



Statistical Program Package SPTSS : Conversational and Batch unified Operative, Large Scale FACOM Extensions to SPSS

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Statistical Program Package SPTSS : Conversational and Batch Unified Operation, Large Scale FACOM Extensions to SPSS

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中野嘉弘：会話型とバッチ型処理兼用の大規模
統計プログラム・パッケージ SPTSS

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Abstract

SPTSS is a statistical program package of Japanese FACOM extensions to SPSS. SPTSS contains 35 statistical subprograms (15 subprograms more than the original SPSS) and works in a unified manner for conversational mode as well as usual batch.

Attractive subprograms are, for examples, DATACLEAN, CLUSTER, XYPLOTTERS and HAYASIs (these are the multivariate analyses for nominal scale variables).

SPTSS also has many kinds of still more extended service routines than SPSS has for data handling, e. g. multiple choice and full-columned DOCUMENTS and LIST CASES facilities. Therefore, SPTSS may also be of use as a handy IR (information retrieval) or mini Data Base system.

§0 Introduction

This paper is a case study of a program package in the field of practical computer applications.

A preliminary report was presented in a poster session at the 1st international conference of SPSS users at Chicago in October, 1977.¹⁾ SPSS is the most famous statistical program package developed by SPSS Inc., USA.²⁾ SPSS was originally batch oriented only. And SPSS Inc. now provides another special program package SCSS for use in conversational mode only.³⁾ I have heard the name SPSS/ONLINE, but merely by name, and I have no further information of it.*

* This is a CDC program.

Our program package SPTSS, developed by a Japanese group, contains large scale extensions to SPSS and works in a unified operating mode in conversational as well as batch. SPTSS works from terminal typewriter or display terminals with prompting as SCSS does.

SPTSS has many more statistical subprograms by fifteen than original SPSS. They are Japanese subprograms : DATACLEAN,⁴⁾ CLUSTER, MULTIGRAM,⁵⁾ HAYASIs (multivariate analysis for nominal scale variables) etc. SPTSS has 35 subprograms in total. Among them the subprogram MULTIGRAPH is attractive, because it will convert map or diagram and/or any other documents for printing on LP to drawing in any scale on XYplotter. Of course, SPTSS has its own XYPLOTTER subprogram.

SPTSS has also many kinds of still more extended service routines for data handling : for example, multiple choice, full-size DOCUMENTS and LIST CASES facilities. Therefore, SPTSS may be of use as a handy IR (information retrieval) or mini Data Base system too.

SPTSS was realized on FACOM 230-75 at HUCC (Hokkaido University Computing Center, JAPAN).

§1 Statistical subprograms in SPTSS

Our SPTSS is provided with 35 statistical subprograms, whereas original SPSS has 20 subprograms and SCSS has only 7 ones.

They are compared in the following.

SCSS (Release 3 by SPSS Inc.)

- | | | |
|----------------|------------------------|---------------|
| 1) UNIVARIATE | 2) CROSSTABULATION | 3) BREAKDOWN |
| 4) CORRELATION | 5) PARTIAL CORRELATION | 6) REGRESSION |
| 7) FACTOR | ..... | ..... |

SPSS (Version 7 by SPSS Inc.)

- | | | |
|-------------------|------------------|------------------|
| 1) CONDESCRIPTIVE | 2) FREQUENCIES | 3) AGGREGATE |
| 4) CROSSTABS | 5) MULT RESPONSE | 6) T-TEST |
| 7) BREAKDOWN | 8) ONEWAY | 9) ANOVA |
| 10) NPAR TESTS | 11) PEARSON CORR | 12) NONPAR CORR |
| 13) PARTIAL CORR | 14) SCATTERGRAM | 15) REGRESSION |
| 16) FACTOR | 17) CANCELL | 18) DISCRIMINANT |
| 19) GUTTMAN SCALE | 20) RELIABILITY | |
| | | |

SPTSS (Version 7, FACOM Extension to SPSS)

Added 15 subprograms to SPSS are in the following.

- | | | |
|-----------------|-------------------|----------------|
| 21) DATACLEAN | 22) DATAPATTERN | 23) TRIANGRAM |
| 24) CONTOUR MAP | 25) MULTIGRAM | 26) MULTIGRAPH |
| 27) XYPLOTTER | 28) SURVIVAL | 29) QFACTOR |
| 30) CLUSTER | 31) NONLINEAR MAP | 32) HAYASI 1 |
| 33) HAYASI 2 | 34) HAYASI 3 | 35) HAYASI 4 |

Explanations of our subprograms are given in a later section.

