

## PART 3

### USER'S MANUALS

#### 3.1 Keypunch

3.1.1 Introduction The technique used to code the EVQS data consists of breaking the data into manageable units and then keypunching the units with identifying numbers. (The copying of the data from the returned questionnaires to code sheets was accomplished previous to this project, and so it was decided to use the code sheets as the basis for keypunching.) Each code sheet contains the responses for five to ten questions for seven questionnaires. (See sample code sheet following.) Hence, one questionnaire is transcribed to one line on each of five to eight pages, depending on the form type. One normal line, on a code sheet, is 30 to 120 characters and generally covers one or two 80-column punch cards. Each master code book has the code sheets for questionnaires of a specific form type, lake and year. The top of each code sheet contains the form and lake information for that book and the page type for that sheet, indicating what questions are on the page. Since this information is the same for all data lines on each page, a header card is punched to eliminate excessive duplication.

Two options of punch order are allowed for the keypuncher to choose: Cards may be punched in two orders--same as the code books or all of each page together (the page types in the code books alternate). It was found the latter way is more efficient

and less tiring for the keypuncher. . Either way has been allowed for.

NOTE: In all the following examples;

Ø -- is the number zero -- (as opposed to the letter oh (O))

␣ -- is a required single blank/space.

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The primary division of the responses is then:

- a master data books, by lake, form and year,
- b code sheets by form and page type,
- c code sheet lines by respondent number,
- punch cards by d header cards and
- e line cards.

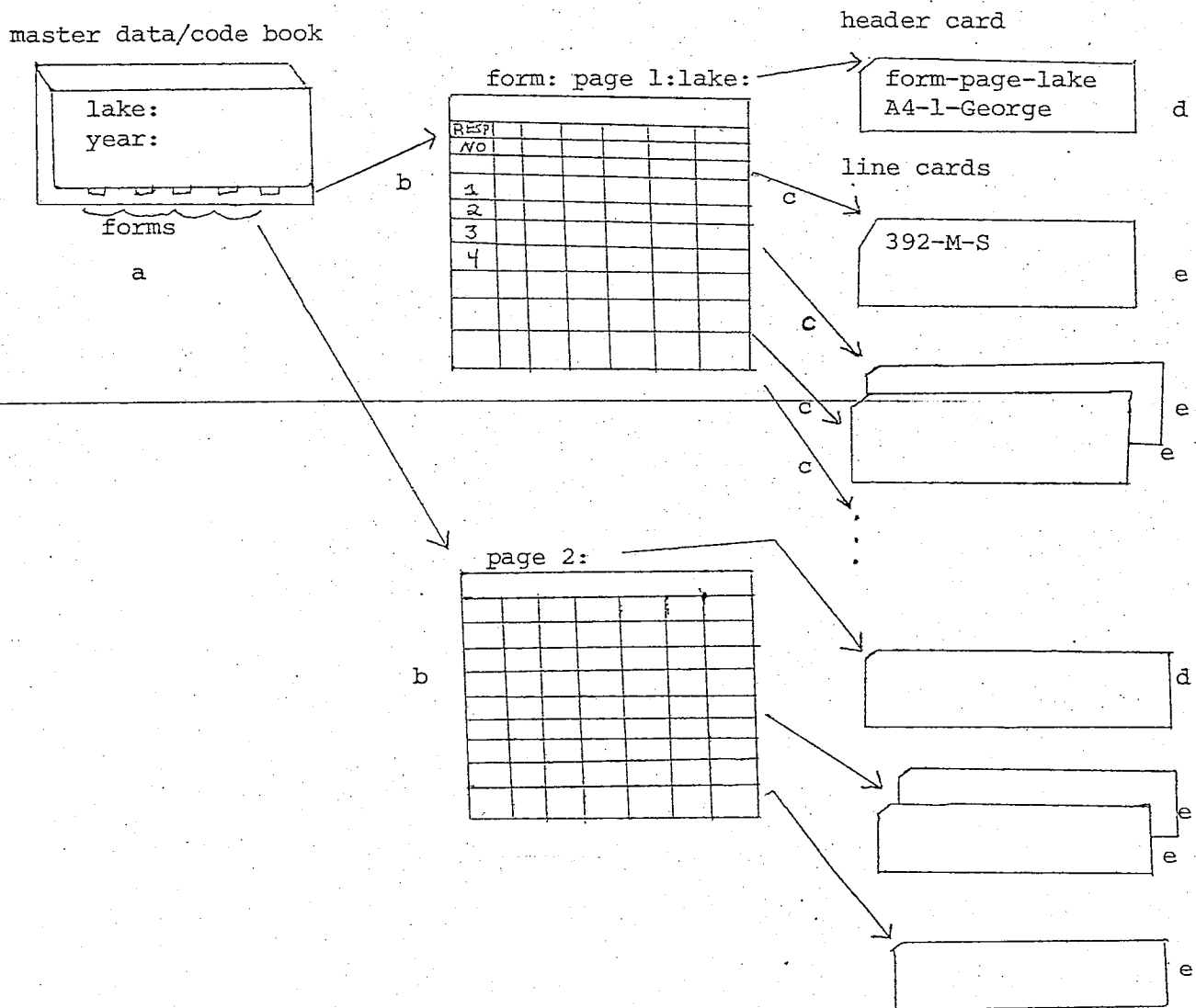


Figure 3.1 Response Divisions

The basic physical unit of data is the punch card. The three possible types, as shown, are:

- 1) Header card--contains form type, lake and page type of the code sheet,
- 2) First card of a line--starts with the respondent number of the questionnaire the line corresponds to,
- 3) Continuation cards--any data line that overflows one card is continued on as many cards as required.

In later processing, each card is coded with respondent number, lake, form, page and card numbers. To accomplish this, it is necessary to distinguish between the three card types. The normal way of doing this is to specify a particular column to indicate card type; but, because the data are so complex and keypunching is correspondingly complex it was decided to have the keypuncher signify the end of a card by a special symbol placed at the end of the data. At this level, two delimiters are required:

EOH -- End of header card--this starts a new code sheet, for which the line cards follow,

EOL -- End of line--this indicates that the next card is either a header card or a new line card.

The use of such punctuation becomes increasingly important as lower levels of data division are reached. (NOTE: This approach was decided on as the format was build from bottom-up; a top-down description makes it seem somewhat arbitrary.)

The next division is within the data card and provides separation of question responses. The complexity of most

questions requires a free form encoding of the data line on the data card. The "check those applicable" type of multiple choice question is one of the most difficult to handle for fixed format, yet it becomes simple for a punctuated, limited format. These questions typically have 22 to 30 possible responses, and the average respondent checks approximately six. The limited format approach is to set off each response checked by punctuation, and the whole question by high punctuation, eg.:

Choices picked: 5,7,8,10,15,19,21,22,23,24

Encoded: -5#7#8#10#15#19#21#TO#24-

(This example also illustrates use of the indicator "TO" to span a range of contiguous choices.)

Two punctuation symbols are shown in this example:

EOP- '#'--End of part--used to separate subsections of a question response,

EQQ-'-'--End of question--used to set a question off from other surrounding questions.

For more complex situations, other punctuation is added.

The EQQ's act both as a means of separating questions and of identifying them; a 'no response' (NR) is signified by two EQQ's with no intervening characters. A question is located by counting EQQ's; this count is termed index number. If NR's occur at the end of a card then no additional EQQ's are required; i.e., just put EOL after the last answer.

To avoid uncorrectable accidents and to add additional security that the cards will remain in correct order before final



The drum card is:

<u>Punch</u>	<u>Symbol</u>	<u>Columns</u>
11-5	N	1
12-1-4	A-4*	2-11
1	1	12
12-1-4	A-4*	13-80

\*Multi-punch or use two passes.

