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## APPENDIX A

RAW DATA

In the pages that follow the raw data for each subject are listed in the following format:

3I3/4F6.2,4F7.2,4I3,2(/4F6.2,4F7.2)/4I3,F6.2/6I3,6(/6F6.2)/ 4F6.2,6(/6F6.2)

The variables are ordered as follows:
Study number $\quad 1$ = card test, $2=$ mock agent test
Subject identification
Sex $\quad 1=$ male, $0=$ female
SCR amplitude, relaxation condition (micromhos)
SCR amplitude, tone condition (micromhos)
SCR amplitude, count-up condition (micromhos)
SCR amplitude, mental arithmetic condition (micromhos)
SCR level, relaxation condition (micromhos)
SCR level, tone condition (micromhos)
SCR level, count-up condition (micromhos)
SCR level, mental arithmetic condition (micromhos)
Number of NSRs in the relaxation condition
Number of SCRs to tones
Number of SCRs to count-up stimuli
Number of NSRs in the mental arithmetic condition
Respiration rate, absolute change, relaxation condition (cycles per minute)

Respiration rate, absolute change, tone condition (cycles per minute)
Respiration rate, absolute change, count-up
condition (cycles per minute)
Respiration rate, absolute change, mental arithmetic condition (cycles per minute)
Respiration rate, level, relaxation condition (cycles per minute)
Respiration rate, level, tone condition (cycles per minute)
Respiration rate, level, count-up condition (cycles per minute)

Respiration rate, level, mental arithmetic condition (cycles per minute)
Heart rate, absolute change, relaxation condition (bpm)
Heart rate, absolute change, tone condition (bpm)
Heart rate, absolute change, count-up condition (bpm)
Heart rate, absolute change, mental arithmetic condition (bpm)
Heart rate, level, relaxation condition (bpm)
Heart rate, level, tone condition (bpm)
Heart rate, level, count-up condition (bpm)
Heart rate, level, mental arithmetic condition (bpm)
SCR level reactor $1=$ yes, $0=$ no
Heart rate level reactor $1=$ yes, $0=$ no
Respiration rate level reactor $1=$ yes, $0=$ no
Dual reactor i.e., two or more systems display maximum reactivity 1 = yes, $0=$ no
Coefficient of concordance for level measure
Extraversion (EPQ)
Neuroticism (EPQ)
Lie Scale (EPQ)
Psychoticism (EPQ)
Socialization (CPI)
Experimental or control subject $1=$ experimental, $0=$ control
SCR amplitude, card 1, trial 1 , yes condition
SCR amplitude, card 2 , trial 1 , yes condition
SCR amplitude, card 3, trial 1 , yes condition
SCR amplitude, card 4, trial 1 , yes condition
SCR amplitude, card 5, trial 1 , yes condition
SCR amplitude, selected card, trial 1 , yes condition
SCR amplitude, card 1, trial 1, no condition
SCR amplitude, card 2, trial 1, no condition
SCR amplitude, card 3, trial 1 , no condition
SCR amplitude, card 4, trial 1, no condition
SCR amplitude, card 5, trial 1, no condition
SCR amplitude, selected card, trial 1, no condition
SCR amplitude, card 1, trial 1 , mute condition
SCR amplitude, card 2 , trial 1 , mute condition
SCR amplitude, card 3, trial 1, mute condition
SCR amplitude, card 4, trial 1, mute condition
SCR amplitude, card 5, trial 1 , mute condition
SCR amplitude, selected card, trial 1, mute condition

SCR amplitude, card 1, trial 2, yes condition SCR amplitude, card 2, trial 2 , yes condition SCR amplitude, card 3, trial 2, yes condition SCR amplitude, card 4, trial 2 , yes condition SCR amplitude, card 5, trial 2, yes condition SCR amplitude, selected card, trial 2, yes condition SCR amplitude, card 1, trial 2, no condition SCR amplitude, card 2, trial 2, no condition SCR amplitude, card 3, trial 2, no condition SCR amplitude, card 4 , trial 2, no condition SCR amplitude, card 5, trial 2, no condition SCR amplitude, selected card, trial 2, no condition SCR amplitude, card 1, trial 2, mute condition SCR amplitude, card 2, trial 2, mute condition SCR amplitude, card 3, trial 2, mute condition SCR amplitude, card 4, trial 2, mute condition SCR amplitude, card 5, trial 2, mute condition SCR amplitude, selected card, trial 2, mute condition SCR amplitude, relevant question, trial 1 SCR amplitude, control question, trial 1 SCR amplitude, relevant question, trial 2 SCR amplitude, control question, trial 2 SCR amplitude, card 1, trial 1, bird topic SCR amplitude, card 2, trial 1, bird topic SCR amplitude, card 3, trial 1, bird topic SCR amplitude, card 4, trial 1, bird topic SCR amplitude, card 5, trial 1, bird topic SCR amplitude, selected card, trial 1, bird topic SCR amplitude, card 1, trial 1, tree topic SCR amplitude, card 2, trial 1, tree topic SCR amplitude, card 3, trial 1, tree topic SCR amplitude, card 4, trial 1, tree topic SCR amplitude, card 5, trial 1, tree topic SCR amplitude, selected card, trial 1, tree topic SCR amplitude, card 1, trial 1, colour topic SCR amplitude, card 2, trial 1, colour topic SCR amplitude, card 3, trial 1, colour topic SCR amplitude, card 4, trial 1, colour topic SCR amplitude, card 5, trial 1, colour topic