§ 2 Operation and I/O Modes in SPTSS

Operation and I/O modes of our SPTSS are many-sided as shown in the following.
(See Fig. 1, Fig. 2)

- A. 1) Conversational demand mode (TSS mode)
- 2) Prompt real time terminal run.
- 3) Remote and central batch job.
- B. 4) Tab set symbol @, to specify the 16th column.
This may be useful even for card input of batch jobs.
- 5) Common control statements with SPSS
- 6) Common output format with SPSS
- 7) Common system file and Archive file with SPSS
- 8) System file and work file allocations are available even half-way in to a run on TSS mode.
- 9) Input from a general file, which is constructed not only by SPSS or a Fortran job but by general file management routines, are available.
- C. 10) Special use of keyword EDIT
EDIT @ T starts TSS mode run.
- 11) PAGESIZE NOEJECT is specified by default on TSS mode.
In batch mode, the 'NOEJECT' specification is available even if we have carelessly misspunched or column shifted in the specification field (in fact, any alphabetic string in place of 'NOEJECT' can be effective too).
- 12) PRINT BACK @ NO is specified by default in TSS mode.
- 13) PRINT FORMAT specification is available by default according to INPUT FORMAT FIXED () statement. This is common in TSS mode as well as in batch job.
- 14) Space allocation information is printed out only when ALLOCATE TRANSPLACE command is given (not by default).
- D. 15) Syntax error checking and prompt revision are available in a run in TSS mode. This is just conversational. Misspunches in control field (column 1-8) are answered by double question marks '??'. Errors in specification fields (column 16-80) by '?? ERR NUMBER = and ERR COUNTS ='.
- 16) Input of single question mark '?' for inquiries from terminal KB (Key Board) print back corresponding error message, promptly.
- 14) LIST ERR @ n (n is the error number) command gives the same effect. This is of use at any step of a run and effective even if run has no error.
- 18) LIST ERR (without error number) command returns promptly all error messages which have already occurred in a run.
- 19) EDIT @ 19 command additionally gives automatic saving of SPSS control statements on a disk after TSS run.
- 20) Further, EDIT @ 3 command initializes direct access file to allow repeatable

run from any point of SPTSS run by the following pointer commands. See Fig. 2,

POINTER @	{	*	present card,	*	@ - n	pointer back from
		n	card number n			here by n cards
		GO	start from here			

- 21) Step by step execution of a SPSS run with direct data input from terminal KB is the most popular style in TSS mode. (See Fig. 1)
- 22) Automatic edition or saving in a disk of SPSS card decks including data is possible. These card decks are available to be used in another real time prompt run or usual batch job.
- 23) Alternating order of I/O sequences is adjustable by using dummy symbol ';' or '+'.
24) These dummy symbols are of use in TSS mode in place of the READ INPUT DATA card, except at the first procedure in a run.
- 25) It must be noted that the READ INPUT DATA command is necessary on TSS mode at the first procedure of a run even if we begin with a GET FILE command.
This READ INPUT DATA command is requested to open the scratch data file.

E. New commands

- 26) VERSION gives informations of version or level in SPTSS.
- 27) MANUAL lists useful references or articles about SPSS and SPTSS.
- 28) HELP gives some helpful suggestions.

§3 Data I/O Routines

Our SPTSS has provided the following data I/O routines in addition to SPSS.

- A. Filed data prepared by general file management routines can be input. This is available in the Archive file procedure also. Our SPTSS does not restrict input data to be prepared as Fortran oriented only.
- B. New subprogram DATACLEAN checks card image data in the following formal aspects. (See Fig. 3)
 - 1) Format checks : format misses (columnwise or in each format width), card ID, card seqnum, case seqnum, order of cards (record) in the same case. matching of numbers among total cards, cases and records.
 - 2) Data accumulation : this is similar to ADD CASES or ADD SUBFILE facilities.
 - 3) Data blocksize conversion
 - 4) DATACLEAN subprogram is effective to check data prepared especially via OCR.
- C. INPUT FORMAT specifications

SPSS original : FIXED, FREEFIELD, BINARY
SPTSS extension : FORMAT permits Fortran formats. Undefined repeating format is available. BLANKCVT gives value of -0.0 to BLANK.
- D. PRINT FORMAT specification is available by default according to INPUT FORMAT FIXED() specification.