Table 3.1 Drum Card Setup

To use this card, both the 'auto dup' and 'prog two' switches must be on. The 'prog one' key, used instead of 'rlse', puts the keyboard in alphabetic shift for the data field (columns 12-80) and the 'prog two' key puts it in numeric shift for the data field. The sequence field is always skipped.

### 3.1.2 Punctuation Symbol Summary

The punctuation symbols were generally chosen for their ease of use by the keypuncher. These were set for an IBM 'Ø29' Keypunch Keyboard and are:

EOQ-END OF QUESTION-dash'-'---this skip character is the same key in both alphabetic and numeric shift (ll punch),

EOP-END OF PART-two symbols-'at' sign '@' and number sign '#' are the same key: one is alpha shift, and one numeric shift. The choice of alpha or numeric shift is up to the keypuncher, depending on the shift of surrounding characters,

EOL-END OF LINE-the only unprintable symbol on the keyboard. There is only one like it and it is the 'Ø.8.2.' (shift T), and so deletes no required characters from comments.

EOH-END OF HEADER-two 'at' signs in a row, '@@' alpha shift-which the rest of header card is.

Note that the '@/#' key is the upper left-most key on the keyboard. The '-' is upper center next to numbers, and 'Ø.8.2' is center of keyboard.

<u>Name</u>	<u>Abbreviation</u>	<u>Symbol</u>
End of Question	EOQ	-
End of Part	EOP	# or@
End of Header	EOH	@@
End of Line	EOL	Ø.8.2.*

Table 3.2 Table of Indicators

\*Since Ø.8.2 or shift T has no print character, the symbol Ø is used in the examples where required.



3.1.3 General Format The limited format consists of the following:

- 1) All cards have sequence numbers in columns 1 to 11.
- 2) A header card:
  - a) One for each code sheet, or set of code sheets with identical lake, page and form types.
  - b) Ends in EOH, i.e., '@@'
  - c) Contains form type, page type and lake in that order. Other information may follow.

EXAMPLE: Normally used part of sequence number

00001000000-A7-3-SARATOGA-YASH@@

Sequence		EOH	
Number	::	Lake	Puncher's name as added information
		Page Number	
Form Type			

- 3) Line card sets:
  - a) One set for each line on each code sheet.
  - b) First card of set starts with respondent number of that line. (not preceded by an EOQ)
  - c) Last card of set contains EOL ('Ø.8.2') after the last data character.
  - d) Lines taking a single card have both respondent number and EOH (b & c) on that card.
  - e) Each question, separated on code sheet by vertical lines, is separated on the card by EOQ, '-'. (Hence questionnaire question numbers and card index numbers ususally do not correspond.)

f) Each subpart of a question is separated by EOP (# or @), unless a special form is set-up.

g) If the data continues over more than one card, the subsequent cards continue in column 12, as if no break occurred.

h) For numeric multi-part questions, if four or more consecutive responses were entered then the alternative 'TO' form may be used:

-4#5#6#7- (7 characters)

or

-4~~TO~~7- (6 characters)

i) Missing responses on the end of a card do not require separate EQQ's.

3.1.4 Abbreviations The following standard abbreviations were used. These nearly match the New York State standard abbreviation list.

State

CALIF -- California	N -- North
CONN -- Connecticut	S -- South
NC -- North Carolina	W -- West
SC -- South Carolina	E -- East
FLA -- Florida	RD -- Road
ILL -- Illinois	RTE -- Route
MD -- Maryland	LK -- Lake
MASS -- Massachusetts	PK -- Park
MICH -- Michigan	PT -- Point
<del>NJ -- New Jersey</del>	DR -- Drive
PA -- Pennsylvania	ST -- Street
RI -- Rhode Island	VIL -- Village
VT -- Vermont	RN -- Registered Nurse
VA -- Virginia	SL -- Saratoga Lake
NY -- New York	SL -- Schroon Lake
	OL -- Oneida Lake
	LG -- Lake George

Counties--in New York State--first four letters are used; (except for St. Lawrence: STLA used instead of ST/L). County names in other states are not abbreviated.

MGR -- Manager

MFG -- Manufacturing

CO -- Company

SEC -- Secretary

ASST -- Assistant

SPGS -- Springs

Sup -- Supervisor

ENG -- Engineer

TECH -- Technical

TER -- Terrace

CK -- Check mark ( )

MTN -- Mountain

CT -- Court

LDG -- Landing

PKWY -- Parkway

FT -- Fort

WM -- William

    --Underscore--replaces dash in comments & other responses

Suffixes These are added after numbers to distinguish

between possible answers to questions. No blanks are between the number and the suffix.

YR -- Year (s)

IB -- Inboard (engine)

IO -- Inboard/Outboard

M -- Miles

HP -- Horsepower

OB -- Outboard (engine)

FT -- Feet

Table 3.3 Abbreviations

Respond No.	Date Distributed (Mo/Day/Yr)	Site Distributed	Grid Designation	Method of Distribution Employed	Date Filled In By Respondent (Mo/Day/Yr)	Date Received In Office (Mo/Day/Yr)	Site Location Filled In By Respondent
5288					8/21/70	8/26/70	Shady Valley
5302					8/26/70	9/1/70	Sylvan Beach N.Y.
5303					8/24/70	9/1/70	Sylvan Beach N.Y.
5305					8/24/70	9/1/70	Sylvan Beach
5308					8/25/70	10/6/70	Oneida Lake Sylvan Beach N.Y.
5335					8/22/70	8/24/70	Sylvan Beach
5336					8/21/70	8/24/70	Sylvan Beach

Respond No.	Respondent's Grid Designation	Age	Sex	M.S.	# People	Family?	Prim. Dest.?	How long here?	Where do you stay?	Primary Activities?	How long coming here?
					1	2	4	5	6	7	8
5288		49	M	M	3	2	2	4	2	1,3,4,12, 13,18	1
5302		21	NR	M	2	2	1	4	4	1,3,4,5,8, 12,14,18	1
5303		31	F	M	8	2	1	3	NR	1,3,4,5,6, 7,8,14	5 yr
5305		28	M	M	2	4	1	4	4	4,6,10,12, 18	1
5308		42	M	M	1	1	1	1	4	99	2
5335		42	M	M	2	2	1	2	3,4	1,3,4,5,8, 9,12,14	30 yr
5336		59	M	M	2	2	1	3	4	1,3,4,8,9,14	15 yr

Please Indicate The Following Information for Each Participant In Your Group

Respond No.	#	Sex	Age	Major Recr. Activity	#	Sex	Age	Major Recr. Activity	#	Sex	Age	Major Recr. Activity
5288	1	M	49	18	5				9			
	2	F	47	Shopping	6				10			
	3	M	18	4	7				11			
	4				8				12			
5302	1	M	24	Vacation	5				9			
	2	F	21	Vacation	6				10			
	3				7				11			
	4				8				12			
5303	1	F	32	4	5	F	8	4	9			
	2	M	31	5	6	F	6	4	10			
	3	F	11	4	7	M	5	Sandy Beach, New Beach	11			
	4	F	10	4	8	M	4	5	12			
5305	1	F	23	5	5				9			
	2				6				10			
	3				7				11			
	4				8				12			
5308	1			N.R.	5				9			
	2				6				10			
	3				7				11			
	4				8				12			
5335	1	M	42	8	5				9			
	2	F	37	3	6				10			
	3				7				11			
	4				8				12			
5336	1	M	54	8.4	5				9			
	2	F	56	8.4	6				10			
	3				7				11			
	4				8				12			

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3.1.5 Special Cases For a number of questions, even the flexibility of the multi-part format is not enough. Either the form is too complex or valuable information is lost. Extremely complex responses and English language comments are simply handled by reference to 'comments' cards by putting a '99' in place of the response. Responses somewhat less complex, but more complex than normal multi-part responses can use a modified multi-part form. For these, half a dozen special forms have been developed.

