APPENDIX E

SHORTENED DATA FILES

How to SHORTEN CALCAP Data Files

It is possible to simplify the data structure of the raw CALCAP data files significantly by using the SHORTEN utility. This utility takes all CALCAP data and arranges it in a fixed format suitable for use by statistical packages or database programs. The SHORTEN program is invoked by typing:

SHORTEN

at the DOS command prompt. The SHORTEN program will merge all CALCAP raw data files of the form *subjn-xx.dat* into two data files named MMDDYYA.DTA and MMDDYYA.DBF where MM is the month, DD is the day, YY is the year, and the letter A is appended to the date if this is the first such file in your directory, the letter B is appended if this is the second such file, and so on. The .DTA file is a plain ASCII file that uses the structure described below. The .DBF file is in dBase® III format and can be used directly by most database programs and statistical packages.

In order to stay within the 128 variable limit of dBase, several variables are not included in the .DBF file, including the computer accuracy/resolution parameters (Delay.Resolution, Delay.Error, Keyboard.Resolution, Display.Duration #1, Display.Duration #5, Multi-tasking), the second of the day that the exam was started (Exam Time: Second), the Uncorrected Reaction Time variables for all tasks, and the Maximum Reaction Time variables for all tasks. The values for Maximum Reaction Time can be derived by summing the Range and Minimum Reaction Time variables (i.e., Maximum Reaction Time = Minimum Reaction Time + Range).

The SHORTEN program is designed for use with the Standard and Abbreviated versions of the CALCAP program, and should work with most Customized versions, as long as no single task (e.g., Choice Reaction Time Task 03) is repeated more than once.

Edit Checks for SHORTENed Data Files

There are several checks that you should perform to ensure data integrity. These checks are necessary to exclude subjects who score unusually poorly because they did not complete the task or did not understand the instructions.

- 1. If the number of True Positives plus the number of False Positives is less than 5, then all data from that task should be coded as missing.
- 2. If the Range of reaction time scores for any task is equal to 0, then all data from that task should be coded as missing.
- 3. If the Range of reaction time scores for any of the simple reaction time measures exceeds 1500 msecs, all of the data from that task should be coded as missing.
- 4. If the Range of reaction time scores for any of the choice reaction time measures (any measure aside from simple reaction time) exceeds 1000 msecs, then all data from that task should be coded as missing.
- 5. If the Corrected Reaction Time for any of the simple reaction time procedures is less than 200 msecs or exceeds 1600 msecs, all data from that task should be coded as missing.
- 6. If the Corrected Reaction Time for any of the choice reaction time measures (any measure aside from simple reaction time) is less than 200 msecs or exceeds 1000 msecs, then all data from that task should be coded as missing.
- 7. If the number of True Positive responses is less than 2, then all data from that task should be coded as missing.

Structure of SHORTENed Data Files

If the variable is included in the dBase format file, then the dBase variable name is listed under VarName below:

| <u>Line #</u> 1 | <u>VarName</u> ID | <u>Description</u> Subject ID Number | <u>Columns</u> 01-05 | <u>Legal Values/Codes</u> Any combination of 5 alphanumeric characters. First character must be a letter from A-Z. |
|--------------------|----------------------|---|-------------------------|--|
| 1 | VISIT | Visit Number | 07-09 | Any numeric value up to 999. |
| 1 | SITEID | Site Identification Number | 20-21 | 01-99 |
| 1 | | Delay.Resolution | 23-28 | Resolution of choice reaction time timing circuit, per msec. This value is a function of the speed of the microprocessor. |
| 1 | | Delay.Error | 30-35 | Average error in timing choice reaction time tasks, in msecs. This value is a function of the design of the PC's internal timer (clock rate of 18.2 ticks per second) and the speed of the microprocessor. Note that timing for the QLCAP program is considerably more accurate than the PC's internal timer. ^{**} |
| 1 | | Keyboard.Resolution | 37-42 | This value represents the average error in msecs for timing keyboard responses for the simple reaction time tasks. This value is a function of the speed of the microprocessor and any idiosyncracies of the keyboard processor. |
| 1 | | Display.Duration #1 | 44-49 | Indicates the time required (in msecs) to display and remove a single-digit stimulus target. This value is a function of the hardware characteristics of the video card and display and the speed of the microprocessor. |
| 1 | | Display.Duration #5 | 51-56 | Indicates the time required (in msecs) to display and remove a five-digit stimulus target. This value is a function of the hardware characteristics of the video card and display and the speed of the microprocessor. |

^{**}Use the following formula to compute the actual error range (\pm xx msecs) for choice RT tasks:

Error range = (Task duration in msecs) * Delay.Error + Delay.Resolution

For example, if a task is supposed to last 1000 msecs and Delay. Error = 0.0089 and Delay. Resolution = 1.12, then the accuracy of timing is equal to: 1000 * 0.0089 + 1.12 = 10.02. Thus, Accuracy = 1000 msecs ± 10 msecs.

