager may consider an intracommand transfer to replace like leased equipment to protect equity in the event of future purchase. 4c1

(2) HQ USAF/ACDDA may determine, in the course of screening, that it is advantageous to retain specific leased equipment and will notify the appropriate MAJCOM/SOA to arrange an intragovernment agency transfer. 4c2

Remainder of AFM 300-6

(J30890) 19-JUN-74 13:11; Title: Author(s): Elizabeth A. Riddle/EAR;
Distribution: /EKM; Sub-Collections: NIC; Clerk: EAR;
Origin: <RIDDLE>REST300-6.NLS;9, 19-JUN-74 13:07 EAR ;

AAM 19-JUN-74 13:53 30892

Terminal IMP Protocol Change

Please be warned that the protocol changes described in the Appendix to RFC # 636 will be installed in a few TIPs on Friday, 21 June, and eventaully in all TIPs. Please review the body of RFC # 636, and especially the last paragraph on page 4, for the appropriate caveats, Alex McKenzie (for the Network Control Center)

1

AAM 19-JUN-74 13:53 30892

Terminal IMP Protocol Change

(J30892) 19-JUN-74 13:53; Title: Author(s): Alex A. McKenzie/AAM;
Distribution: /NLG BPC DCW3 JDB RST JHM2; Sub-Collections: NIC NLG;
Clerk: AAM;

RJC 20-JUN-74 05:50 30893

28 June

RJC 20-JUN-74 05:50 30893

Wine and cheese party - Charlie Breece - $2,50 per person - Display Facility - 1700 Hrs. - see Marilyn Rossi X7009, Tickets NLT 22 June. 1

(J30893) 20-JUN-74 05:50; Title: Author(s): Roberta J. Carrier/RJC; Distribution: /DVA RAL WER EJK DLS RJC MAW DLD2 DFB JLM FJT TJB2 RFI RBP JPC FSL ELF AAC; Sub-Collections: NIC; Clerk: RJC;

Multics Report

Roger, I had a call from Maj Bailey after you left. He called to see if you had gotten his file out of the MULLTICS. I told him yes. We then continued chatting until he mentioned that he had found some typos in the copy. 1

I then asked if they could send it to ,us using the net, as a msg. He got a Lt. Karger on the phone and they managed to send it to me in a message. I am now about ot try to inmes it into this file. 2

Lt Karger can, in theory be sent a message at Karger.Druid@MIT-Multics I tried and I have one queued. NOTE the capitalization is important since the multics wiill not recognize it if the case is not right. 3

4

THE FILE FROM BAILEY: 5

(NOTE - Bill Rzepka has the Multics manual to tell you what all the strange characters mean if you want to substitute NLS control characters.) 6

notes of a Mark Davies phone call; possible O'Keefe involvement in the CMI case (!).

Mark phoned to tell me about Derek McCune's call requesting permission to set up some conferences for TCTS people using the Phase II version. Apparently Ben Ho is willing to pick up the tab for all the TCTS usage, (!). Mark was wondering what to charge them for usage; he figures that the straight computer usage charge wouldn't be enough to cover the inevitable S.E. consulting time that would result from a brand new user population. 1

On the existing CMI case, he had two problem areas 2

Grant Boyd's (computer center) people are reluctant to have the thing written up as two separate cases; they don't want to alienate O'Keefe's group, as they have already done on things like the outside plant study, which O'Keefe yanked back into his own shop after hearing about it. If the computer could be purchased instead of leased, the expense part of the case would be below the $100K maximum figure, over which Anderson's signature is needed on the authorization. 2a

Alternatively, if we could get someone else to take the development work (instead of the BNR comp. center), then Boyd would be off the hook. (It's clear to Mark and I that the resident CMI whiz, Hillary, would have to continue to work with whoever ends up doing the development work.) Nissar and Mark talked about the possiblity of letting O'Keefe's group do the development; Nissar said he'd bring it up with DMA on his return (July 3). It seems extremely unlikely that we'd ask O'Keefe to get into bed with us on this aspect of CAMS, while at the same time ignoring him on the Office-1 aspects. 2b

EJK 25-JUN-74 14:47 30898

More info on CAI/NLS demonstration,

I called Sylvia Mayer (478-3615) to discuss briefly the effort on Computer Aided Instruction for NLS, (17 Jun 74 1630) 1