Special Purpose Formats (SPF)

1) This is used for the major recreational activity question on the A, B & F forms (recreationist, cottage, home survey and fisherman forms respectively). It is question three on the A & F forms and question five on the B form. The third example on the previous page is of this type. The format considers each participant's response as a new question with sex, age, and activity as parts.

EXAMPLE:	#	Sex	Age	Activity
	1	M	21	4, Beach
	2	F	21	6
	3	M	4	7,5

-M#21#4#BEACH-F@21#6-M@4#7#5-

Hence, part 1 is sex -- age; 3, and higher, activities.



2) This format is used for the answer to the question, "Where do you come from?", or permanent residence. Three responses were requested: town, state, county. The form is to separate each response by blanks. When the person is from New York, the county is abbreviated. (See Abbreviation List.)

EXAMPLE:	<u>Town</u>	<u>State</u>	<u>County</u>
	Troy	New York	Rensselaer
	Roseau	Minnesota	Wannaska

~~-TROY N.Y. RENE-~~

~~-ROSEAU MINN WANNASKA-~~

If more than one location was given, their descriptions were separated by EOP's.

3) This form was used for questions asking about boats. Three parts are requested: length, horsepower, and type of engine.

Normally all are present and then they are separated by blanks.

If any values are missing the remaining ones are suffixed to indicate their meaning: FT-feet, for length; HP, for horsepower. Responses for more than one boat are separated by EOP's; type is denoted by-- IB-inboard; OB-outboard; IO-Inboard/Outboard.

EXAMPLE:	<u>Length</u>	<u>Power</u>	<u>Type</u>
	10	25	Outboard
	30	70	Inboard
	10		Outboard
		40	Inboard

~~-10 FT 25 HP OB-~~

~~-30 FT 70 HP IB-~~

~~-10 FT 40 HP OB-~~

~~-40 HP 10 FT IB-~~

4) This question form is for fisherman and it specifies information on fish caught. The various information; namely, fish species, length, and weight is considered as separate questions, which are separated by EQQ's. Each question is then multipart for each species caught. Missing parts are signified by putting the proper number of EQQ's with no intervening data. Feet or ounces are converted to inches or pounds as necessary.

## EXAMPLE:

<u>Species</u>	<u>Number</u>	<u>Average Size (in.)</u>	<u>Average Weight (lb.)</u>
Trout	5	5 IN	10 oz. (.625 lb.)
Bass	2		2 lb.
Tuna	1	3 FT (36 in)	40 lb.

~~-TROUT#BASS#TUNA-5#2#1-5##36-.625#2#40-~~

NOTE: Names are used here instead of the codes of the actual keypunching process.

5) This question is a optional format. The question concerns boats, types and number owned by fisherman and hotels. Respondents could check the type they owned, in which case the proper numbers are separated by EOP's; or they could indicate the number of each owned. The number owned is then enclosed in parenthesis following the type number. EXAMPLE:

	Type	Number Owned
-5#7(1)-	5	-
-6(3)#1(4)-	7	1
	6	3
	1	4

6) This is a format for a question which refers back to a list of boats, supplying information on each. The numbers in parenthesis are the number of the boat being referred to on the list. If more than one boat is referred to, then all numbers are put in the parenthesis; i.e. 1(1,2).

Multi-part Respondent Numbers Those forms (A and B), which have the boating addendum attached, must have the addendum type and the respondent number recorded. These were entered in the respondent number column for the main form, and they are punched as three separate parts as follows:

Main form respondent number,

Addendum form type,

Addendum respondent number.

EXAMPLE:

Form A5-12923 has addendum G2-175.

Punched: 12923#G2#175- (No leading EQQ on respondent number and A5 is on header card.)

NOTE: During final processing, the respondent number is removed from all cards, while addendum numbers are left, so that all page types are compressed and those without addendum numbers, have an EQQ with nothing preceding it.

Comments Special Format Providing for English language comments or fairly complex modified responses to data strings essentially requires allowing for text entries. If comments or modifiers are made to a question, a final part containing '99'

is added to the question. The format developed allows identifying each comment by the question number it refers to. This is a two part form, where part one is the question number, and part two is the text of the comment, running over as many cards as required. The final comment is to be identified by a 99, just as the individual question is.

EXAMPLE: Comments for respondent number 921;

<u>Question Number</u>	<u>Comment</u>
4	This question is too long.
5	Very much
7	Never again
Final	Interested in the results

Card 1:

~~000100000000921-4@THISQUESTIONISTOOOLONG-5@VERYMUCH~~

seq. no.      -7#NEVERAGAIN-99#INTEREST

Card 2:

~~000100100000EDIN#THE#RESULTS#~~ (Last character # symbolizes EOL)

seq. no.

Questions Referred to by Special Formats

(Form-Question Number)

SPF1: A3-3,A4-3,A5-3,A7-3 (All A forms.)  
B5-5;F3-3

SPF2: A3-15,A4-15,A5-15,A7-16  
B2-2,B3-2,B4-2,B5-2  
C4-2,C5-2,D4-1,D5-1  
E4-1,E5-1,F3-26

SPF3: B3-11 (modified-no type),B4-11,B5-13a  
F2-5,F3-25a

SPF4: F2-16,F3-15

SPF5: B5-13b,F3-25b

SPF6: G2-1b to i

Suffixes used: A3-11,A5-11,B3-12,B4-12,B5-14,  
D4-3,C4-9

Multi-part respondent numbers:

For all the forms given the multi-part respondent number  
is always Page 1, the first question.

A3, A5, A7, B4, B5, G1, G2

Table 3.4

### 3.2 Data Verification

3.2.1 Introduction Verification of the EVQS data is accomplished in three steps; namely, 1) obvious corrections, 2) updating and full listing, and 3) final processing.

Obvious correction are caught by checking the listings produced by a special program. These listings have many similiar cards together and errors are found by the verifier who checks for inconsistancies in the formats, which are usually errors. Experience has shown that 90% of the errors produced by a practiced keypuncher will be caught using this approach.

Errors are then corrected using an up-dating program and a full listing is produced, if desired. The full listing is similiar in form to the code sheets and so may be directly compared with the originals. The problem with this program is that the computer time required to do the formating and the personnel time to do the comparisons is extremely high. This is especially true employing the obvious correction listings first. Unfortunately, it is the only way to catch transcription errors; and should be used from time-to-time, especially when a new puncher is being trained.

A final step is employed to convert the header card/line cards into access numbers on each, thus uniquely identifying each card. While this step is not actually a verification procedure, it is required before the data may be merged onto the master data file.

Verification was designed to be accomplished in batches of 1500 - 2500 cards. Each batch must begin with a header card.

Each batch may be in a different step of verification, where these are stored in a "library" on the computer to separate them. Back-up copies of earlier stages are also saved to allow surviving major errors. As each batch is completed, it is merged into the master data file according to the card's new access numbers.

### 3.2.2 Obvious Corrections The OBCORR listings are

basically listings of the cards exactly as punched except:

- 1) All EOP's (end of parts) are translated to #'s. No @'s will appear except as EOH's (end of header's).
- 2) All cards having EOH's are marked by '\*EOH\*' in the margin.
- 3) All cards without EOL's (end of line) are marked by 'NO EOL' in the margin.
- 4) EOL's (Ø.8.2.), that are present, are printed as a dash.