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SCR amplitude, selected card, trial 1, colour topic
SCR amplitude, card 1, trial 2, bird topic
SCR amplitude, card 2, trial 2, bird topic
SCR amplitude, card 3, trial 2, bird topic
SCR amplitude, card 4, trial 2, bird topic
SCR amplitude, card 5, trial 2, bird topic
SCR amplitude, selected card, trial 2, bird topic
SCR amplitude, card 1, trial 2, tree topic
SCR amplitude, card 2, trial 2, tree topic
SCR amplitude, card 3, trial 2, tree topic
SCR amplitude, card 4, trial 2, tree topic
SCR amplitude, card 5, trial 2, tree topic
SCR amplitude, selected card, trial 2, tree topic
SCR amplitude, card 1, trial 2, colour topic
SCR amplitude, card 2, trial 2, colour topic
SCR amplitude, card 3, trial 2, colour topic
SCR amplitude, card 4, trial 2, colour topic
SCR amplitude, card 5, trial 2, colour topic
SCR amplitude, selected card, trial 2, colour topic
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| .08 | .00 | .34 | .25 | 3.92 | 3.15 | 7.21 | 7.51 | 1 | 1 | 5 |
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| 2.07 | 1.73 | 2.25 | 2.90 | 16.34 | 17.59 | 18.02 | 20.21 |  |  |  |
| 6.00 | 6.00 | 3.20 | 9.60 | 84.00 | 75.60 | 85.60 | 96.00 |  |  |  |
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| .00 | .00 | .00 | .00 | .00 | .02 |  |  |  |  |  |
| .00 | .06 | .00 | .00 | .00 | .00 |  |  |  |  |  |
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| . 12 | . 18 | . 05 | 2.17 | 10.23 | 9.25 | 16.78 | 99.47 | 17 | 2 |
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| 2.73 | 1.18 | 2.57 | 2.62 | 13.40 | 13.99 | 13.47 | 15.15 |  |  |
| 6.00 | 3.60 | 8.00 | 9.60 | 78.00 | 70.80 | 68.00 | 74.00 |  |  |
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| 1.10 | . 05 | . 30 | . 50 | . 35 | 1.60 |  |  |  |  |
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| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |  |  |  |  |
| . 05 | . 95 | . 20 | . 40 | . 65 | . 40 |  |  |  |  |
| . 00 | . 15 | . 05 | . 05 | . 05 | . 55 |  |  |  |  |
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\begin{tabular}{rrrrrrrrrrr}
.17 & .53 & .15 & 1.71 & 3.96 & 4.10 & 6.42 & 7.12 & 2 & 10 & 6 \\
.75 & 2.09 & 3.61 & 2.18 & 13.76 & 16.47 & 10.33 & 19.68 & & & \\
12.00 & 2.40 & 6.40 & 12.00 & 57.00 & 58.80 & 56.80 & 68.00 & & &
\end{tabular}
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.00 & .05 & .00 & .14 & .00 & .15 \\
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\end{tabular}
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\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|}
\hline . 99 & . 09 & . 08 & 1.75 & 4.10 & 3.98 & 5.04 & 7.38 & 13 & 7 & 4 \\
\hline 1.49 & 1.64 & 3.05 & 4.53 & 12.55 & 14.00 & 14.29 & 14.41 & & & \\
\hline . 00 & 4.80 & 3.20 & 28.80 & 75.00 & 64.80 & 71.20 & 78.00 & & & \\
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| .87 | 1.22 | 2.23 | 2.31 | 15.57 | 10.67 | 15.88 | 15.33 |  |  |  |
| .00 | 1.20 | 4.80 | 7.20 | 60.00 | 60.00 | 64.00 | 60.00 |  |  |  |

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| 1.05 | 2.30 | 1.40 | 1.65 | 1.20 | 1.05 |
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| 2.55 | 2.35 | .85 | .35 | 1.45 | 1.85 |
| .55 | 1.20 | .00 | .00 | .00 | 1.20 |
| .90 | .35 | 1.60 | 1.85 | .65 | 1.90 |
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| 1.17 | .90 | 2.12 | 2.33 | 16.22 | 16.55 | 18.29 | 16.74 |
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| .00 | 4.00 | 6.00 | 7.20 | 75.00 | 68.40 | 73.70 | 74.00 |
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| 2.03 | 1.15 | 4.20 | .04 | 14.84 | 17.15 |
| 6.00 | 6.00 | 7.20 | .00 | 78.00 | 76.80 |
| 0 | 0 | 0 | 1 | .19 |  |
| 0 | - | - |  |  |  |
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| .25 | .80 | .00 | .00 | .05 | .05 |
| 2.40 | 1.05 | 2.05 | 2.35 | 1.45 | 2.70 |
| .00 | .00 | .20 | .05 | .00 | .05 |
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| .03 | .00 | .07 | .57 | 2.79 | 2.50 | 3.02 | 4.91 | 4 | 0 | 0 |
| .29 | 1.39 | 1.83 | 1.62 | 15.67 | 96.07 | 17.12 | 17.76 |  |  |  |
| 6.00 | 3.50 | 4.80 | .00 | 90.00 | 84.00 | 84.00 | 88.80 |  |  |  |
| 0 | 1 | 0 | 0 | .81 |  |  |  |  |  |  |
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| .05 | .00 | .25 | .00 | .00 | .25 |  |  |  |  |  |
| .25 | .45 | .15 | 1.00 | .65 | 1.45 |  |  |  |  |  |
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| . 00 | . 03 | . 04 | . 69 | 5.46 | 7.36 | 6.01 | 9.67 | 011 |
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| . 86 | 2.30 | 2.35 | 3.29 | 15.84 | 16.95 | 16.73 | 15.50 |  |
| . 00 | 0.60 | 4.80 | 9.60 | 78.00 | 74.40 | 76.00 | 86.00 |  |
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| 1.29 | .91 | 2.78 | 1.47 | 13.22 | 14.34 | -3.62 | 11.79 |  |  |  |
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| 1.56 | 1.14 | 1.32 | 3.09 | 21.53 | 19.63 | 20.71 | 22.97 |  |  |  |
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| $\bigcirc 0$ | 10 | 1.00 |  |  |  |  |  |  |  |  |
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| . 00 | . 00 | . 00 | . 00 | . 00 | . 02 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 02 | . 00 | . 00 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |  |  |  |  |  |
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| - | - | - | - | - | - |  |  |  |  |  |
| - | - | - | - | - | - |  |  |  |  |  |
| - | - | - | - | - | - |  |  |  |  |  |
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| - | - | - | - | - | - |  |  |  |  |  |
| 120 | 0 |  |  |  |  |  |  |  |  |  |
| . 15 | . 05 | . 25 | . 63 | 7.00 | 8.47 | 10.59 | 9.34 | 7 | 2 | $4 \quad 12$ |
| . 93 | 1.29 | 2.58 | 2.31 | 17.84 | -9.80 | 20.61 | 18.35 |  |  |  |
| 12.00 | 4.80 | 8.60 | 9.50 | 81.00 | 79.20 | 75.20 | 92.00 |  |  |  |
| 00 | 10 | . 56 |  |  |  |  |  |  |  |  |
| 0 - | - - | - 0 |  |  |  |  |  |  |  |  |
| . 02 | . 00 | . 00 | . 00 | . 00 | . 02 |  |  |  |  |  |
| . 24 | . 52 | . 12 | . 30 | . 02 | . 12 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 05 | . 00 | . 00 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 06 |  |  |  |  |  |
| . 00 | . 02 | . 00 | . 06 | . 00 | . 84 |  |  |  |  |  |
| . 00 | . 00 | . 00 | . 00 | . 00 | . 00 |  |  |  |  |  |
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123 1
\begin{tabular}{llllllllllll}
.01 & .06 & .11 & .35 & 10.18 & 7.65 & 10.82 & 10.24 & 7 & 4 & 5 & 5
\end{tabular}
\begin{tabular}{llllllll}
.30 & 1.10 & 2.55 & 1.50 & 11.46 & 13.02 & 12.10 & 15.22
\end{tabular}
\begin{tabular}{llllllll}
6.00 & 3.60 & 5.60 & 9.60 & 81.00 & 75.60 & 81.60 & 84.00
\end{tabular}
010 0 . 81
0 - - - - 0
\begin{tabular}{cccccc}
.24 & .20 & .22 & .18 & .26 & .20 \\
- & .30 & .36 & .48 & .52 & .28 \\
.00 & .00 & .10 & .00 & .00 & .08 \\
.18 & .16 & .16 & .24 & .12 & .14 \\
.60 & .34 & .38 & .38 & .56 & .56 \\
.00 & .00 & .02 & .00 & .00 & .20
\end{tabular}
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124 1
    .00 1.23 1.14 1.01 3.96 4.89 6.67 8.39 0
    .54
    .00}30.00 3.20 9.60 72.00 69.60 68.00 84.00 
0 0 1 0 . 75
0 - _ - - 0
\begin{tabular}{cccccc}
.05 & .00 & .00 & .00 & .00 & .10 \\
- & .00 & .00 & .00 & .00 & .00 \\
.00 & .00 & .00 & .00 & .00 & .20 \\
.10 & .00 & .25 & .35 & .00 & .05 \\
.40 & .00 & .00 & .00 & .10 & .00 \\
.00 & .00 & .00 & .00 & .00 & .00
\end{tabular}
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125 1
.00 .00 .08 1.03 .08 .08 3.53 7.27 6.24 0 0 0 1 0 0
2.17}10.67 2.08 3.57 10.58 13.63 13.94 19.44