I told her the following: 1a

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The second week in July was not unreasonable, but I would have to check the availability of key people 2b2

Friday, 21 Jun, should be the day for more definite discussion of the time and other details of the visit, 2b3

There was some discussion of who at RADC likes the work they are doing, why we have a line item in, what do we see as the future of NLS, what is RADC's relation to ARPA and the National Software Works??? etc, I pleaded ignorance, without lying, on most of these questions, 2c

I CALLED SYLVIA, 25 JUN 74 1600 AND SHORTLY THEREAFTER SHE RETURNED THE CALL, 3

THEY (BOLT BARANEK & NEWMAN) PLAN ON GIVING US THE DEMO ON 10 JULY 74, OUR OPTION AS TO THE TIME SINCE THEY WILL GET IN THE NIGHT BEFORE ANYWAY, 3a

DR, GRIGNETTI SAYS THAT THE SYSTEM IS WORKING FINE AND THEY ARE ANXIOUS TO GIVE THE DEMONSTRATION, 3b

I SUGGESTED THAT ABOUT ONE HOUR WOULD BE GOOD FOR A FORMAL DEMONSTRATION BUT THAT THEY SHOULD ALLOW A CONSIDERABLY LONGER TIME FOR PEOPLE TO "TRY" THEIR SYSTEM, THEY WILL USE ONE HOUR AS A STARTING GOAL, 3c

REQUEST THAT YOU REVIEW YOUR SCHEDULE AND YOUR INTERESTS AND PROVIDE ME WITH ANY SECOND THOUGHTS, EITHER ON THE SYSTEM, IN PERSON, OR BY PHONE X3857, 3827 OR 7834, (OR YOU CAN LEAVE ME A NOTE OR TELL SOMEONE ELSE,) 4

Network Working Group
Request for Comments: 645

D. Crocker (UCLA-NMC)

28 JUN 74

NIC: 30899
Obsoletes: RFC # 615 (NIC # 21531)

Network Standard Data Specification Syntax

1

INTRODUCTION 2

This document defines the basic components of a Network Standard Data Specification (NSDS) syntax. A NSDS is intended to provide a mechanism for specifying all the attributes of a collection of bits. 2a

The definition of a complete NSDS syntax is expected to require an extended effort. Therefore the initial scope of this document has been constrained to provide only a basic syntactic environment. 2a1

In order to demonstrate a specific use for the NSDS, this document also provides the complete syntax for specifying the PATHNAME attributes of a collection of bits, to the level of a file. Addition of new subparameters should not be difficult. 2b

In this context, "pathname" refers to that information which specifies the LOCATION of a collection of bits. 2b1

The pathname syntax is essentially the same as that proposed in RFC 615 (NIC # 21531,). Modifications were made in order to allow for graceful addition of other file attributes and to optimize use by humans and by processes. 2b2

I would like to thank Jon Postel, Jerry Popek, Vint Cerf, Jim White, Charlie Kline, Buz Owen, Ken Pogran, Jerry Burchfiel and Tom Boynton for their suggestions. 2c

HUMAN AND MACHINE FACTORS 3

Since computers tend to prefer more highly structured environments than do humans, aspects of the NSDS syntax are permitted to be different for computers than they are for humans. Specifically: 3a

For computers (highly-structured mode), keyword fields are fixed length and the variable-length data subfields are prefaced by a byte count. Additionally in highly structured mode, the possible contents of data subfields may be more constrained than for the semi-structured mode. 3a1

For humans (semi-structured mode), keyword subfields are variable length and data subfields are surrounded by delimeter characters. A keyword must be long enough to distinguish it from other keywords. That is, partial-name specification is permitted. 3a2

STRUCTURE OF THE GENERAL SYNTACTIC ENVIRONMENT 4

Overview: 4a

A NSDS is prefaced by one or two percent signs, followed by a set of fields subject to context-free interpretation, and terminated with a space. Pathname fields precede any other file attribute specifications. 4a1

The BNF: 4b

<NSDS> ::= <flag> <path> <otherstuff> <sp> 4b1

<flag> ::= % / %% 4b2

<path> ::= pathname fields, as described below. 4b3

<otherstuff> ::= fields for specifying data storage and access characteristics, to be defined later. 4b4

<sp> ::= space. 4b5

Comments: 4c

The <flag> indicates escape-to-NSDS-syntax, One percent sign indicates semi-structured syntax, two indicate that highly-structured syntax is being used, 4c1