One simple thing to check is that all cards with EOH are header cards and all header cards have EOH's. Sometimes two @-EOP's in a row look like EOH's to the program--this should be corrected by changing the @'s to #'s. Also, sometimes the numbers on header cards turn out as letters due to the keypuncher's having missed the shift.

Another thing to check for is that all cards without EOL's are, in fact, multi-card lines.

Other possible errors are illustrated in subsequent examples, but they are best generalized by saying "Look for things that don't look right." The first few listings should be checked a few times and the slower they are checked, the better.

Marking Errors When errors are found, mark the error on the listing and also keep a list of the sequence numbers of the bad cards. This is useful because if the corrections are marked, no errors will be lost. Check errors against the original code sheets to find corrections. Areas around errors should also be compared.



Punching Corrections/Missing Cards The corrections are punched, with sequence number, as they should have been originally. The sequence number is started in column 3, and is exactly as on the listing, with zeroes included. If an extra card is required, or a missing card is found, add another digit to the sequence number of the card, after which the new card goes; the added digit will be in column 8. If a card should be removed, punch a card with the same sequence number and otherwise blank. It will be ignored as long as the card before it has a EOL, but if it does not, shift the cards until the one in front of the blank one has an EOL. Corrections must be in numerical order by sequence number. The cards to enter them in the computer are in the Programmer's Guide.

### 3.2.3 Obvious Error Clues

- A) Two EOL in a row are always suspicious.
- B) A series of characters that are below the numbers or above letters indicates that a wrong shift was used.

3.2.4 Full Listing When it is required, the full listing is basically self-explanatory. It looks the same as the code sheet except that the far right of each line has the card's sequence number and the raw form of the cards is in the lower right of each page. Each entry is folded over within the margins set for that column.

The only confusing listing occurs if a line has more questions than the listing program expects; then an error line is printed followed by the unprocessed part of the last card. This

also can occur if an EOL is missing. If an error occurs which the program can not understand; then an error listing is produced. This should be looked at by an experience PL/I programmer, who has these manuals and the program listings.

Corrections are made by finding where on the card images, in the lower right of the page, the actual error is that made the listing incorrect. Corrections are made as before.

3.2.5 Final Processing & Later Errors The commands for this step are in the Programmer's Guide and the verifier need not be concerned with it. If errors are found after final processing, two approaches are possible, where either should be aided by an experienced programmer.

1) Return to the last back-up tape on the system and ~~add all corrections since then,~~

2) List the master data file, and find where the corrections are required and re-sort and merge the file.

The first step is simplest, but it might take more time if the most recent back-up tape is old. The second step requires extensive knowledge of how the final processing works and expertise in programming.

### 3.3 EVQS On-Line Analysis System

3.3.1 Introduction The terminal system runs as a program under the ALPHA time sharing system. For details on the Alpha system and account information, see R.P.I.'s Computer Services Office. The EVQS system contains the necessary features to access the EVQS master data file, and to allow analysis of the information contained within it. The system is designed for use by someone familiar with the Environmental Quality Survey, and the EVQS project, and who has available the associated documentation. While the system has an internal documentation feature, it is advisable to always keep this complete thesis available for reference. It is also assumed the previous material in this thesis has been reviewed and, as such previous vocabulary is assumed to be understood by the user.

3.3.2 Initializing the System This ALPHA command activates the system: SUBMIT EVQJCL,ACCT=(acct no.,,time limit), MODE=CONV. Three minutes is a good limit.

The system requests input by the prompt: XX TERMINAL?  
(Where XX is the job number assigned by ALPHA.)

While all EVQS system commands are in capital letters in this manual, the terminal requires lower case for all entries. Symbols are employed in whatever shift it is on. Small letters are used to denote where data is to be entered.

### 3.3.3 System Operation

3.3.3.1 Locating a Response The basic information unit of the system is the question response, and they are all stored

in the EVQS master data file. Each response, to a question in the file can be described by five parameters:

- |                        |   |                              |
|------------------------|---|------------------------------|
| 1 -- Form Type         | } | Questionnaire identification |
| 2 -- Lake              |   |                              |
| 3 -- Respondent number |   |                              |
| 4 -- Page Type         | } | Question Response            |
| 5 -- Index Number      |   |                              |

The first three identifiers locate the questionnaire the response is on. The fourth, the code sheet page, identifies the section of the questionnaire to be retrieved. The fifth identifier is the index of the response referenced from the beginning of the code sheet page.

Three ways of locating a question have been developed:

~~ITEM Number,~~

QUESTION Number, and

INDEX Number.

Item Number--Refers to all similar question on all versions of all questionnaires.

Question Number--Locates a question once the form type is known.

Index Number--Locates a question once the form type and the page type are known.

The index number (and form and page types) is required to use the terminal system. The questionnaire package contains this information. First, using the annotated questionnaires, find the question of interest and its question number. Then, using the code sheet summary tables and the question number, locate

the index number.

The lakes and respondent numbers have various meanings, such as to the absence of pollution, the recreational qualities of the area, or what site categories the questionnaires were distributed. For details, Reference: The Introduction to the Environmental Quality Survey, Introduction to the Questionnaire Manual, Mr. Kooyoomjian's thesis and all associated reports. This information is contained within the questionnaires, but, using the quoted documentation will greatly facilitate ease of access.

The SCAN command is used to generate a subset of the master data file, using a high speed scanning program. The access number is scanned and so presorting may be done on: FORM, LAKE, ~~RESPONDENT NUMBER, PAGE and CARD.~~ For all, except respondent number, either one value may be specified or it is not checked. Combinations of ranges and single values of respondent numbers are allowed.

3.3.3.2 Processing a Response Once the required question parameters are known and the presort is done, the actual question processing may be started. Since there are so many possible question types, it is necessary to translate them into a standard form for tallying, and testing. The form used is a bit string, where for each possibility present, the corresponding bit is turned on.

EXAMPLE:

If the possible choices are M,S,W,D. (Married, Single, Widowed, Divorced.)  
If M is the only one present, the bit string is 1000.

If S and D are present, it is  $\emptyset 1 \emptyset 1$ .

All that is necessary to handle different form questions is to have additional translators.

The present level of the system allows for five question types. These will allow for nearly all the responses present in the data base.

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Question types are: (the three letter code is the translator mnemonic.)

AMC -- Alphanumeric Multiple Choice--This handles multiple choice questions where letter suffixes are present, e.g., 9a,8b, etc.

NMC -- Numeric Multiple Choice--This handles regular multiple choice questions, where only numbers are allowed.

CHAR -- Character Strings--This exactly matches requested strings (this would be used for the previous example).

MATCH -- Character strings--This looks for the presence of requested strings in the response pattern.

RANGES -- Numeric Ranges--This records any time a number falls within one of its given ranges.

To completely cover all cases, each translator is prepared to handle three special cases:

WIIRD -- This is for anything which is not matched,

99 -- This indicates that there is a comment in the comments section for that response,

NR -- This indicates no response.

While these responses are always tallied, special cases can be either saved in a file, or ignored. All the translators automatically check all parts of a multi-part question.

Having defined a translation, a number of possibilities exist, such as conditional testing and fixed formatting.

By building a 'pattern' bit string using the IF command, one can test any translation and then turn on or off the various actions based on whether the test is met or not. Tallies can be

made conditional on the presence of specific descriptor in another question; e.g., tally only the fisherman. Because of the way the bit string is used, this is extremely fast.

Simply outputting the bit string, provides a valuable input to statistical programs. The 'binary list' option provides the link to advanced statistical analysis and compacted storage modes required in an extremely complex data base such as this. Since the translation is under user control, unlimited relational possibilities may be tested.