| <u>Line #</u> 1 | <u>VarName</u> EXMON EXDAY EXYR | Description Exam Date: | Month Day Year | <u>Columns</u> 58-59 61-62 64-67 | <u>Legal \</u> 01-12 01-31 1980-2 | <u>/alues/Codes</u> 050 |
|--------------------|--|--|---|--|---|--|
| 1 | PROGDRIV Name of Program Driver | | am Driver | 69-76 | There are a variety of CALCAP program drivers. If the first letter of the driver is "S", then the program driver is written in Spanish. If the first letter of the driver is "N", then the program driver is written in Norwegian. | |
| 2 | PROGVER | R Version of CalCAP Program | | 01-06 | blank before 09/2007; RT0907 | |
| 2 | AGE | Age | | 20-21 | 08-99 | |
| 2 | GENDER | Gender | | 24 | M = | Male, F = Female |
| 2 | HAND | Handedness | | 26 | R = L = | Right Left |
| 2 | ETHNIC | Ethnicity | | 28 | 1 = 2 = 3 = 4 = 5 = 6 = | Asian Black Hispanic American Indian White (not Hispanic) Other |
| 2 | EDUCY | Years of Educa | tion | 30-31 | 06-20 | |
| 2 | VISION | Normal/Correct | ed Vision | 33 | N = C = | Normal Corrected |
| 2 | ALLERGY | Allergies | | 35 | Y = N = | Yes No |
| 2 | JOB | Occupation | | 37-66 | Text description of the subject's occupation entered by the examiner or the screen for collecting demographic information. | |
| 2 | EXHR EXMIN | Exam Time: | Hour Minute Second | 69-70 72-73 75-76 | 00-23 00-59 00-59 | |
| 3 | Simple RT SRT1 MEDIAN1 MINRT1 RANGE1 | #1 - Dominant Uncorrected Read Corrected Read Median Reaction Minimum React Maximum Read Range of React | Hand eaction Time ^{***} ction Time ^{***} on Time tion Time ction Time tion Time | 05-08 10-13 15-18 20-23 25-28 71-74 | 0100-1 0100-1 0100-1 0100-1 0100-1 0100-1 | 500 500 500 500 500 500 |

^{****}Uncorrected reaction time is the mean reaction time using all available trials. Corrected reaction time is the reaction time excluding the 2 best and 2 worst reaction time scores.

| <u>Line #</u> 4 | <u>VarName</u> Simple RT | Description - Nondominant Hand | <u>Columns</u> | Legal Values/Codes | | | |
|--------------------|-------------------------------------|-----------------------------------|----------------|--------------------|--|--|--|
| | - | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | SRT2 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN2 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT2 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | RANGE2 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 5 | Choice RT - Basic Go-No Go Paradigm | | | | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT3 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN3 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT3 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP3 | True Positive Responses | 30-32 | 00-15 | | | |
| | FN3 | False Negative Responses | 34-36 | 00-15 | | | |
| | FP3 | False Positive Responses | 38-40 | 00-85 | | | |
| | TN3 | True Negative Responses | 42-44 | 00-85 | | | |
| | DPRIME3 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME3 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA3 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE3 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 6 | Sequential RT 1 | | | | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT4 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN4 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT4 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP4 | True Positive Responses | 30-32 | 00-20 | | | |
| | FN4 | False Negative Responses | 34-36 | 00-20 | | | |
| | FP4 | False Positive Responses | 38-40 | 00-80 | | | |
| | TN4 | True Negative Responses | 42-44 | 00-80 | | | |
| | DPRIME4 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME4 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA4 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE4 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 7 | Lexical Discrimination | | | | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT5 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN5 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT5 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP5 | True Positive Responses | 30-32 | 00-24 | | | |
| | FN5 | False Negative Responses | 34-36 | 00-24 | | | |
| | FP5 | False Positive Responses | 38-40 | 00-96 | | | |
| | TN5 | True Negative Responses | 42-44 | 00-96 | | | |
| | DPRIME5 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME5 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA5 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE5 | Range of Reaction Times | 71-74 | 0100-1500 | | | |