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0 1 0 0 . 81
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.42
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.06 - .02 - .00 . . 18
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126}
.70 . 46 .46 1.71 9.38 11.06 11.12 13.68 32 8 8 %

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    .00}44.20 2.40 7.20 03.00 88.80 94.40 100.00
    0 1 0 0 1.00
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| .80 | .40 | .45 | . .15 | .00 | .45 |
| ---: | ---: | ---: | ---: | ---: | ---: |
| 1.20 | .15 | 1.15 | .25 | .50 | .00 |
| .00 | .00 | .20 | .00 | .00 | .00 |
| .05 | .00 | .15 | .20 | .05 | .60 |
| .00 | .00 | .25 | .40 | .00 | .95 |
| .00 | .00 | .00 | .00 | .00 | .50 |

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127 0

| .00 | .00 | .18 | .33 | 2.33 | 2.05 | 3.79 | 2.90 | 1 | 0 | 0 | 0 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

    .53 1.75 2.10 4.00 14.39 i2.98
    6.00}30.00 7.40 14.40 96.00 111.00 90.70 108.00
0}1000.7
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| .00 | .00 | .00 | .05 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .25 | .00 | .00 |
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129 0

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    .71}10.53\mp@code{3.19
    6.00 6.00 6.00 19.20 90.00
0 1 0 0 . 81
0 - _ _ - 0
.30 .40 .00 . 10 - . 35
.00 1.30 .05 .25 - . . 15
.05 .23 . .05 . . 0 . . }
.05 .00 .00 .50 .05 -
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130 0
.48 .08 .11 . . 33 6.73 7.63 8.13 7.74 4 6 5 5 5
.50
6.00}8.8.40 5.50 2.40 84.00 57.20 72.00 76.00
10 0 0 . 81
0 _ _ _ - 0
.25 . .5 .05 . . % . 10 .50
.55 - .05 . 15 .40 . . 5
.28 .20 . 12 - - . 36
.30 .00 . 10 . 20 . 25 . 20
.15 . . . 15 . .00 . 30 .05
.00 .20 .05 . 10 .03 . 30
_ - - - _ -
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1310

| .00 | .00 | .03 | .04 | 8.08 | 5.01 | 7.61 | 7.79 | 0 | 0 | 1 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| .86 | 1.89 | 2.56 | 1.89 | 16.91 | 19.78 | 13.32 | 24.15 |  |  |  |
| 6.00 | 6.00 | 7.40 | 12.00 | 87.00 | 81.60 | 102.50 | 98.00 |  |  |  |
| 0 | 1 | 0 | 0 | .44 |  |  |  |  |  |  |
| 0 | - | - | - | - |  |  |  |  |  |  |
| .00 | .00 | .00 | .00 | .00 | .00 |  |  |  |  |  |
| .30 | .05 | .00 | .00 | .00 | .00 |  |  |  |  |  |
| .00 | .00 | .10 | .00 | .00 | .00 |  |  |  |  |  |
| .00 | .00 | .00 | .00 | .00 | .00 |  |  |  |  |  |
| .00 | .00 | .00 | .00 | .00 | .00 |  |  |  |  |  |
| .00 | .00 | .00 | .00 | .00 | .00 |  |  |  |  |  |
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| - | - | - | - | - | - |  |  |  |  |  |
| - | - | - | - | - | - |  |  |  |  |  |
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; 320

| .00 | .00 | .15 | .08 | 3.01 | 2.22 | 2.63 | 3.79 | 1 | 0 | 2 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 1.40 | .98 | 1.60 | 2.39 | 17.93 | 18.60 | 18.76 | 18.64 |  |  |  |
| .00 | 3.60 | 6.50 | 7.20 | 90.00 | 9.20 | 86.40 | 88.00 |  |  |  |

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| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |

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| ． 10 | ． 05 | ． 01 | ． 03 | 7.15 | 7.32 | 9.10 | 8.20 | 5 | 4 | 2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ． 90 | ． 98 | 2.18 | 2.98 | 8.19 | 9.54 | 11.05 | 12.53 |  |  |  |
| 6.00 | 3.50 | 8.00 | 9.60 | 81.00 | 81．60 | 78.40 | 82.00 |  |  |  |
| 01 | 00 | 1.00 |  |  |  |  |  |  |  |  |
| 0 － | －－ | － 0 |  |  |  |  |  |  |  |  |
| ． 20 | ． 00 | ． 06 | ． 08 | ． 00 | ． 12 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 02 | ． 00 | .00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 04 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| － | － | － | － |  |  |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
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| こ ミ | 0 |  |  |  |  |  |  |  |  |  |
| ． 00 | ． 00 | ． 01 | ． 16 | 1.58 | ． 80 | 4.88 | 1.70 | 0 | 0 | 3 |
| 1． 85 | 2.53 | 3.32 | 4.30 | 13.80 | 14．33 | 17.59 | 20.32 |  |  |  |
| ． 00 | 4.80 | 10.40 | 24.00 | 84.00 | 85.40 | 81.60 | 104.00 |  |  |  |
| 01 | 00 | ． 81 |  |  |  |  |  |  |  |  |
| 0 － | －－ | － 0 |  |  |  |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
| ． 00 | ． 00 | ． 00 | ． 00 | ． 00 | ． 00 |  |  |  |  |  |
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| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
| － | － | － | － | － | － |  |  |  |  |  |
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135 0
    .00 .03 .03 1.80 6.09 4.36 8.82 6.33 0 1.01 2 0
    .90
    .00}30.60 4.80 4.80 78.00 ت3.20 76.80 82.00
0}0010101.0
0 _ _ _ - 0
\begin{tabular}{llllll}
.05 & .00 & .00 & .05 & .00 & .00 \\
.00 & .00 & .00 & .00 & .00 & .00 \\
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.00 & .00 & .00 & .00 & .00 & .00 \\
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`30}
    .00 .00 .01 . 20 \.97 .47 .52 1.63 0 1 0 0 0
3.56 3.48 2.59 2.18 16.2i 16.78
6.00 3.60 4.80 .00 78.00 85.20 87.40 
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0 - - - - 0
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1370

\(138 \quad 1\)
\(\begin{array}{lllllllllll}2.45 & .27 & 1.10 & 5.56 & 17.23 & \equiv 1.29 & 25.40 & 33.73 & 24 & 3 & 6 \\ 13\end{array}\)
\(\begin{array}{llllllll}1.49 & 1.51 & 1.81 & 3.69 & 14.28 & 9.66 & 13.34 & 19.85\end{array}\)
\(\begin{array}{llllllll}.00 & 3.60 & 1.85 & 7.20 & 72.00 & 75.60 & 73.85 & 76.00\end{array}\)
\(\begin{array}{lllll}1 & 0 & 0 & 0 & .81\end{array}\)
01609310
\(\begin{array}{llllll}4.80 & 2.80 & 3.00 & 2.00 & 3.50 & 4.80\end{array}\)
\(\begin{array}{llllll}2.60 & 2.60 & 3.40 & 1.40 & 2.00 & 4.80\end{array}\)
\begin{tabular}{llllll}
.80 & .60 & .60 & 1.00 & .00 & 4.40
\end{tabular}
\(\begin{array}{llllll}1.00 & 2.40 & .60 & 1.60 & 1.80 & 6.00\end{array}\)
\(\begin{array}{llllll}2.20 & 1.80 & 1.20 & 2.00 & 2.20 & 4.20\end{array}\)
\(\begin{array}{llllll}.40 & .00 & 2.60 & 1.40 & .00 & 2.40\end{array}\)
\(\begin{array}{cccccc}- & - & - & - & & \\ - & - & - & - & - & - \\ - & - & - & - & - & - \\ - & - & - & - & - & - \\ - & - & - & - & - & - \\ - & - & - & - & - & - \\ - & - & - & - & - & -\end{array}\)
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139 1
.40 .19 .78 3.02 10.41 20.43 24.21 21.28 22 2 % 7 %

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10}000.8
0}14\mp@code{7
.40 . 20 .00 .00 . 20 .00
. }60\quad2.40 1.20 . .00 . 80 5.40
.10 . 10 .00 .00 .00 . 80
.40 . 60 .70 . .00 4.40 . 20
.00 .00 .00 .00 .00 7.00
.00 .00 .20 .00 .00 2.60
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2.65 1.92 3.32 3.02 12.96 11.49 11.11 18.30
18.00 12.00 8.31 12.00 96.00 87.60
0 1 0 0 . \&i
0}

| .15 | .10 | .65 | . .85 | .00 | .60 |
| ---: | ---: | ---: | ---: | ---: | ---: |
| .80 | .70 | .30 | .30 | .20 | 2.30 |
| .00 | .05 | .00 | .00 | .00 | 1.25 |
| .05 | .25 | .10 | .35 | .30 | 1.75 |
| .00 | .05 | .35 | .00 | .20 | .35 |
| .05 | .25 | .05 | .00 | .00 | .45 |