3.3.4 Command Syntax All commands have the same basic syntax: 'keyword: parameters.'

Where 'parameters' is one of four forms, separated by commas: Form 1 'keyword'

2 'keyword = data'

3 'keyword = (data,data,...)'

4 'keyword = (data-data,...)'

Forms 3 & 4 may be mixed sometimes e.g., 'keyword = (data-data,data)'

The system is set so the first letter of any keyword is all that is necessary.

Where 'data' appears above, one of three things may occur, depending on the specific parameter:

1) Numeric values (these are indicated by X's). these are always fixed length\*; if the number to be used is too short, left fill it,

\*If the ALPHA system responds with XX CC=SØC7 this means a data value was not filled to the proper length. The system must then be restarted with a SUBMIT command.



to the proper length with zeroes, e.g., 32 is put in 'XXX' as 032, 2 as 002.

2) character strings--These are indicated by 'string'. These strings may contain any character except ".()-;" The five characters listed confuse the command routine if used in strings.

3) Keywords--These are indicated by a list of possible choices enclosed in brackets { }. These are similar to the command keywords, where only the first letter is necessary.

3.3.5 System Organization Figure 3.4 shows the commands and their actions.

The ASSIGN command "assigns" requested files to operational data units used by the other commands. (Fig. 3.4d)

The SCAN command generates a subset of the SCAN file and places it on the output work file. This uses a fast file scanning routine based on the access number. (Fig. 3.4a)

The TRANSLATE/TALLY/IF commands allow evaluation of any particular question. The questionnaire package is used to write these commands. (Fig. 3.4b)

QUERY is used to recall special documentation listing, where summaries of the questionnaire manual are part of the information available. (Fig. 3.4e)

3.3.6 Using the Commands (Reference should be made to the appropriate command descriptions, in section 3.3.8, while reading this section.

3.3.6.1 ASSIGN The system has a number of usable data units--places where data comes from and goes to. Each represents a physical

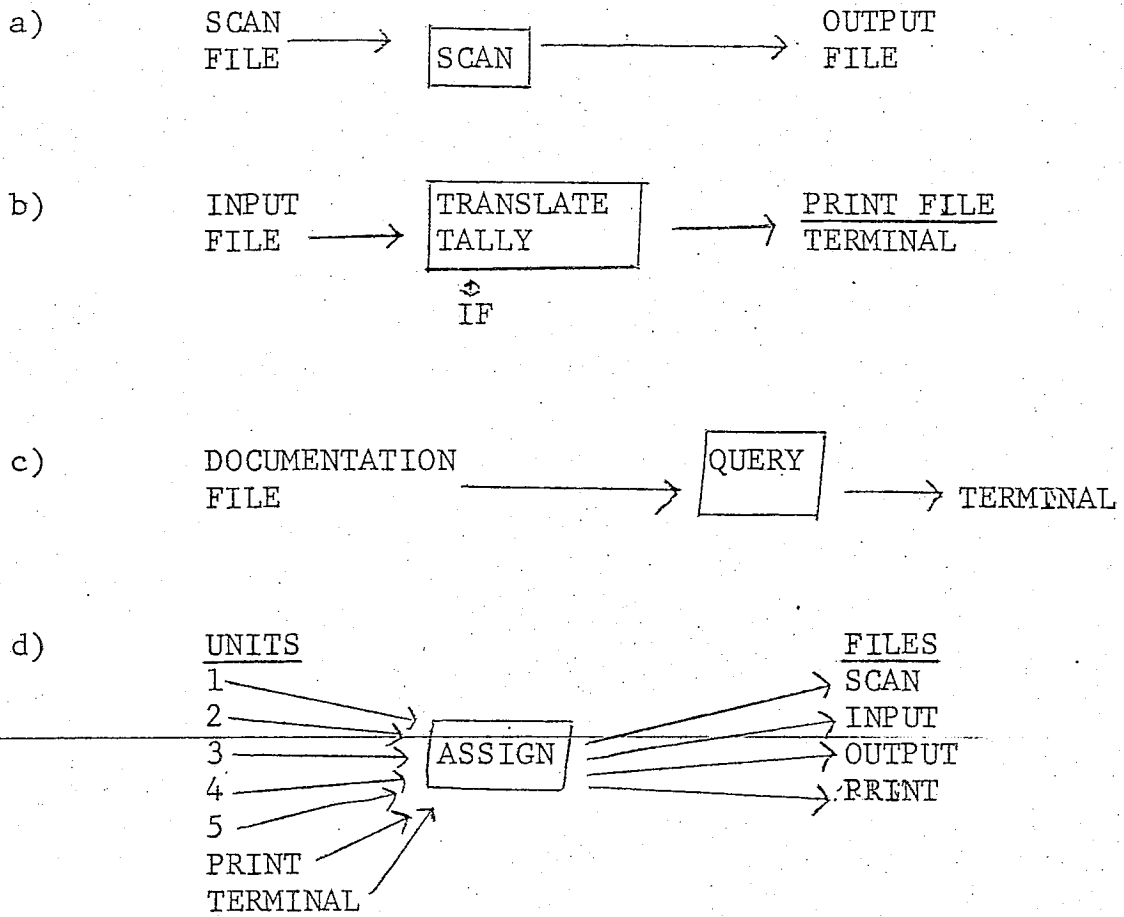


Figure 3.4 Terminal System Organization

data file or device. The terminal (T), line printer (P), and EVQS master data file are the most obvious. There are also four other work files. These are places for the SCAN subset, translation special output, binary list, etcetera, to go. At any one time the system may use only four files:

<u>FILE</u>	<u>UNITS ALLOWED</u>
SCAN --SCAN INPUT FILE	1,2
INPUT --INPUT WORK FILE	2 - 5
OUTPUT --OUTPUT WORK FILE	2 - 5,T,P
PRINT --LARGE PRINT FILE	2 - 5,T,P

The ASSIGN command is used to 'assign', the units to the files. Since not all units are of the same type, only some combinations are valid. Of special note are units 2, and 5; 2 may act both as an input/output file and a SCAN file; 5 is a permanent file and so is saved after each session. The EVQS master data file is unit 1.

The default ASSIGN command is:

```
ASSIGN: INPUT=2,SCAN=1,OUTPUT=2,PRINT=TERMINAL
```

or;

```
A: I=2,S=1,O=2,P=T
```

NOTE: Never assign unit 1 to anything other than SCAN. Never assign unit 2 to both SCAN and Input/Output. And TERMINAL (T) always goes to the terminal, it may not go to the printer.

3.3.6.2 QUERY This is a simple documentation function, which lists, on the terminal, requested information on the system and data base. Possible information sources are:

FORM/PAGE --- Questionnaire manual type summaries,

ITEM --- General Item/Question Descriptions,

HELP --- Other purpose information.

If the information is not present, a 'NO SUCH NAME' message is returned. For a list of all entries, enter HELP=ALL, i.e.,

QUERY: HELP=ALL, or Q: H=ALL

NOTE: No abbreviation of query names is allowed.

3.3.6.3 SCAN Once the files are assigned and the index numbers located, the presort must be done. The SCAN command scans the SCAN file and puts the result on the OUTPUT file. Unit 2, previously noted, has a special purpose here. If unit 1, the master file, is scanned with 2 as OUTPUT; then unit 2 may then be scanned in a number of different ways to produce other output files. Always ~~reassign unit 2 so it is not both on scan and output files.~~

The routine is designed to SCAN only for those values filled in--the rest are not checked. The parameters allowed are: Form Type, Lake, Respondent Number, Page Type and Card Number. The only new parameter is Card number--pages with long responses require more than one punch card. If all the responses are near the beginning of a page, then 'CARD=1' will cause only the first card to be selected, thus speeding processing somewhat. If any responses are near the middle or end of a page, then 'CARD' cannot be specified: To correctly access the second card, the first must be present.