Only <flag> must be considered in relation to any host's current syntax, It is not currently known to conflict with any host's syntax, 4c1a

Exclamation mark (!) is the only other character that seems permissible (on the assumption that the character should be a graphic), Its use would cause minor problems at Multics; but more importantly as a graphic, it is too similar to the numeral "1", 4c1a1

The basic (highest-level) syntax for individual <path> and <otherstuff> fields is the same, as defined below, The remaining lower-level syntax (including permissible keywords and data subfield contents) for <otherstuff> fields is left for later, 4c2

BASIC UNITS OF SUBSTRUCTURE 5

Overview: 5a

A semi-structured field begins with a varying-length descriptor, The descriptor is followed by a varying-length data subfield, which is surrounded by delimeter characters, 5a1

Highly-structured fields have fixed-length descriptors, followed by a data byte-count, followed by the data, 5a2

BNF for individual fields: 5b

<field> ::= <machine> / <human> 5b1

<machine> ::= <stru-field> / <stru-field> <machine> 5b2

<stru-field> ::= <stru-key> <count> <data> 5b3

<stru-key> ::= 4-character field definition Keyword; see below, 5b4

<count> ::= one-byte binary count of number of bytes of <data>. 5b5

<human> ::= <h-field> / <h-field> <human> 5b6

<h-field> ::= <h-key> <h-rest> 5b7

<h-key> ::= variable-length field definition keyword; see below. 5b8

<h-rest> ::= <l-delim> <data> <r-delim>
/ <l-delim> <data> <r-delim> <h-rest> 5b9

<l-delim> ::= any non-alphabetic printable character that is not in the succeeding <data> subfield and that is acceptable to the object site. For visual aesthetics and to facilitate human parsing, anytime <l-delim> is a left-bracket character (<, [, (, {), <r-delim> must be the complementary right-bracket character (>,],), }). 5b10

<r-delim> ::= either 1) the same character as <l-delim> or 2) if the <l-delim> character is a left-bracket character (<, [, (, {) then its complementary right-bracket (>,],), }). 5b11

<data> ::= any sequence of characters acceptable to the object site. This is the actual data subfield with the file, directory, device (or whatever) attribute value. 5b12

Elaboration: 5c

Case is irrelevant to the syntax, though some sites will care about case in <data> subfields. 5c1

The key (<stru-key> or <h-key>) indicates what part of the NSDS the next <data> subfield refers to. 5c2

<R-delim> and <l-delim> are used to delimit the beginning and end of the <data> subfield. 5c3

<Fields> for pathnames ARE order dependent, but defaulted ones may be omitted. The order is as indicated for <key>s, below. That is, Network, Host, ... Siteparm. 5c4

Keywords are used, even though pathname attributes are ordered, to facilitate the addition of new fields and to be consistent with the syntax for <otherstuff> fields which are expected to be unordered, 5c4a

<Field>s or <h-rest> subfields may be repeated, as permitted by the object site. A series of <h-rest> subfields, without any <h-key> subfields is interpreted as a series of <h-field>s with identical <key>s, 5c5

Also, note that since the syntax does not constrain the contents of <data> subfields, compound names within a single <data> subfield are allowed. The delimeter used to separate names within a <data> subfield must be different from <i-delim>/<r-delim> and the same as that used at the object site, since that is the only site which will be able to interpret the <data> subfield, 5c5a

The validity of any combiniation of <field>s is entirely site-dependent. For example, if a site will accept it, an NSDS with a Host field, and nothing more, may be permissible, 5c6

The validity of <data> subfields' contents is generally site-dependent. Some exceptions are noted below, 5c6a

PATHNAME ATTRIBUTES AND VALUES 6

The basic syntax does not need to be altered, to create the ability to specify pathnames. Only <key> values need to be defined, 6a

Definition of Pathname <key>s: 6b

The keyword for semi-structured mode is given first, followed by the keyword for highly-structured mode, if different. For highly-structured mode, keywords that are less than four characters should be padded with blanks at the right, 6b1

Semi	Highly	Meaning	
NETWORK	NET	Reference to the network (e.g., ARPA) connected to the HOST that contains or will contain the collection of bits.	6b2 6b3
HOST		Reference to host machine that contains or will contain the collection of bits. Also see section on "Numbers".	6b4
PERIPHERAL	PERI	Peripheral device being referred to.	6b5