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141
    .i8 .00 . . 36 3.20 5.88 3.31 11.69 10.05 4 4 0 4 4 1
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    .00}30.60 6.46 14.40 72.00 73.20 74.77 86.00
0}00100.7
0 10 2 8 31 0
    .10 .00 .00 .00 .40 1.60
1.70 .00 .00 4.90 .00 .00
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142 i
    .03 .00 . 17 1.50 &.71 7.25 &.00 i2.62 2 0 6 %
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    .00 6.00 5.46 12.00 75.00 75.60 75.62 76.00
O 0 i 0 . 25
016 4 7 ミ3 0
    .15 .10 1.10 .45 .05 1.05
    .25 . 85 . 10 .40 . 20 1.35
    .00 .00 .00 . 10 .00 .05
2.05 . 35 . 10 . 40 . 20 2.05
    .20 .20 1.65 . .35 .00 1.70
    .00 . 10 .00 .05 .05 .00
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143 1
.63 . 25 . 32 3.42 10.25 19.32 21.49 17.03 9
.86}1.9091.92 3.35 13.50 15.37 15.50 14.38
12.00}2.67\quad10.00 i2.00 63.00 57.33 58.00 56.00
10 0 0 1.00
023 1 0́ 20 0
1.90 . .80 1.30 1.80 . .50 3.00
.00 . 10 .00 . 30 .00 1.80
.85
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.25 .00 .00 .00 .00 .00
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- - - - - -
_ _ - _
144 1
2.60 .72 .81 4.02 37.16 54.29 37.06 56.36 21 5
2.19 2.42 2.07 2.24 14.86 15.79 15.79 18.90
6.00
10}0001.0
0 13 9 7 38 0
6.40 3.40 3.20 1.40 1.00 2.60
3.20 1.40 .40 1.60 . .60 3.60
.00 .00 .40 .20 . .20 2.50
.20}1.00\quad1.80 3.60 . .80 5.00
.60}4.80\quad1.20\quad.40\quad.80 1.8
1.50 .00 .00 .00 . 10 . 40
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i46 i
\begin{tabular}{llllllllllll}
.70 & .03 & .85 & \(\Xi .08\) & 39.40 & 42.22 & 51.57 & 56.02 & 10 & 2 & 6 & 9 \\
1.36 & 2.83 & 1.02 & 4.85 & 21.67 & 20.16 & 31.85 & 26.00 & & & \\
6.00 & 6.00 & 3.69 & 14.40 & 75.00 & 64.80 & 72.00 & 88.00 & & &
\end{tabular}
10 0 0 ?.00
022 6 5 32 0
3.00 4.60 .50 2.50 1.80 4.20
4.60 1.40 1.20 .00 1.40 6.00
    .40 .00 .20 .05 .05 .90
2.60
```



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    .70 . 10 .00 .00 .00 . 30
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$147 \quad 1$
$\begin{array}{llllllllllll}6.00 & 2.53 & 1.57 & 6.40 & 32.20 & 51.34 & 58.07 & 56.60 & 24 & 8 & 7 & 4\end{array}$
$\begin{array}{llllllll}1.01 & 3.31 & 3.51 & 3.28 & 21.45 & 19.13 & 14.09 & 16.34\end{array}$
$\begin{array}{llllllll}.00 & 4.80 & 6.46 & 4.80 & 57.00 & 58.80 & 50.08 & 50.00\end{array}$
$\begin{array}{lllll}1 & 0 & 0 & 0 & 1.00\end{array}$
$015 \quad 6 \quad 740 \quad 0$
$\begin{array}{llllll}4.40 & 6.00 & .00 & 3.20 & 8.20 & 5.20\end{array}$
$\begin{array}{llllll}4.50 & 2.00 & 1.00 & 4.50 & 1.50 & 5.00\end{array}$
.00 . 40 . 00 . 80 . 20 . 00
$\begin{array}{llllll}4.20 & 2.20 & 2.00 & 2.20 & 5.80 & 4.00\end{array}$
$\begin{array}{llllll}2.80 & 1.00 & 2.80 & .80 & 5.20 & 4.60\end{array}$
.00 - . 00 . 00 - 1.10

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148 i
\(\begin{array}{llllllllllll}1.60 & .00 & .40 & 3.20 & 12.84 & 18.85 & 24.17 & 20.88 & 5 & 0 & 4 & 2\end{array}\)
\(\begin{array}{llllllll}3.65 & 2.64 & 7.65 & 1.72 & 16.29 & 11.47 & 11.58 & 20.04\end{array}\)
\(\begin{array}{llllllll}6.00 & 3.60 & 10.15 & 9.50 & 75.00 & 76.80 & 80.31 & 92.00\end{array}\)
1000.44
\(0115 \quad 526 \quad 0\)
\begin{tabular}{rrrrrr}
1.00 & 1.60 & \(i .50\) & .00 & .00 & 1.40 \\
2.80 & 2.20 & 2.00 & 2.20 & .40 & 1.80 \\
1.80 & 1.90 & 1.60 & 1.80 & .50 & 4.40 \\
.00 & .00 & .40 & .00 & .00 & .40 \\
.40 & .00 & .60 & .00 & .00 & 2.20 \\
.70 & .00 & .00 & .00 & 1.50 & 4.20
\end{tabular}
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1491
\(\left.\begin{array}{rrrrrrrrrrr}.28 & .38 & .15 & 2.49 & 5.91 & 8.07 & 12.00 & 13.54 & 5 & 8 & 6 \\ \hline\end{array} \begin{array}{rrr}10\end{array}\right)\)
\begin{tabular}{llllll}
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10000.56
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\begin{tabular}{rrrrrr}
.20 & .20 & 2.20 & .20 & .00 & .10 \\
.70 & 2.10 & .50 & .10 & .20 & 2.10 \\
.10 & .10 & .00 & .00 & .00 & .10 \\
.10 & .10 & .30 & .90 & .20 & 1.60 \\
.60 & .40 & .50 & 1.60 & 1.80 & 3.80 \\
.05 & .00 & .00 & .00 & .05 & .15
\end{tabular}
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.ミ3 .06 .08 1.82 4.73 4.78 5.97 10.98 13 6 3 9
2.こ3 2.12 1.66 2.00 14.43 14.80
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0}00100.8
0:1 10 2 38 0
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.40 1.00 . . }05\mathrm{ 1.05 . .30 . 65
.00 .00 .55 .00 . 15 . 10
.75 .90 ..35 1.70 . .95 1.05
.10 .05 .20 . .80 . . 25 1.65
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| . 45 | . 01 | . 14 | 2.76 | 6.10 | 4.82 | 5.79 | 7.93 | 6 | 1 | 13 |
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| 4.48 | 2.42 | 2.07 | 5.45 | 14.71 | 24.78 | 24.13 | 17.73 |  |  |  |
| 6.00 | 8.40 | 5.54 | 7.20 | 90.00 | 79.20 | 78.45 | 88.00 |  |  |  |
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| . 35 | . 01 | . 02 | 4.79 | 10.08 | 8.75 | 19.10 | $\bigcirc 1.81$ |  | 2 | 17 |
| 2.54 | 1.37 | 1.61 | 4.24 | 15.54 | 15.93 | 16.23 | 5.90 |  |  |  |
| 12.00 | 2.40 | 3.69 | 0.60 | 96.00 | 82.80 | 87.69 | 92.00 |  |  |  |