EXAMPLE: To presort data with the following specifications:

A7, Lake George, Resp. No. 2952-8975, Page 1,

Use SCAN: FORM=A7, LAKE=4, RESP=(Ø2952-Ø8975), PAGE=Ø1 or

S: F=A7, L=4, R=(Ø2952-Ø8975), P=Ø1

NOTE: The respondent numbers and page are respectively five and two digits with fixed length. The lake number is on the SCAN command summary.

The manner, in which, the values are filled in the SCAN routine allows some "tricks" to be used. These work because RESP is a numeric character string of 1-5 digits, different from most numeric parameters which are fixed length. The numbers must be left-filled; i.e., left-most zeroes must appear.

Reduced Form: FORM/LAKE and PAGE/CARD may be reduced to single command: e.g., FORM=A7, LAKE=4 is the same as FORM=A74, PAGE=09, CARD=1 is the same as PAGE=091.

Decade SCANS: A decade of respondent numbers may be scanned at once: i.e., 4100's, 500's, etc. This is done by not specifying the right-most zeroes of a single respondent number. e.g., To presort out the 1800's, use: RESP=018

To presort out the 19,000's and 2800's use: RESP=(028,19). All versions of any form type might be chosen thusly; FORM=A will choose all A forms.

Special output sort: The special outputs from the translators may be separated using the CARD keyword. The single letter specified will sort out a specific output, e.g., SCAN: CARD=9 will pick out the 99 outputs. More details on this later.

3.3.6.4 Evaluations Once the subset has been generated and the index chosen, a question may then be evaluated. The system has three commands for any evaluative operation; where one is required, and the other two are optional.

TALLY -- required--This specifies index and options.

TRANSLATE -- optional--This defines the translation.

IF -- optional--This defines the conditional test.

NOTE: Since only the first letter counts, TALLY and TRANSLATE are both the 'T' command. The distinction is made to ease explanation. All parameters may occur on the same command.

When more than one command is required, the system must be told when to expect more and when to execute. This is achieved by the HOLD, GO, FINISHED keywords:

HOLD -- Expect more command.

GO -- Execute after this command.

FINISHED -- Void this evaluation, prepare for a new set of commands.

The FINISHED keyword was allowed so that fatal errors in setting up an execution may be voided, although the whole set-up must be done again.

The system is capable of evaluating more than one question at a time. This is allowed in two ways:

1) Questions desired that have identical descriptions and have no other desired ones interspersed\* are described using a form 3 or 4 index command. e.g., INDEX=(05,06,08,10-12)

\*Interlaced descriptions are not allowed because of the way the processing table is generated.

e.g., I=(03,04,09)	should be	I=(03,04)
I=(05,10)	done as	I=05
		I=09
		I=10

2) Desired questions either with different descriptions or separated by other desired questions must have a full description.

(First question) e.g., TALLY: H,FORM=A7Ø2,INDEX=Ø3

TRANS: AMC=(15,Ø6-4)

IF: TEST=Ø9

(second two questions TALLY: INDEX=(Ø5,Ø7)

have different formats) TRANS: NMC=25

(the third is on TALLY: FORM=A7Ø4,INDEX=Ø4

different page) TRANS: NMC=25,GO

3.3.6.4.1 TALLY This is the first required command. It specifies form and page, index number and any options. Lake and respondent numbers cannot be specified so they must be presorted properly. The HOLD keyword should ALWAYS OCCUR first. The options specify actions to be taken, LIST,TALLY,BINAERY LIST and/or any of these options conditionally. The default actions is an unformatted listing. Also tab settings for formatted listings may be modified here: e.g., A7, Page 2, Index 5

Unconditional tally with other operations on later command lines. TALLY: HOLD, FORM=A7Ø2, INDEX=Ø5,OPTION=2,

or

T: H,F=A7Ø2,I=Ø5,O=2

e.g., A4, Page 3, Indices 9,12,13,14

Unconditional tally, conditional list, tabs at 1Ø characters wide with other operations. TALLY: HOLD,FORM=A4Ø3,I=(9,12-14),O=(1,2),TAB=1Ø

or

T: H,F=A4Ø3,I=(9,12-14),O=(1,2),T=1Ø

If the values are too long for one line, they may continue on the next; so long as the break is at the end of a parameter. e.g., First example could be:

T: H,F=A702 (NOTE: HOLD always comes first.)

T: I=05,O=2

3.3.6.4.2 TRANSLATE This command specifies how each response is to be converted to a bit string. Each possible choice is assigned a number as it is entered; first is 1, second is 2, and so on. When any test, tally or binary list is done; the bits correspond to the choice number, where a maximum of twenty-nine choices are allowed. (This revision level of the system cannot produce descriptive listings, so the entering commands must be saved.) The three special cases (NR,99,WIERD) also have corresponding bits, but they do not count as part of the maximum of twenty-nine. For each evaluation, two things must be specified:

- 1) The action to be taken on special cases.
- 2) The translation and its choices.

The action to be taken is specified by the SPECIAL keyword. The form has specific meanings and only three entires may be made: i.e., '(string1,string2-string3)'. This form must be used--the only variation is the form 3 part alone or the form 4 part alone. The 'strings' are either 'IGNORE'; which is default or 'SAVE' in the print file. Each string applies to one special case: 1 - NR, 2 - 99, and 3 - WIERD.



### Translators

MATCH --substring,  
 RANGES --numeric ranges,  
 CHAR --character match,  
 NMC --numeric multiple choice,  
 AMC --alphanumeric multiple choice.

The specification of the translators is straight forward. The correct translator to be used is determined by locating the question in the questionnaire manual and by noting its form. First note which translator is required and then record the associated parameters.

MATCH vs. CHAR MATCH tries to find occurrences of each of its choice strings in the response. This is slow and the only simplification available is, if some choice is too long for the response, then that choice is skipped. CHAR checks only for exact identity between choice and response. MATCH accepts varying length choices in one translation, where all of CHAR's choices must be the same length.

AMC This is the only translator with complicated input. It first requires a form three input giving the highest numeric choice, then it requires each numeric value to be followed by the number of suffixes, i.e., a - 1, b - 2, c - 3 ...

EXAMPLE: AMC=(Ø4,Ø2-2,Ø4-3) would define choices 1,2a,3,4a,4b,4c.

EXAMPLES:

	<u>Valid</u>	<u>Invalid</u>	
Choices:	Joe, Sam Paul	7-up	
	MATCH=(JOE,SAM,PAUL)	MATCH=7-UP	(Dash not allowed.)

<u>Valid</u>	<u>Invalid</u>
10-20, 60-80, 50	81-92, 93-100
RANGE=(00010-00020, 00050, 00060-00080)	R=(81-92, 93-100) (5 digits required)
M, S, D; W	HE, SHE, IT
CHAR=(M, S, D, W, )	C=(SHE, SHE, IT) (Different lengths)
1, 2, 3, 4, 5, 6	1 - 31 More than 29 choices
NMC=06	NMC=31
1a, 1b, 2a, 2b, 2c, 3, 4, 5, 6a, 6b	1 - 10(a, b, c, )
AMC=(06, 01-2, 02-3, 06-2)	AMC=(10, 01-3, 02-3, 03-3...) (more than 29 choices i.e., 30.)

3.3.6.4.3 Conditional Testing The conditional command, IF, uses the choice number, which is determined when the translate command is entered to write the test pattern. Defining the test consists of entering the number of the choices to be tested and the type of test: either STOP/GO or AND/XOR/OR

STOP/GO -- If the test is met,

AND -- All choices tested must be present,

XOR -- One and only one must be present,

OR -- One or more must be present.