VOLUME_ID	VOL	The volume (e.g., specific tape reel or disk pack) associated with the named peripheral device.	6b6
DIRECTORY	DIR	Name of directory which contains a pointer to the entity (directory or filename) specified in the following <field>.	6b7
FILE		Basic name of the file (data set).	6b8
TYPE		Optional modifier to filename. (Tenex calls it the Extension.)	6b9
VERSION	VER	Optional third part to basic filename. Usually used to distinguish updated files. The <data> subfield will usually contain a number.	6b10
SITEPARM	SITE	A parameter, such as an access specification or account number, peculiar to the object site. The contents of the <data> subfield must serve to identify what Siteparm is involved. Each site will be responsible for defining the syntax of Siteparm <data> subfields it will accept. Note that the SITEPARM field allows specification of other than pathname data (e.g., access and account number).	6b11

Some reserved PERIPHERAL <data>s: 6c

The alternate forms are merely for typing convenience and are not related to the semi/highly structure modes. 6c1

DISK or DSK:	Immediate, direct-access secondary storage.	6c2
ONLINE or ONL:	Whatever immediately-accessible (measured in fractions of a second) storage the user accesses by default; usually disk.	6c3
TAPE or TAP:	Industry-compatible magnetic tape.	6c4
TAPE7 or TP7:	7-Track industry compatible tape.	6c5
TAPE9 or TP9:	9-Track industry compatible tape.	6c6
DECTAPE or DEC:	DEC Tape.	6c7

OFFLINE or OFF:	Any tertiary storage; usually tape, though "devices" like the Datacomputer are permissible. The user should expect to wait minutes or hours before being able to access OFFLINE files.	6c8
LINE_PRINTER or LPT:	Any available line-printer.	6c9
DOCUMENT_PRINTER or DOC:	Upper/lower case line printer, preferably with 8 1/2" X 11" unlined paper.	6c10
PAPER_TAPE_READER or PTR:	Paper tape reader.	6c11
PAPER_TAPE_PUNCH or PTP:	Paper tape punch.	6c12
CARD_PUNCH or PUN:	Standard 80-column card punch.	6c13
CARD_READER or RDR:	Standard 80-column card reader.	6c14
OPERATOR or OPR:	System Operator's console.	6c15
CONSULTANT or CON:	On-line consultant.	6c16

DEFAULTS FOR PATHNAME <DATA> SUBFIELDS: 6d

Often, the appropriate default will be the last-used value. However, defaults will generally be context dependent. Consequently, the following defaults are offered only as guidelines: 6d1

Network:	ARPA.	6d2
Host:	The host interpreting the NSDS.	6d3
Peripheral:	ONLINE (DISK).	6d4
Volume_id:	Catalogued system space.	6d5
Directory:	The user's current "working" directory, usually set by the logon process.	6d6
Filename:	None.	6d7
Type:	None.	6d8
Siteparm:	None.	6d9

NUMBERS 7

The following scheme is recommended for specifying numbers in <h-field> data subfields: 7a

A sequence of numeric characters, optionally followed by a character indicating the radix. The default radix is ten. "H" indicates hexadecimal; "O" (oh) indicates octal; "B" indicates binary; and (gratuitously) "D" indicates decimal. 7a1

In <stru-field> data subfields, the number should be pure binary. Therefore, reference to a host on the Arpanet would require one 8-bit byte. 7b

GENERAL COMMENTS 8

The syntax is intended to be adequate for all hosts, so any given portion of it may be inappropriate for any given host. 8a

A site is expected to permit specifications in a given field iff that site already has a way of accepting the same information. 8a1

Having two modes of specification (highly- and semi-structured) may prove to be unnecessary. They are defined here merely as a convenience for experimentation. 8a2

I believe that modifications to the syntax will be graceful additions, rather than wholesale redesign, and thus can be deferred for a while. Currently, any undefined attributes must be specified in a Siteparm field. 8b

The first version of the syntax was a mix of Tenex and Multics conventions. That is: 8c

(Network)[Host]Peripheral:Directory>Filename.Type;Siteparm 8c1

Though visually more attractive and generally quicker to type, it lacks extensibility. For example, adding version number as a standard field would be difficult. 8d