E. AGGREGATE

FORMAT = BCD keyword produce BCD formatted AGGREGATE file.

F. LIST CASES

- 0) CASES = n (last case number) SPSS original
- 1) MCASE = m (starting case number) SPTSS extension
- 2) CASLIST = n1, n2, ..., n10 (selected cases number)
- 3) VARIABLES = varlist (to be reordered) SPTSS extension
(not reordered) SPSS original

Reordered variables set is more useful to compare the results of transformations of data.

- 4) DCM This new keyword read card image data with format (20A4) and lists out with (20A4) too. The output is formatted with neither variable names nor extra blanks. This makes SPTSS to be available as an IR or mini Data Base system too.

G. WRITE CASES

Some new output specifications have been added.

- 1) FORMAT () specifys Fortran formats. Therefore unrestricted folding of the format is available now.
- 2) DCM Similarly for 'LIST CASES @ DCM' but realized onto BCD out put.
- 3) OPTIONS 3 does not round the last digit of numerical output.

§4 DOCUMENTS

Multiple choice of full-size (1-80 column) documentary information is available in our SPTSS. These facilities are very large extensions to original SPSS. It must be noted that in SPSS (original), column 1 through 15 of all cards must be left blank and only one set of DOCUMENT cards may be used on any run. No restrictions exist in our SPTSS. New cards of FULLDCMT and END DOCUMENT are provided to input multiple sets and/or group of sets of full-sized DOCUMENTS.

A. Input

- 1) FULLDCMT name1 for the 1st set of documents (1-80 columns available) documentary cards.
FULLDCMT name2 end of the 1st set and the start of the 2nd set documentary cards.
.....
- 2) END DOCUMENT specifies the end of group of documentary sets.

Keyword FULLDCMT specifies the starting point or division of documentary sets to be input. The name specified may be used to pick up a special documentary set afterwards. END DOCUMENT indicates the group end of documentary sets. Multiple use of step (from FULLDCMT to END DOCUMENT) is available. Of course, this input must be done before the first statistical procedure.

Any SPSS card decks including data may be save filed as documetary information for reference at GET FLILE.

B. Output

1) LIST FILE DCMDIREC

This lists the directory of all documentary sets.

2) LIST FILE DOCUMENT dumps out all documents.

3) LIST FILE DOCUMENT name 1 (range1 [, range2])

The specified subset of documents from name 1 in the range of (range1 through range2) may be dumped out. This is available immediately at terminal typewriters in the TSS mode of SPTSS. Therefore, SPTSS may be used as a handy IR or mini Data Base system too. (See Fig. 5)

4) Writing out document cards onto BCD output media :

RAW OUTPUT UNIT @ logical unit #

LIST FILE FDCMOUT name 1 (card1 [, card2])

§5 Data Handling in SPTSS

Miscellaneous data handling facilities are added to original SPSS.

A. List values vs. LIST CASES

While LIST CASES command lists values of the cited variables at the given seqnum, the inverse approach, searching for the corresponding case seqnum to the given value, this may be very useful at initial data cleanings.

New OPTIONS 20 in FREQUENCIES (general mode) gives just the reference index tables between code values and case seqnum of data for specified VARIABLES and for each SUBFILE.

RUN SUBFILES EACH

FREQUENCIES GENERAL = ALL or varlist

OPTIONS 20 5 9

(without STATISTICS card)

(See Fig. 4)

B. Case data updating in a system file

UPDATE IF (logical expression)

This is designed by Prof. I. Miyake (Doshisha University, Kyoto) and extended by the author for multiple uses.

C. Matrix data I/O

1) CROSSTABS

Matrix data input is now available at CROSSTABS (integer mode) by the following new options. Up to triple crosstabulation may be produced by matrix input. STATISTICS calculations are also available. This facility serves as a kind of report generator.

CROSSTABS (integer mode)

OPTIONS 10 Matrix data input

OPTIONS 11 Matrix data with weighting data

OPTIONS 20 Output of STATISTICS only

(See Fig. 6)

2) FACTOR

OPTIONS 3, 13 allows the correlation matrix input of only lower triangular part. This may simplify terminal operation.

3) DATA PATTERN

Multiple response counting tables are produced by options. These tables may be input again into CROSSTABS by the options mentioned above.

4) HAYASIs

Japanese subprogram HAYASIs correspond to REGRESSION, DISCRIMINANT, PCA (principal component analysis) and FACTOR for nominal scale data. Some matrix outputs from HAYASIs are available to do cross analysis with CROSSTABS.