AND/XOR/OR must also be specified for a total of all the tests.

Once a test has been defined, it is given a number for that evaluation. A message is returned with the number, which goes by steps of four. If other translations in the same evaluation need that same test, it may be indicated by number only. It does not have to be redefined.

e.g., Test choices 1,4,7,8,9,10 and STOP

if they are all present. All tests must go for conditional actions to be executed.

IF: TEST=(01,04,07-10,STOP,AND),AND

Computer returns the message:

TEST NAME: 12 which may be used in a later tally by simply specifying: IF: NAME=12.

3.3.6.4.4 Multiple Translations The conditional testing arrangement would only be minimally useful, if it were not for the ability to handle a number of different type questions at one time. The exact limits depend on how large each translation is.

Definited limits are:

Maximum of 15 tests,

Maximum of 20 questions,

Maximum of 4 punch cards worth.

3.3.6.4.5 Executing When the whole evaluation definition is complete, the GO command should be given. It can be at the end of any of the commands, such as TRANS/TALLY/IF, or can be on a separate TALLY command; eg., TALLY: GO.

It is wise to use the free floating form, then one can check that all the commands are correct. If an error is found, a finish (or fine', in French) can be issued; eg., TALLY: FINISH. This cancels all the commands so they can be correctly issued.

EXAMPLE: Determine what factors are important to skin divers at Saratoga lake compared to Lake George, and how water quality affects them.

Look up in questionnaire manual on recreationist questionnaires (skin divers are recreationists). And find:

Form: A7 question 9 choice7 is skin diving,

Form: A7 question 10's choices are importance factors,

Form: A7 question 19b, and 21 are water quality questions.

Look up questions in code sheet summary tables to find:

Ques. 9 is Page 4 Index 1

10	4	2
19b	5	5
21	5	7

Initialize the system after signing on ALPHA.

SUBMIT EVQJCL,ACCT=(1104,3),MODE=CONV

When system responds to input commands:

03 TERMINAL? (EVQS is asking for commands.)

SCAN: FORM=A7,LAKE=2

(Put Saratoga data on unit 2)

TALLY: HOLD,FORM=A704,OPTION=2,INDEX=01

(Question 9, tally-unconditional)

TRANS: AMC=(20,04-2,05-4,15-2)

(Translate for question 9)

IF: TEST=(07,GO,AND),OR

(Test only on skin divers. Computer responds with TEST NAME: 00.)

TALLY: INDEX=02,OPTION=3,NMC=25

(Tally and translate for question 10.)

TALLY: FORM=A705,OP=3,INDEX=(05,07),NM=24

(Tally and translate for questions 19b and 25 with the same format.)

TALLY: GO

TERMINAL prints out result.

Also, for Lake George, save for further reference the people with comments on question 21.

ASSIGN: PRINT=5

(Comments go to print file; unit 5 is permanent SAVE.)

S: F=A74 (Put Lake George data on unit 2.)

T: H,F=A704,O=2,I=01,AMC=(20,04-2,05-4,15-2)

(Tally and translate for question 9.)

IF: T=07 (Since only one test is required, the type test do not matter OR, local; and total defaults are fine', GO is also default. IF: NAME=00 would also reference the first IF.)

T: I=02,O=3,NMC=25,FORM=A705,O=3,I=05,NM=24

T: I=07,N=24,O=3,SP=(SAVE-IG),GO

### 3.3.7 Analysis Output Units

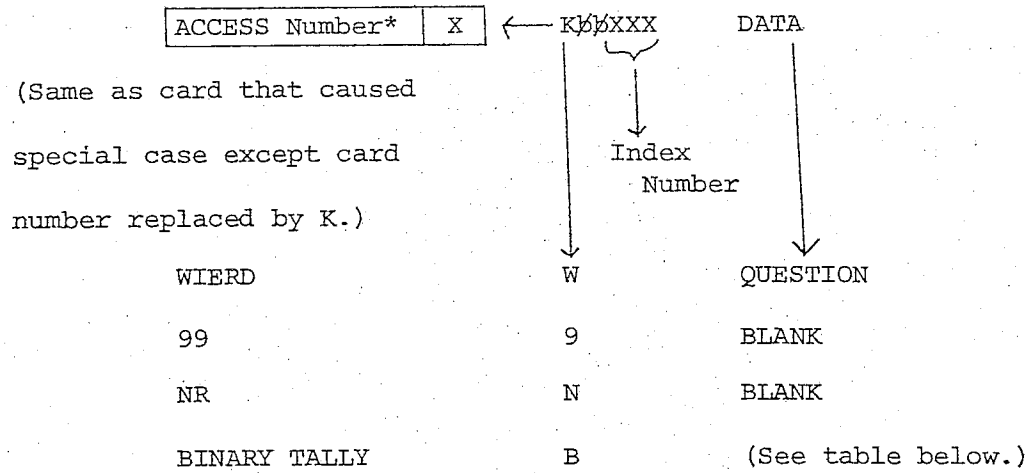
<u>Command</u>	<u>Input</u>	<u>Outputs</u>
COPY	INPUT	PRINT
SCAN	SCAN	OUTPUT
TALLY	INPUT	TERMINAL -- Tally results and warnings. PRINT -- Binary lists and special cases. OUTPUT -- Formated lists.

This table shows how the functions use various input/output units. It is essential that the same file is not assigned to both input and output units, although checks are generally made.

The special cases and binary lists use a special output format with a modified access number. The last digit of the access number is replaced by a code letter indicating the type of response; e.g., W--WIERD,9--99,N--NR,B--BINARY LIST: hence scanning, using CARD, can separate output types. Columns 14 - 16 contain the responses's index number; the rest is either blank (99 & NR), has the response (WIERD), or the binary list.

### 3.3.7.1 Wierd, 99, NR and Binary Tally Format One card

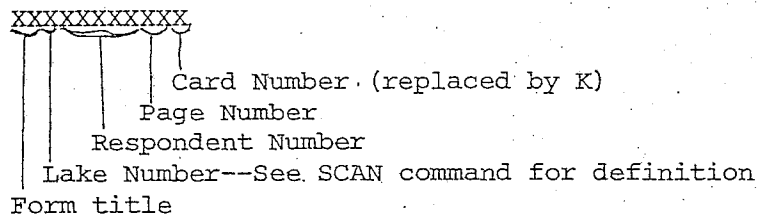
per special case.



<u>Card Col.</u>	<u>Value</u>	<u>Special Case</u>
49	Ø-absent/1-present	99
48	Ø/1	NR
19-47	Ø/1	Possibilities N-1 as many as required
18	Ø/1	WIERD
52-53	Number	Number of possibilities.

On all these special outputs, the access number is that of the first card; hence, a multiscard group would cause some confusion.

\*ACCESS Number is defined below--the last character is replaced by K as above.



### 3.3.8 Command Descriptions

#### 3.3.8.1 ASSIGN Command File Manipulation (with no

parameters, indicates present assignments.) Forms

OUTPUT=X

INPUT=X      X can be 2 to 5. 2

Sets input/output file to X.

PRINT=y      y can be 2 to 5, PRINTER, TERMINAL 2

Sets print file to y.

SCAN=z      z can be 1 or 2. 2

Sets SCAN file to z.

#### Units

1      SCAN file (master data file).

2      Subset SCAN file or WORK file.

3      WORK file, temporary.

4      WORK file, temporary.

5      WORK file, permanent.

T      TERMINAL.

P      LINE PRINTER (high speed).