| 01 | 00 | . 75 |  |  |  |  |  |  |  |  |
| $0 \quad 17$ | 99 | $15 \quad 1$ |  |  |  |  |  |  |  |  |
| . 55 | 1.05 | 1.30 | .25 | . 35 | . 35 |  |  |  |  |  |
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.15 . 16 . 17 1.02 13.88 24.08 24.42 20.77 20 i % 6 5
.61 2.37 1.98 4.15 15.88 16.92 15.51 !巨.98
.00}30.60 2.77 4.80 81.00 79.20 76.62 E2.00
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01144423 0
2.30 .90 1.20 .40 .00 1.20
3.10 .70 . 20 2.70 i.30 3.20
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.80 & .40 & .00 & .00 & .00 & 2.50 \\
.00 & .20 & .50 & .10 & .00 & .40 \\
.00 & 2.50 & 1.20 & .70 & 1.70 & 2.20 \\
.00 & .10 & .10 & .20 & 1.30 & 1.00
\end{tabular}
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:50 0
.00 .00 .01 . 37 7.70 12.50 10.10 %.03 0- 0 1 1
i.40 i. 17 i.40 i.87 9.35 10.33 &.97 %4.98
.00 2.40 5.54 i2.00 59.00 62.40 62.77 70.00
i 0 0 0 . 81
014 9 2 44 1
\begin{tabular}{llllll}
.00 & .00 & .00 & .00 & .00 & .00 \\
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\end{tabular}
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.65 i. 21 1.44 2.24 17.86 1\&.L` i\&.88 18.14
6.00 1.80 6.46 4.80 96.00 97.20
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.02 .00 .03 1.05 4.63 4.35 6́.52 5.55 2 % 0 4 1
3.3: 1.84 4.20 4.40 21.17 19.62 18.75 10.01
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i.इ5 1.25 .05 1.20 .20 2.50
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163 0
    .00 1.03 ..60 1.41 6.30
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    .00}4.4.80 7.00 12.00 72.00 57.60 123.00 90.00 
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12.00 3.60 7.39 21.60 84.00 & . 60 77.54 78.00
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.00 & .25 & .00 & .80 & .10 & .30 \\
.30 & .70 & .00 & .00 & .00 & .25 \\
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.00 & .00 & .15 & .00 & .00 & .65 \\
.05 & .05 & .05 & .00 & .00 & .05 \\
.00 & .00 & .05 & .05 & .00 & .05
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\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|}
\hline ． 13 & ． 00 & ． 18 & 1.92 & 4.70 & ミ．72 & 8.94 & 8.96 & 0 & 0 & 4 \\
\hline 3.39 & 2.22 & 2.88 & 6.67 & 12.40 & 93.16 & 10.37 & 19.25 & & & \\
\hline 6.00 & 7． 20 & 9.23 & 7.20 & 87.00 & EE．40 & 81.23 & 88.00 & & & \\
\hline 01 & 00 & ． 44 & & & & & & & & \\
\hline 03 & 51 & 280 & & & & & & & & \\
\hline 1.50 & 1.40 & 1.30 & ． 10 & ． 00 & 1.50 & & & & & \\
\hline ． 00 & ． 10 & ． 00 & ． 10 & ． 00 & 1.40 & & & & & \\
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\hline 156 & 0 & & & & & & & & & \\
\hline ． 00 & ． 00 & ． 00 & ． 42 & 5.58 & ミ．21 & 4.74 & 6.41 & 1 & 0 & 0 \\
\hline 2.45 & 3.39 & 1.53 & 1.46 & 20.20 & ミ． 64 & 17.49 & 16.45 & & & \\
\hline ． 00 & 8.40 & 5.54 & 12.00 & 60.00 & 6？． 20 & 68.31 & 64.00 & & & \\
\hline 00 & 10 & 1.00 & & & & & & & & \\
\hline 019 & 60 & 191 & & & & & & & & \\
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2.25 2.15 1.40 . 35 . .45 2.85
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.00 .00 .00 2.13 2.03 1.52 4.50 6.15 1. 1.00}00.

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    0}001001.0
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169 0
.15 .15 . .53 2.33 5.10 6.32 11.82 11.57 19 7 0 6 3
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4.40 .70 . 50 2.10 1.90 4.20
1.00 .00 .00 1.60 .00 .00
.40 .20 . .10 .00 1.50 2.50
    .30 .50 . . 60 1.00 . .80 1.10
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170 0
.00 .00 .02 2.2i 8.88 5.4i F.28 20.52 1 0 1 5
    .00 1.85 1.59 2.75 13.16 14.31 1E.:1 17.18
12.00 8.40 7.39 9.50 72.00 67.20 70.15
10}0000.4
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    4.40 2.40 .50 2.50 .00 3.40
    1.50 .20 .00 . .0 . 60 .70
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| .00 | .00 | .27 | .51 | 2.73 | 2.06 | 4.65 | 3.18 | 0 | 0 | 2 | 3 |
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| 4.68 | 2.53 | 1.50 | 1.57 | 17.95 | 18.31 | 1.7 .09 | 20.65 |  |  |  |  |
| .00 | 1.20 | 2.77 | 7.20 | 60.00 | 58.80 | 29.08 | 60.00 |  |  |  |  |

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| .05 | .05 | .00 | .05 | .00 | .00 |

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1.00 . - i 1.09 2.52 18.76 16.56 22.97 19.33 51 5 6 9
T.69 i.84 4.34 3.72 15.26 16.29 1E.13 18.29
12.00 2.40 5.00 i2.00 87.00 87.60 E3.00 86.00
10}0000.8
021 8 5 39 0

| 1.20 | .60 | 1.00 | .40 | 1.20 | .60 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 1.00 | .00 | .00 | .00 | .00 | .20 |
| 3.80 | 1.00 | .20 | .00 | .20 | 2.60 |
| 2.00 | 1.80 | .40 | .00 | .00 | .00 |
| .20 | .00 | .00 | .00 | - | .40 |
| .00 | .00 | .00 | 2.20 | .00 | 4.10 |

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.85 . 58 .49 4.34 21.04 34. 55 34.15 32.28 35 6 6 5 17
.31 1.20 1.72 5.00 16.23 10.02 i6.62 17.65
.00 7.20 6.46 14.40 84.00 E5.40 04.15 11E.00
70 0 0 . 81
0}154\quad4\quad5\quad32 
i.80 . .40 1.00 1.20 1.40 .40
6.40 6.00 .60 3.80 3.80 5.60
1.20 . .40 1.20 1.00 1.20 1.40