§6 Additional procedures in SPTSS

This section is a complement of §1.

21) DATACLEAN (by Y. NAKANO, Hokkaido Kyoiku University)

This is a routine for formal checks of card image data and available to accumulate data similarly to ADD CASES procedure.

22) DATA PATTERN (by I. MIYAKE, Doshisha University)

This gives maximum of 18 dimensional BREAKDOWN in condensed form and also produces multiple responses tables by options.

23) TRIANGRAM (by N. NISHIWAKI, Kyoto University)

3-component scattergram.

24) CONTOUR MAP (by N. NISHIWAKI, Kyoto University)

3-dimensional or contour map.

25) MULTIGRAM (by S. KAMISHIMA, Hokkaido University)

Multipurpose graphics printing routine on LP.

26) MULTIGRAPH (by S. KAMISHIMA, Hokkaido University)

General routine to prepare XYplotter run with SPTSS language. (See Fig. 7)

27) XYPLOTTER (by Y. NAKANO, Hokkaido Kyoiku University)

XYplotter routine for special purposes.

28) SURVIVAL (by Sachiko ITO, Hokkaido University)

Survival analysis and administration of inpatients in hospital.

29) QFACTOR (by K. YAMAMOTO, Kyoto University)

Q-mode factor analysis

30) CLUSTER

R-mode, Q-mode and BLOCK-mode (by K. YAMAMOTO, Kyoto University)

PCA-mode (by N. NISHIWAKI, Kyoto University)

31) NONLINEAR MAP (by K. YAMAMOTO, Kyoto University)

From multi-dimensional to 2-dimensional conversion of map by NLMA (nonlinear mapping algorithm)

- 32) HAYASI 1 (by I. MIYAKE, Doshisha University)
corresponds to Regression at nominal scale data.
- 33) HAYASI 2 (by I. MIYAKE, Doshisha University)
corresponds to Discriminant at nominal scale data.
- 34) HAYASI 3 (by I. MIYAKE, Doshisha University)
corresponds to PCA (Principal component analysis) at nominal scale data.
- 35) HAYASI 4 (by I. MIYAKE, Doshisha University)
corresponds to Factor at nominal scale data.

These HAYASIs are the famous method derived by Dr. Chikio HAYASI (director of the Institute of Statistical Mathematics, Tokyo) and called by alias as 'Quantification analysis'.

These HAYASIs programs have high popularity in Japan.

- 5-A) MULT ANS (by Y. NAKANO, Hokkaido Kyoiku Univ.)

This is a more practical substitute for the MULT RESPONSE subprogram implemented in the original SPSS. The differences between this and that are in the following.

- a. MULT ANS subprogram is allowed to use its own input format specification and hence permits arbitrary characters of input data, not restricted to numerics.
- b. The codes out of the specified range or not responsible to any category are picked up accompanied by the case number, group variable name and category name.
- c. Frequency table sorted in the descending order of counts is also printed out. (See Fig. 8)
- d. Self crosstabs of the responsive codes in a group variable is given to show similarities among the items in question. (See Fig. 9)

§7 Concluding Remarks and Acknowledgements

New Statistical Package SPTSS for conversational and batch unified operation has been made. SPTSS includes the service facilities corresponding to both SPSS (batch only) and SCSS (conversational only).

This SPTSS is a natural extension of the KYOTO version of SPSS6 and may be useful in the servicing levels corresponding to the original version of SPSS7. SPTSS has 35 statistical subprograms, that is 15 subprograms more than US original version.

These 15 subprograms are due to a Japanese research group. The author must express his sincere gratitude to them, especially Prof. I. MIYAKE (Doshisha University, coordinator of SPSS group in Japan), Drs. K. YAMAMOTO, N. NISHIWAKI (Kyoto Univ.), S. KAMISHIMA and S. ITO (Hokkaido Univ.) for their excellent subprograms implemented in this SPTSS.