E-4

| <u>Line #</u> 8 | <u>VarName</u> Simple RT | Description - Dominant Hand #2 | <u>Columns</u> | Legal Values/Codes | | | |
|--------------------|-----------------------------|-----------------------------------|----------------|--------------------|--|--|--|
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | SRT6 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN6 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT6 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | RANGE6 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 9 | Choice w/Distraction | | | | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT7 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN7 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT7 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP7 | True Positive Responses | 30-32 | 00-15 | | | |
| | FN7 | False Negative Responses | 34-36 | 00-15 | | | |
| | FP7 | False Positive Responses | 38-40 | 00-85 | | | |
| | TN7 | True Negative Responses | 42-44 | 00-85 | | | |
| | DPRIME7 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME7 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA7 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE7 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 10 | Rapid Visual Scanning | | | | | | |
| | • | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT8 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN8 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT8 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP8 | True Positive Responses | 30-32 | 00-15 | | | |
| | FN8 | False Negative Responses | 34-36 | 00-15 | | | |
| | FP8 | False Positive Responses | 38-40 | 00-85 | | | |
| | TN8 | True Negative Responses | 42-44 | 00-85 | | | |
| | DPRIME8 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME8 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA8 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE8 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| 11 | Form Discrimination | | | | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | | | |
| | CRT9 | Corrected Reaction Time | 10-13 | 0100-1500 | | | |
| | MEDIAN9 | Median Reaction Time | 15-18 | 0100-1500 | | | |
| | MINRT9 | Minimum Reaction Time | 20-23 | 0100-1500 | | | |
| | - | Maximum Reaction Time | 25-28 | 0100-1500 | | | |
| | TP9 | True Positive Responses | 30-32 | 00-20 | | | |
| | FN9 | False Negative Responses | 34-36 | 00-20 | | | |
| | FP9 | False Positive Responses | 38-40 | 00-80 | | | |
| | TN9 | True Negative Responses | 42-44 | 00-80 | | | |
| | DPRIME9 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | | | |
| | APRIME9 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | | | |
| | BETA9 | beta (Signal Detection) | 62-69 | 00.00-19.00 | | | |
| | RANGE9 | Range of Reaction Times | 71-74 | 0100-1500 | | | |
| | | - | | | | | |

| <u>Line #</u> 12 | <u>VarName</u> Simple RT | Description - Dominant Hand #3 | <u>Columns</u> | Legal Values/Codes | |
|---------------------|--|------------------------------------|----------------|---|--|
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | |
| | SRT10 | Corrected Reaction Time | 10-13 | 0100-1500 | |
| | MEDIAN10 | Median Reaction Time | 15-18 | 0100-1500 | |
| | MINRT10 | Minimum Reaction Time | 20-23 | 0100-1500 | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | |
| | RANGE10 | Range of Reaction Times | 71-74 | 0100-1500 | |
| 13 | Recognitio | on Memory | | | |
| | TP11 | True Positive Responses | 30-32 | 00-36 | |
| | FN11 | False Negative Responses | 34-36 | 00-36 | |
| | FP11 | False Positive Responses | 38-40 | 00-54 | |
| | TN11 | True Negative Responses | 42-44 | 00-54 | |
| | DPRIME11 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | |
| | APRIME11 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | |
| | BETA11 | beta (Signal Detection) | 62-69 | 00.00-19.00 | |
| | | | 02 00 | | |
| 14 | Reserved for | or data collected using 8088 micro | processors | | |
| 15 | Reserved for data collected using 8088 microprocessors | | | | |
| 16 | | Sequential RT 2 | | | |
| | | Uncorrected Reaction Time | 05-08 | 0100-1500 | |
| | CRT14 | Corrected Reaction Time | 10-13 | 0100-1500 | |
| | MEDIAN14 | Median Reaction Time | 15-18 | 0100-1500 | |
| | MINRT14 | Minimum Reaction Time | 20-23 | 0100-1500 | |
| | | Maximum Reaction Time | 25-28 | 0100-1500 | |
| | TP14 | True Positive Responses | 30-32 | 00-20 | |
| | FN14 | False Negative Responses | 34-36 | 00-20 | |
| | FP14 | False Positive Responses | 38-40 | 00-80 | |
| | TN14 | True Negative Responses | 42-44 | 00-80 | |
| | DPRIME14 | d prime (Signal Detection) | 46-53 | 0.000-99.00 | |
| | APRIME14 | A prime (Signal Detection) | 54-61 | 0.000-1.000 | |
| | BETA14 | beta (Signal Detection) | 62-69 | 00.00-19.00 | |
| | RANGE14 | Range of Reaction Times | 71-74 | 0100-1500 | |
| 17 | MEDREC | Medical Record # Text | 11-68 | Information about patient name or medical | |
| | - | | | record number entered by the examiner on | |
| | | | | the screen for collecting demographic | |
| | | | | information. | |
| 18 | ХЛ | Diagnosis Text | 11-73 | Information about patient diagnosis entered | |
| 10 | BA | Blaghoolo loxe | 1170 | by the examiner on the screen for | |
| | | | | collecting demographic information. | |
| 10 | MICONOTE | Mine Tavé Natao | 44 70 | Missellensen, neter entered by the | |
| 19 | WISCINUTE | : MISC Text Notes | 11-72 | examiner on the screen for collecting | |
| | | | | demographic information. | |
| 20 | RTTIME | Elapsed Time | 20-24 | Elapsed time from beginning to end of RT | |
| | | • | | tasks | |
| 20 | | Multi.Tasking | 26-28 | Multi-tasking during program execution. | |
| | | ee | | -1 = Windows 386 Enhanced mode | |
| | | | | 0 = Neither Windows nor DOS shell | |
| | | | | 1 = DOS Shell | |
| | | | | 2 = Windows Standard mode | |