<u>Files</u>	<u>Default</u>	<u>Purpose</u>
SCAN	1	Input to SCAN command.
PRINT	T	Output from binary list and special case translation strings.
INPUT	2	Input to all TALLY/LIST operations.
OUTPUT	2	Output from SCAN/TALLY formatted list operations.



3.3.8.2 COPY Data Manipulation Command. No parameters  
are required.

Use just to list files, or transfer between files.

Reads from INPUT.

Writes to PRINT.

### 3.3.8.3 IF: CONDITIONAL TEST

NAME=XX

Form

Specifies previously defined test to be assigned to index and pages which are active.

2

TEST=XX

TEST=(XX,XX-XX,..., {STOP}, {AND  
OR  
GO}, {AND  
OR  
XOR})

2,3,4

XX are choices active; they are ALWAYS 2 digits.

Bits 0 - WIERD; 30 - NR; 31 - 99.

STOP

GO --Action to be taken if test is true.

1

AND

OR --Test to be done for particular questions

1

XOR

being processed (same as total request below).

(Name and definition is returned for each test defined. Define

for first usage, and just give name for later usages.)

How specific question tests are to be combined: (must be specified at least once, but the last one is effective.)

{ AND } --Go only if all tests are go.  
{ OR } --Go if any is go.  
{ XOR } --Go if only one is go (exclusive OR).

}	HOLD		1
	GO		1
	FINISH		1
	PAGE	=XXXX	2
	INDEX	=XX, (XX,XX-XX)	2,3,4

Same as TALLY command.

3.3.8.4 QUERY Command

- |    |                                       |             |
|----|---------------------------------------|-------------|
| a) | FORM=XX , PAGE=XX PAGE=(XX,XX,XX) ... | <u>Form</u> |
|    | Information on code sheet pages.      | 2,3,4       |
| b) | ITEM=XXX =(XX,XXX,XXX)                |             |
|    | Information on item requested.        | 2,3         |
| c) | HELP=XXXXXXX =(XX,XXX,XXX)            |             |
|    | Other information, as documented.     | 2,3         |

3.3.8.5 SCAN Command

RESPONDENT=XXXXX (if present, only one)  
 =(XXXXX,XXXXX-XXXXX)  
 Respondent numbers wanted.

Forms  
 2,3,4

FORM=XX\*

Form type.

2

LAKE=X

Lake desired.

2

1 -- Schroon

2 -- Saratoga

3 -- Oneida

4 -- George

PAGE=XX\*

Code sheet page number.

2

CARD=X

Card number.

2

SCAN is input unit; OUTPUT is output unit.

\*Form can also specify LAKE.

Page can also specify CARD.

By adding the third number to the previous 2.

FORM=A7, LAKE=1, PAGE=02, CARD=9 is the same as

FORM=A71, PAGE=029.

### 3.3.8.6 TALLY Command

FORM=XXXX	<u>Form</u>
Specifies form and page for a tally request; e.g., F=A7Ø2; e.g., FORM A7, PAGE 2 is entered as FORM=A7Ø2.	2
INDEX=XX, (XX,XX-XX)	2,3,4
Specifies the index of the question on each line of the page specified above.	
OPTIONS=X, (X,X)	2,3
Turn on specified option (UC-unconditional, C-conditional.)	
Ø LIST -- UC	
1       -- C	
2 TALLY -- UC	
3       -- C	
4 BINARY LIST -- UC	
5       -- C	
Default -- If no option are specified, an unformatted list is defaulted to.	

#### List Tab Settings

TABRESET Restores default tabs, same as TABALL=Ø8.	1
TABALL=XX Sets all tabs at same width.	2
TABS=(XX-XX) Sets the tab specified by first parameter to width of second.	3
HOLD Allows more commands before executing. HOLD must come first before GO.	1
GO Indicates run after this command.	1
FINISHED Terminates processing of this evaluation, (in case of major, it effectively deletes command).	1
INPUT is input unit; OUTPUT/PRINT are output units.	

### 3.3.8.7 TRANSLATE Command

Form

SPECIAL=(a,a-a) 3,4

| | | a is  
 | | | WIERD IGNORE -- default  
 | | | 99 or  
 NR SAVE --to print file.  
 Action to be taken for special translator conditions.

MATCH= string, (string,string) 2,3

Strings of variable length to be found.

RANGES=(XXXXX-XXXX,XXXXX-XXXXX,XXXXX) 3,4

Ranges or single number to test for. (5 digits)

CHAR= string, (string,string) 2,3

Strings to be exactly matched, only one length.

NMC=XX Numeric multiple choice

---

XX=Number of choices- 29, not counting special cases.

--Two digits.

AMC=(XX,XX-X,XX-X,XX-X) 3,4

Alphanumeric multiple choice represents multiple choice with letter suffixes.

The only form 3 entry gives the highest number of choices (must be first 2 digits).

The first of each form 4 entry gives a numeric choice with letter suffixes (2 digits).

The second of each gives the number of suffixes (1 digit).

1,2a,2b,3,4a      AMC=(04,02-2,04-1)

### 3.3.9 Command Summary

ASSIGN: INPUT= $\bar{x}$ , OUTPUT=X, SCAN=z, PRINT=y

X is 2 - 5, y is 2 - 5, P,T z is 1 or 2.

IF: NAME=XX, TEST=XX,=(XX,XX-XX), {STOP  
GO} , {OR  
AND  
XOR}

{AND  
OR  
XOR} , {HOLD  
GO} , FINISH,PAGE=XXXX, INDEX=XX

QUERY: { FORM=XX, PAGE=XX  
ITEM=XXX  
HELP=string  
HELP=ALL } --up to 6 characters  
--lists all possible queries

SCAN: RESP=XXXXX,=(XXXXX,XXXXX-XXXXX),FORM=XX

LAKE=X,PAGE=XX,CARD=X

Lakes: 1 -- Schroon, 2 -- Saratoga,

3 -- Oneida, 4 -- George.

TALLY: FORM=XXXX, INDEX=XX, (XX,XX-XX), OPTIONS=X, (X,X),

TABREST,TABALL=XX,TABS=(XX-XX), {HOLD  
GO} , FINISH

LIST            0-UC 1-C

TALLY           2-UC 3-C

BINARY LIST    4-UC 5-C

TRANS: SPECIAL=(a,a-a), MATCH=string,=(string,string)

          |    |    |  
          |    |    | WIERD    --IGNORE/SAVE =a  
          |    |    | 99  
          |    |    | NR

RANGES=(XXXXX,XXXXX-XXXXX),CHAR=string,=(string,string)

NMC=XX,AMC=(XX,XX-X,XX-X)

COPY:

### 3.4 Annotated Questionnaires

3.4.1 Introduction This is a complete set of the questionnaires from which the data base was developed. These have been annotated with the codes from which the data was encoded. for the corresponding page and index numbers for any question, see the appropriate page summary tables in the following section.

The following table shows the number of each questionnaire type in the data base.

<u>Form</u>	<u>Number</u>	<u>%Return</u>	<u>Form</u>	<u>Number</u>	<u>%Return</u>	<u>Year</u>
A3	83	48	B2	71	40	1970
A4	192	26	B3	100	32	1970
A5	1,007	13	B4	334	15	1970
A7	3,087	15	B5	354	8	1971
<del>C4</del>	<del>55</del>	<del>23</del>	<del>D4</del>	<del>70</del>	<del>23</del>	<del>1970</del>
C5	0	--	D5	0	--	
E4	11	23	F2	147	6	1970
E5	3	100	F3	243	9	1971
G1	289	10				1970
G2	778	10				1971

Some revised forms were never distributed, and while they are present here to provide a full set of questionnaire, no corresponding code sheet and page summary tables exist.