References

- 1) Y. NAKANO ; Proceedings of the First Annual SPSS Users and Coordinators Conference : p. 98, 1977, SPSS Inc. Chicago, Illinois
- 2) Norman H. NIE, C. Hadlai HULL, Jean G. JENKINS, Karin STEINBRENNER, Dale H. BENT ; SPSS (Statistical Package for the Social Sciences) Second Edition, 1975, McGraw-Hill, N. Y.
- 3) Norman H. NIE and C. Hadlai HULL ; SCSS (Spss Conversational Statistical System), Release 1.1, September 1977
- 4) Y. NAKANO ; Center News of Hokkaido University Computing Center, Vol. 11, No. 2, 1979, p. 18 (in Japanese)
- 5) . KAMISHIMA ; Manual of Library Programs of Hokkaido University Computing Center, No. 8, 1979 (in Japanese)

Fig. 1 SPTSS conversational run, CONDESCRIPTIVE with data input from terminal KB. Note the tabset symbol '@', EDIT @ T and the dummy symbol ' '; '.

```

#CALL PR0G/SPSS '1'

      *** SPSS WORK AREA= 1K WORDS ***

STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES HOKKAIDO SPTSS7.8NOV

>EDIT@T
      EDIT          T
      *** SPSS TSS MODE START ***
>VARIABLE@V1 TO V3
>INPUT F@FREEFIELD
>N OF CAS@3
>CONDESCR@V1

      ***** GIVEN WORKSPACE ALLOWS FOR 68 VARIABLES FOR CONDESCRIPTIVE PROBLEM *****

>STATISTICS@1
>READ INP
>1 2 3 4 5 6 7 8 9

JAN.17, 1979    STATISTICAL PACKAGE SPTSS7
FILE  N@NAME    (CREATION DATE = JAN.17, 1979)

VARIABLE  V1
MEAN                4.000
VALID OBSERVATIONS -      3                MISSING OBSERVATIONS -      0
> ;
THIS TASK ENDED.

THE AMOUNT OF TRANSACE REQUIRED IS      0 WORDS.

>FINISH

NORMAL END OF JOB.
7 CONTROL CARDS WERE PROCESSED.
0 ERRORS WERE DETECTED.

      * END OF FORTRAN *
      . 7*07*54 *1: SPSS      . カンゴコ コト*: 000.

```

Fig. 2 SPTSS conversational repeated run by POINTER commands. Note the dummy symbols ';', '+', POINTER @ *, @ *-2 and POINTER @ GO commands.

```

>INPUT F0@FIXD
      NCARD= 6 INPUT F0      FIXD
>;
??ERROR NUMBER= 35,ERROR COUNTS = 1
>INPUT F0@FIXED(3A1)
      NCARD= 6 INPUT F0      FIXED(3A1)
>N OF CASES
THE INPUT FORMAT PROVIDES FOR 3 VARIABLES. 3 WILL BE READ
IT PROVIDES FOR 1 RECORDS ('CARDS') PER CASE. A MAXIMUM OF 3 'COLUMNS' ARE
      NCARD= 7 N OF CAS      3
>FREQUENCIES@GENERAL=V1
      NCARD= 8 FREQUENCIES  GENERAL=V1
>@PTIONS@3
      OPTIONS      3
>READ INPUT
GIVEN WORKSPACE ALLOWS FOR 89 TOTAL VALUES AND 8 LABELED VALUES PER VA
      READ INPUT
>ABC
>DEF
>GHI
>*RECODE@V1('A'=1)('D'=4)('G'=7)
>PRI
POINTER@*
>+
*** POINTER TO ICARD 10 FOR NCARD= 10
>@-2
>;
ICARD 8=FREQUENCIES  GENERAL=V1
>POINTER@GO
>;
      NCARD= 11 FREQUENCIES  GENERAL=V1
GIVEN WORKSPACE ALLOWS FOR 89 TOTAL VALUES AND 8 LABELED VALUES PER VA
FILE SPTSSF (CREATION DATE = JUN.14. 1977)
VI

```

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
	1.	1	33.3	33.3	33.3
	4.	1	33.3	33.3	66.7
	7.	1	33.3	33.3	100.0
	TOTAL	3	100.0	100.0	

Fig. 3 This is the simplest example in the service of DATA CLEAN subprogram. Mispunches of alphabetic codes for numeric or unexpected strange codes are disclosed at the responsible columns. This procedure is useful for checking of data prepared especially by OCR.