It is asserted (conceded) that, as long as extensibility is kept as a design goal, no standardized (semi-structured) syntax will be as pleasant to use as currently exists on some systems. 8e

SOME SAMPLE PATHNAMES 9

Pathnames in NSDS that occupy more than one line, below, do so only because they are too long for a single line, Bracketed numbers (e.g., <8>) indicate a single byte with the number as its decimal value, Blanks (spaces) are indicated by <sp>, 9a

My message file at ISI (<DCROCKER>MESSAGE.TXT;P770404): 9b

Semi-structured 9b1

%H[ISI]D<DCROCKER>F(MESSAGE>T(TXT)S/P770404/<sp> 9b1a

Highly-structured 9b2

%%HOST<1><86>DIR<sp><8>DCROCKERFILE<7>MESSAGETYPE<3>TXTSITE<7>P770404<sp> 9b2a

ARP061,LAD,DOCUMENT at UCLA-CCN, (Note the use of multiple Directory fields): 9c

Semi-structured 9c1

%H[65]DIR[ARP061][LAD]F[DOCUMENT]<sp> 9c1a

Highly-structured 9c2

%%HOST<1><65>DIR<sp><6>ARP061DIR<sp><3>LADFILE<8>DOCUMENT<sp> 9c2a

>udd>CompNet>Map>Mail at MIT-Multics, (Note that the initial NSDS Directory <data> subfield is empty, in keeping with Multics' method of starting at the top of its directory structure): 9d

Semi-structured 9d1

%H(540)DI[]DI[udd][CompNet]D(Map)FIL(Mail)<sp> 9d1a

Highly-structured 9d2

%%HOST<1><44>DIR<sp><0>DIR<sp><3>uddDIR<sp><7>CompNetDIR<sp><3>MapFILE<4>Mail<sp> 9d2a

NWG/RFC# 645 DHC 26-JUN-74 13:43 30899
Network Standard Data Specification Syntax

(J30899) 26-JUN-74 13:43; Title: Author(s): David H. Crocker/DHC; Distribution: /NLG NSA JBP WEC SDC2; Sub-Collections: NWG NIC NLG NSA; RFC# 645; Obsoletes Document(s): 21531; Clerk: DHC;

MIKE 26-JUN-74 13:21 30900

some rough notes on our developing Wish List for CMI-'75,

this was developed in a hurry after a RUSH RUSHhone call from mark.....shouldn't be binding on anyone

MIKE 26-JUN-74 13:21 30900

some rough notes on our developing Wish List for CMI-'75.

Presumably we will enter the new year with an operating mini-based conferencing system. We expect that the initial conference package on the mini will be almost identical to the current Phase II package. It is with this in mind that we would like to see the following modifications made (assuming, of course, that these suggestions are compatible with the development requirements identified by you and Hillary as this current 1974 case(s) develop). 1

provision for full-duplex operation 1a

This would permit you to enter messages without having to wait for the computer to prompt you for the next line; also, you would be able to provide prompts to the commands as they were entered from the keyboard (ie, if you type "E" as a command, the system would echo "Edit"; this would help novice users considerably). 1a1

provision for a private work space for individual conferees 1b

Murray approached this idea (which is the key to the Englebart approach to "intellect augmentation" when he suggested the capability of starting a message, leaving the conference, and then coming back at a later date to 1.) complete the message, and 2.) enter it into the conference proceedings. 1b1

With this capability, you would be able to prepare several messages at one time, and distribute them to selected conferences at later dates; also, you would be able to enter a series of messages (memos, letters, minutes of meetings, agendas, etc.) in this same workspace for your won use. 1b2

provision for entry of messages or other text from some sort of off-line medium 1c

We believe that this is essential if a number of different users with access to different man-machine interfaces are to communicate productively. The particular mode of off-line entry is not so important; as a matter of fact, you would probably want the software routine to accept input from either paper tape, cards, or mag tape (reel or cassette). This would permit us to distribute messages to you easily and routinely, without having to prepare separate copies just for you. Also, other people working with text editing systems could submit parts of their work for review by other members of their conference. 1c1

Additonally, we hope that you will continue your consulting relationship with Murray, thus maintaining what we believe to be the

MIKE 26-JUN-74 13:21 30900

some rough notes on our developing Wish List for CMI-'75.

(J30900) 26-JUN-74 13:21; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD IMM PAN MIKE; Sub-Collections: NIC; Clerk: MIKE;