i.40 4.80 . .40 1.00 2.40 3.00
.20}4.6001.00\quad2.40\quad.40\quad2.8
.40 .60 1.20 2.80 1.40 2.80
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FH}
:.50
.00}66.00 4.62 9.60 81.00 85.40 83.08 g2.00
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0 17 6 2 37 1
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0 5 6 1 33 0

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| .70 | .10 | .00 | .00 | .10 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
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.7こ .24 .05 1.28 0.15 ¢.82 11.42 i3.56 28 6 2 i
3.20 \.56 1.53 3.12 24.28
i\&.00 4.80 7.39 12.00 93.00 82.80 77.54 88.00
0 0 1 0 . 81
0

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| :--- | :--- | :--- | :--- | :--- | :--- |
| .00 | .10 | .30 | .00 | .15 | . .55 |
| .05 | .30 | .55 | .35 | .00 | .15 |
| .10 | .00 | .40 | .20 | .00 | .50 |
| .65 | .45 | .05 | .10 | .10 | .05 |
| .10 | .05 | .00 | .45 | .05 | .05 |

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| 1.48 | .10 | .65 | 2.78 | 8.91 | 8.03 | 13.49 | 7.83 | 14 | 1 | 8 | 10 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| 2.08 | 2.04 | 1.10 | 6.74 | 15.91 | 13.86 | 15.92 | $i 3.65$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

$\begin{array}{llllllll}6.00 & 8.40 & 4.62 & 4.80 & 69.00 & 66.00 & 64.62 & 72.00\end{array}$
1000.81

0767431

| - | 2.70 | 2.90 | .30 | 1.40 | 1.80 |
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| 2.45 | 1.90 | 1.10 | 1.40 | 1.90 | 2.15 |
| .20 | 2.80 | .65 | .20 | .00 | .00 |
| 2.90 | .50 | 2.30 | .40 | 1.60 | .50 |
| 1.90 | 2.00 | 1.10 | .60 | 2.70 | .80 |
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| .00 | .26 | .04 | 4.64 | 12.20 | 3. |  |
| .42 | 1.63 | 1.27 | 2.30 | 10.19 | 5.4 |  |
| 6.00 | 3.60 | 5.54 | 7.20 | 90.00 | 84.00 |  |
| 0 | 0 | 0 | $i$ | .75 |  |  |
| 0 | 13 | 4 | 4 | 29 | 0 |  |
| .40 | .00 | 1.40 | .00 | .00 | .00 |  |
| .00 | .30 | .50 | .10 | .00 | 1.60 |  |
| .10 | .10 | .00 | .30 | .00 | .00 |  |
| .00 | .10 | .00 | .00 | .00 | .00 |  |
| 4.10 | 6.30 | .00 | .50 | - | .00 |  |
| .00 | .20 | .70 | .00 | .00 | .00 |  |
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\begin{tabular}{rrrrrrrrrrr}
2.35 & 1.96 & .77 & 4.02 & 14.16 & 15.97 & 17.75 & 18.50 & 24 & 10 & 6 \\
.68 & 1.24 & 1.31 & 3.78 & 11.00 & 8.32 & 7.98 & 13.77 & & & \\
.00 & 2.60 & 6.46 & 7.20 & 69.00 & 72.00 & 70.15 & 78.00 & & &
\end{tabular}
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0}125\mp@code{5}32
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2.30 & .20 & 1.00 & 2.90 & 4.20 & .30 \\
3.60 & 2.10 & .00 & .00 & .00 & .50 \\
.80 & 1.40 & 1.90 & .30 & 1.20 & 1.50 \\
.20 & .40 & .00 & 3.40 & .00 & .60 \\
1.30 & .00 & .00 & .00 & .20 & .00
\end{tabular}
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.00 & .00 & .00 & .80 & .00 & .00 \\
.05 & .05 & .05 & .00 & .05 & .00 \\
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1.63 . 78 .94 4.38 9.30 11.74 9.96 11.08 46 8 % 7 6
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.50 .00 . 22 5.58 24.44 52.19 36.18 62.90 19 0 5 5 \&
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3.64}10.13 2.70 2.89 25.38 24.35 24.72 24.45
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2.70 [.64 2.60 4.00 15.09 14.`3 14.88 15.89
6.00}33.60 6.46 2.40 63.00 57.00 55.39 60.00 
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.15 & .03 & .05 & .00 & .00 & .10 \\
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\hline .35 & . 06 & . 56 & 1.38 & 7.41 & 9.29 & 12.63 & 12.88 & 6 & 1 & 4 \\
\hline 4.86 & 1.71 & 3.67 & 2.97 & 21.96 & 26.16 & 22.84 & 23.70 & & & \\
\hline . 00 & 2.40 & 6.46 & 9.60 & 78.00 & 81.50 & 73.85 & 86.00 & & & \\
\hline 00 & 10 & . 75 & & & & & & & & \\
\hline 010 & 68 & \(32 \quad 1\) & & & & & & & & \\
\hline . 30 & . 15 & 2.30 & . 30 & . 15 & . 00 & & & & & \\
\hline . 10 & . 30 & . 35 & . 30 & 1.15 & . 65 & & & & & \\
\hline . 25 & . 00 & 2.40 & . 15 & . 25 & . 05 & & & & & \\
\hline 1.00 & . 15 & . 00 & . 50 & . 00 & . 10 & & & & & \\
\hline . 50 & 2.05 & . 55 & . 50 & . 25 & . 00 & & & & & \\
\hline 1.75 & . 00 & . 00 & . 30 & . 05 & . 10 & & & & & \\
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\hline . 30 & . 00 & . 61 & i. 60 & 11.56 & 7.58 & 9..73 & 21.03 & 1 & 0 & 7 \\
\hline 2.85 & 2.90 & 4.95 & 8.42 & 9.33 & 14.72 & 15.i2 & ? 5.66 & & & \\
\hline 6.00 & 6.00 & 10.15 & 19.20 & 69.00 & 69.60 & 72.92 & 80.00 & & & \\
\hline 10 & 00 & . 75 & & & & & & & & \\
\hline 016 & 91 & 331 & & & & & & & & \\
\hline 2.10 & 2.10 & . 80 & .70 & . 40 & 2.10 & & & & & \\
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\hline . 20 & . 10 & . 40 & . 50 & . 30 & . 20 & & & & & \\
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\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline 1.00 & . 28 & . 68 & 1.86 & 7.90 & 10.72 & 12.15 & 10.5748 & 6 & 7 \\
\hline 1.26 & 1.68 & 2.05 & 1.82 & 15.00 & 15.85 & 12.45 & 18.83 & & \\
\hline . 00 & 2.40 & 4.62 & 7.20 & 72.00 & 70.80 & 72.00 & 74.00 & & \\