DATA CLEAN

*** DATA CLEANING PROGRAM NEEDS 492 WORDS SPACE.

DATA CL MSK= 2 SMOD=0 PMOD=0 INPM=5 OUTM=0 MINN=0 MAXN=9 MINA=A MAXA=Z NGCOD=

CHECK COL & CODE: 0= 0= 0= 0= 0= 0= 0= 0= 0= 0=

MASK CARD 1 A SMOD=0 PAG
 MASK CARD 2 A SMOD=0

CARD	CASE	RECORD	.....1.....	.....2.....	.....3.....	.....4.....	.....5.....	.....6.....	.....7.....	.....8	PMOD=0
1	1	1	*(7812A2220114522	522222	1246	31213	1221 2 3	510113231	1	235	)* ECHO: 1
3	2	1	7812A2499115422	511212	92D68	31281236	1322 2 31617	3522 4		364	
13	7	1	7812A2119122216	143223-	246893	411127	1121 4 6 910163121	3		13456	
17	9	1	7812A2137112111	213222	D108	32 12 5 6	2223 1 21112133121	5		4	
25	13	1	7812A24671222281211211	-		11122	1111 6 9	1	9	1	
45	23	1	7812A24261222111032232		128	6R 22236	1312 6 81517	1	19	5	
50	25	2	*(7812A23852111 7 9 914	26265646762566	710						)* ECHO: 50
63	32	1	7812A2178112315	313211	916	31111456	4141 1111613	33131	5	451	
100	50	2	*(7812A222221 9 6 4 4	9135352225433444							)* ECHO: 100
105	53	1	7812A2307112214	6132338-	1268	72 826	1543 1 3 4 5153131	6		13	
127	64	1	7812A2208112224	413221	68-	32113	1111 1 3 517	3131 3		23	

(40)

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317	159	1	7812A23801131110913122		8	3138136	41110204051617273103			13	
341	171	1	7812A2279122228	613222	14689	11-12356	5231 4 6 817	1	9	356	
350	175	2	*(7812A2378211614101310	85234346552353	710						)* ECHO: 350
354	177	2	*(7812A234926	11416 2 3123534545543434							)* END: 354

CARD CASE RECORD1.....2.....3.....4.....5.....6.....7.....8 PMOD=0

TOTAL CARDS 354, N OF CAS 177, EACH 2 RECORDS

Fig. 4 Datacleaning facilities given by OPTIONS 20 in the general mode of FREQUENCIES subprogram. Reference table between data codes and the corresponding case seqnums is listed here. The codes larger than 100 may be got in by some mistakes. Note the commands of RUN SUBFILES EACH, PRINT FORMAT, OPTIONS 20, 5, 9 without STATISTICS card.

>PRINT F0@INDEX14(1)

>FREQUENC@GENERAL=INDEX14

>OPTIONS@20 5

>READ INP

GIVEN WORKSPACE ALLOWS FOR 627 TOTAL VALUES AND 62 LABELED VALUES PER VAR
FILE FILE450 (CREATION DATE = JAN. 9, 1979)

INDEX14				EINGEL				COEFFICIENT			
CODE	FREQ	SEQ		CODE	FREQ	SEQ		CODE	FREQ	SEQ	
		TOP	END			TOP	END			TOP	END
12.0	1	37	0	27.0	14	16	270	41.0	7	12	267
13.0	1	106	0	28.0	9	43	273	42.0	6	14	180
15.0	1	34	0	29.0	13	13	257	43.0	3	165	246
16.0	1	63	0	30.0	16	17	250	44.0	3	160	217
17.0	2	115	129	31.0	15	10	265	45.0	2	207	213
18.0	5	15	253	32.0	6	29	218	46.0	2	118	169
19.0	5	26	264	33.0	13	49	263	47.0	1	199	0
20.0	5	9	175	34.0	13	5	261	48.0	1	20	0
21.0	5	28	148	35.0	12	7	266	49.0	1	61	0
22.0	6	23	235	36.0	14	24	259	100.0	1	93	0
23.0	7	30	275	37.0	8	31	274	1750.0	1	96	0
24.0	14	11	271	38.0	8	1	196	2050.0	1	92	0
25.0	23	4	243	39.0	7	41	258	2080.0	1	94	0
26.0	16	2	272	40.0	4	3	192	4400.0	1	95	0

VALID CASES 275 MISSING CASES 0

Fig. 5 Examples of the command FULLDCMT (multiple choice and full-sized documents). Note the commands lists of LIST FILE DCMDIREC and LIST FILE DOCUMENT name range1, range2.

```

¥¥CPS FJ0117,C0RE://9
• FACOM 230 M-6/7 CPS(V10-L02) カイ 79.01.17 14:39:08
+ ^*スタート? =#####
• YOUR JOB NO.= T12385
• CPS(V-10/L-02) ショキセツテイ トイ*ヨウ シヨウヨク
• シヨウヨク マチ:ジ
#A INSYF,'FC0116.TEST2'
#A CPSMAC,CPS
#.CPST,G 'FJ0117-SPTSS7'
#CALL PR0G/SPSS '1'

*** SPSS WORK AREA= 1K WORDS ***

STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES HOKKAIDO SPTSS7.8NOV

>EDIT@T
EDIT T
*** SPSS TSS MODE START ***
>GET FILE@TEST1

FILE TEST1 HAS 23 VARS, 7 SUBFILS.

DOCUMENTS ARE 7 IN ALL.

>LIST FILE@SUBDIRECTORY

LIST OF THE 7 SUBFILES COMPRISING THE FILE..

HU67 N= 16 HU65 N= 31 DE67 N= 34 SC61
LA67 N= 10 AN73 N= 59
>LIST FILE@DCMDIREC

TOTAL NUMBERS OF DOCUMENTS = 7 AND THEIR LIST..
HU67.15 = 1, HU65.30 = 2, DE67.33 = 3, SC61.45 = 4, W058.48 = 5
LA67.9 = 6, AN73.58 = 7,
>LIST FILE@DOCUMENT HU67.15 2,6

DUMP OF DOCUMENTARY INFORMATION..

FULLDCMT # 1 OF TOTAL 7, NAME= HU67.15 RANGE= 2, 6

OHU67 DEFAMATION AND VOLUME CHANGE CHARACTERISTICS OF A SAND-ASPHAL
T MIXTURE UNDER CONSTANT DIRECT AND TRIAXIAL COMPRESSIVE STRESS
ES;
BI H R R; NO 178 PP 60 - 74 (1967);
FILE BD26(HUANG);

** 5 OR ( 2- 6) DOCUMENT WERE OUTPUT

```

Fig. 6 Example of the matrix data input in CROSSTABS integer mode subprogram.
 Note the extra dummy variables D1 TO D6 in VARIABLE LIST and
 OPTIONS 10.

```
>VARIABLE@X Y D1 T0 D6
>INPUT ME@CARD
>INPUT F0@FIXED(8F4.0)
>:
```

THE INPUT FORMAT PROVIDES FOR 8 VARIABLES. 8 WILL BE READ
 IT PROVIDES FOR 1 RECORDS ('CARDS') PER CASE. A MAXIMUM OF 32 'COLUMNS' ARE USED ON A RECORD.

```
>CROSSTABS@VARIABLES=Y(1,2)/X(1,8)/TABLES=Y BY X
```

```
>OPTIONS@3 4 5 10
>STATISTICS@ALL
>READ MATRIX
```

***** 'CROSSTABS' PROBLEM REQUIRES 16 WORDS WORKSPACE NOT INCLUDING VALUE LABELS *****

```
> 25 10 9 6 14 4 14 14
> 147 124 66 81 136 58 113 122
FILE N0NAME (CREATION DATE = NOV.12, 1977)
```

***** C R O S S T A B U L A T I O N O F *****
 Y BY X ***** PAGE

		X								ROW
COUNT		1	2	3	4	5	6	7	8	TOTAL
Y	1	25	10	9	6	14	4	14	14	96
	2	147	124	66	81	136	58	113	122	847
COLUMN TOTAL		172	134	75	87	150	62	127	136	943
		18.2	14.2	8.0	9.2	15.9	6.6	13.5	14.4	100.0

RAW CHI SQUARE = 7.10783 WITH 7 DEGREES OF FREEDOM. SIGNIFICANCE = 0.4177
 CRAMER'S V = 0.08682
 CONTINGENCY COEFFICIENT = 0.08649

Fig. 7 Example of MULTIGRAPH, the special subprogram to prepare general XY-plotter run by SPTSS language. Note that RUN NAME, FILE NAME, SUBFILE NAMES and VALUE LABELS are drawn on XYplotter chart. Labels on X and Y axes are drawn out from DOCUMENT.

```

VALUE LABELS  STATUS.H (1) YOKOZUNA      (2) OZEKI      (3) SEKIWAKE
                (4) KOMUSUBI      (5) MAEGASHIRA (6) JURYO/
MISSING VALUES WIN.T LOSS.T (-1)
DOCUMENT      * NAMES FOR XYLABEL *
                TOTAL WINS (IN MAKUUCHI)
                TOTAL LOSSES (IN MAKUUCHI)

ACTS ON SUMO STARS (NAGOYA-BASHO  JUNE 1978)

MULTIGRAPH    XSCALE= 0(0) 10(500) */
                YSCALE= 0(0) 10(500) */
                SYMBOL= #14 #1 #0 #5 #2 J/
                H= HVAR/ PLOT= LOSS.T WIN.T STATUS.H/
                LINE= (0 0) (500 500) '---.'/
                FORM= XF.0 YF.0 X=2 Y=2 -GRID/
                FEED */ 1/ XYLABEL 3 2/ LEGEND= STATUS.H 16 (0)/ DRAW/
                -16.21/ FEED */1/XYLABEL 3 2/LEGEND STATUS.H 16 0/ DRAW/
                -16.21/ FEED */1/XYLABEL 3 2/LEGEND STATUS.H 16 0/ DRAW/
    
```

FACTS ON SUMO STARS (NAGOYA-BASHO JUNE 1978)

FILE NONAME (79-01-17)
 SUBFILE EAST WEST

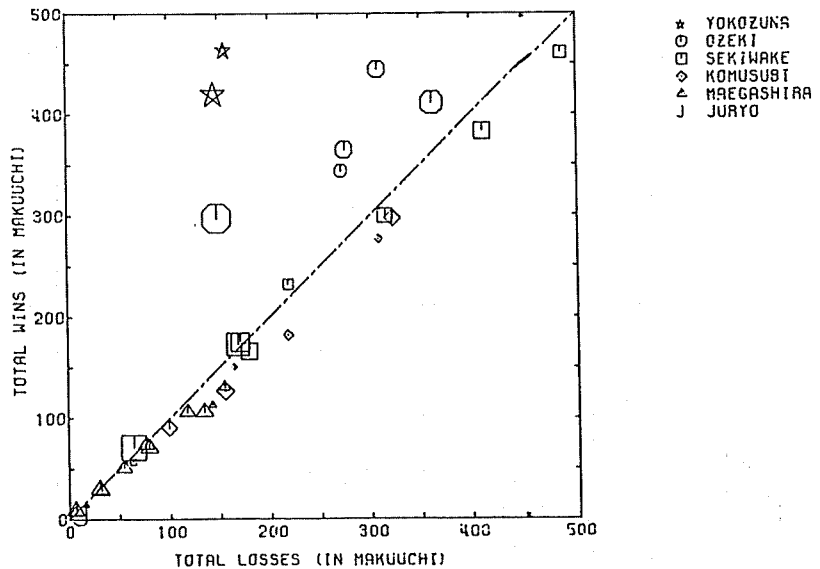


Fig. 8 Example of MULT ANS subprogram (japanese substitute for MULT RESPONSE subprogram of SPSS). Sorted frequency table of counts with code labels is listed here.

GVAR= 6 (MULT= 7 / 8) Q31 YOUR PRIDES ABOUT JAPAN
 (WEIGHT=) 1.0 1.0 1.0 1.0 1.0 1.0 1.0

CODE LABELS

ITEM= 1 DILIGENT PEOPLE
 ITEM= 2 AFFLUENT SOCIETY
 ITEM= 3 FREEDOM GUARANTEED
 ITEM= 4 LONG TRADITION
 ITEM= 5 BEAUTIFUL COUNTRY
 ITEM= 6 RENOUNCE WAR
 ITEM= 7 WELL UNITED NATION
 ITEM= 8 NO PRIDE

ITEM=	1	2	3	4	5	6	7	8
FREQ=	83.0	62.0	96.0	70.0	101.0	61.0	6.0	7.0
% =	17.1	12.8	19.8	14.4	20.8	12.6	1.2	1.4

SORTED MULTI FREQUENCIES

	BEAU TIFU	FREE DOM	DILI GENT	LONG TRA	AFFL UENT	RENO UNCE	NO P RIDE	WELL UNI
ITEM=	5	3	1	4	2	6	8	7
FREQ=	101.0	96.0	83.0	70.0	62.0	61.0	7.0	6.0
% =	20.8	19.8	17.1	14.4	12.8	12.6	1.4	1.2
ACM%=	20.8	40.5	57.6	72.0	84.8	97.3	98.8	100.0

ACCUM FREQ = 486 (486.0) 100.0%

VALID CODES= 486 MISSING CODES= 753 TOTAL CODES= 1239 ANSWER RATE (CODE)= 39.23

VALID CASES= 176 MISSING CASES= 1 TOTAL CASES= 177 ANSWER RATE (CASE)= 99.44