\hline \(i 0\) & 00 & . 56 & & & & & & & \\
\hline 019 & 81 & \(40 \quad 1\) & & & & & & & \\
\hline 2.70 & 2.00 & . 80 & . 50 & 1.00 & 1.30 & & & & \\
\hline 1.90 & 2.20 & 2.30 & 2.00 & 2.30 & 2.00 & & & & \\
\hline . 30 & . 60 & . 70 & . 10 & . 40 & . 20 & & & & \\
\hline 3.30 & . 30 & 1.40 & . 40 & . 50 & . 70 & & & & \\
\hline 1.50 & 1.40 & 2.40 & . 70 & . 50 & . 90 & & & & \\
\hline . 20 & . 20 & . 20 & . 10 & 1.10 & .30 & & & & \\
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\hline 1 192 & i & & & & & & & & \\
\hline . 08 & . 06 & .77 & 3.50 & 5.13 & 3.00 & 11.24 & \(9.78 \quad 0\) & 3 & 8 \\
\hline 4.20 & 2.82 & 2.73 & 4.59 & 22.50 & 20.26 & 23.30 & 21.42 & & \\
\hline 6.00 & 6.00 & 7.39 & 12.00 & 105.00 & 97.20 & 109.85 & 110.00 & & \\
\hline 0 i & & . 81 & & & & & & & \\
\hline 012 & 101 & \(35 \quad 1\) & & & & & & & \\
\hline i. 80 & 1.10 & \(\bigcirc .40\) & 1.90 & . 70 & . 20 & & & & \\
\hline 1.30 & . 20 & . 00 & . 00 & . 00 & . 00 & & & & \\
\hline . 20 & . 00 & . 00 & . 00 & . 60 & . 00 & & & & \\
\hline . 00 & . 00 & 2.80 & . 20 & . 00 & . 00 & & & & \\
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| 1.08 | 2.25 | 1.32 | 3.91 | 8.44 | 7.69 | 6.87 | 14.53 |  |  |  |
| 6.00 | 19.20 | 14.77 | 4.80 | 72.00 | 63.60 | 69.23 | 76.00 |  |  |  |


| 1 | 0 | 0 | 0 | 1.00 |  |  |
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| 0 | 0 | 0 | 4 | 41 | 1 |  |
| 2.70 | 1.50 | 1.00 | .30 | 1.50 | 3.80 |  |
| .60 | .40 | .10 | .20 | .10 | .00 |  |
| .10 | .40 | 3.50 | .00 | 3.20 | .00 |  |
| .90 | 1.50 | .30 | 1.20 | 1.40 | 1.60 |  |
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| 1.93 | 2.32 | 1.53 | 1.05 | 11.67 | 11.30 | 9.83 | 24.83 |  |
| 12.00 | 4.80 | 1.85 | 4.80 | 87.00 | 82.80 | 87.69 | 92.00 |  |
| 01 | 00 | . 44 |  |  |  |  |  |  |
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| 3.45 | 1.17 | .70 | 4.84 | 14.53 | 18.14 |
| .83 | 1.18 | 2.10 | 4.84 | 15.61 | 17.06 |
| 12.00 | 3.60 | 5.54 | 12.00 | 111.00 | 103.20 |
| 0 | 1 | 0 | 0 | 1.00 |  |
| 0 | 21 | 7 | 8 | 32 | 1 |
|  |  |  |  |  |  |
| 0.60 | 5.80 | 1.40 | 2.40 | 2.20 | 1.00 |
| .80 | .60 | 2.40 | .20 | 1.00 | 1.00 |
| .20 | .60 | 1.60 | .40 | .40 | 1.40 |
| 5.60 | .20 | 2.20 | 1.80 | .60 | .20 |
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.82 1.00 2.:3 1.49 17.25 17.82 19.49 18.23
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4.80 3.80 . 30 2.90 3.60 1.50
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{.i2 i.38 i.09 5.63 15.55 15.41 15.07 16.05
i2.00 7.20 7.39 7.20
1000 .25
0}10\quad5\quad140
2.20 2.50 i.90 2.10 1.85 1.05
.25 . 45 . 15 .25 .00 . 10
i.85 . 25 .00 .10 .05 .05
i.80 ..05 1.00 .90 . . 85 1.50
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1.03 .17 . . 61 1.67 14.09 17.03 20.39 19.56 32 7 7 7 6
1.54 i..17 2.62 3.04 0.05 13.16 12.27 14.30
    .00 L.80 0.23 12.00 06.00 91.20 85.85 112.00
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1.55 & 1.35 & 1.55 & 1.20 & 1.10 & 1.40 \\
2.75 & 1.35 & 1.05 & 2.55 & 1.35 & 1.05 \\
.45 & .10 & .05 & .20 & .00 & .70 \\
.15 & 1.00 & 1.20 & .50 & .75 & .70 \\
2.00 & .50 & .45 & 1.00 & 1.20 & 1.80 \\
.00 & .20 & .05 & .05 & .05 & 1.45
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| .00 | .00 | .10 | .30 | .20 | .00 |
| .00 | .80 | .00 | .00 | .40 | 2.50 |
| .00 | .00 | .00 | .00 | .00 | .40 |
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| .80 | .70 | .30 | .00 | .00 | .20 |

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| 1.00 | 2.53 | 4.27 | 3.31 | 13.78 | 16.10 | 17.36 | 20.44 |  |  |  |
| .00 | 6.00 | 6.46 | 9.50 | 69.00 | 62.40 | 66.46 | 78.00 |  |  |  |

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| .00 | .35 | .15 | .00 | .10 | .55 |
| .05 | .55 | .00 | .05 | .10 | .10 |
| .25 | .45 | .30 | .80 | .15 | .45 |
| .75 | .05 | .00 | .05 | .15 | .30 |

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2.43 .34 . . 66 2.30 7.70 7.83 14.59 13.39 46 4 5 5 7 7
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6.00 2.40 5.54 0.60 93.00 92.40 94.15 114.00
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0 8 i0 5 34 1
\begin{tabular}{rrrrrr}
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1.50 & 1.40 & .30 & 1.80 & 1.70 & 2.90 \\
.00 & .05 & .00 & .05 & .05 & .10 \\
.75 & 1.05 & 2.65 & .20 & .85 & 2.80 \\
4.00 & 3.50 & 3.70 & 3.10 & 2.80 & 2.10 \\
.00 & 1.15 & .00 & .00 & .25 & .25
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2.34 [. 33 2.88 3.93 20.90
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\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline 1.23 & . 01 & . 25 & 4.82 & 12.81 & 8.33 & 13.07 & 12.68 \\
\hline 6.49 & 3.21 & 2.94 & 3.87 & 11.50 & 13.47 & 11.33 & 13.84 \\
\hline . 00 & 1.20 & 8.31 & 4.80 & 81.00 & 73.20 & 75.69 & 80.00 \\
\hline 10 & 00 & 1.00 & & & & & \\
\hline 04 & 131 & 381 & & & & & \\
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5.10 2.16 3.66 3.80 25.90 21.00 21.13 22.41

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| .24 | 1.29 | 2.69 | 3.43 | 10.32 | 13.81 | 12.58 | 18.38 |  |  |  |
| 6.00 | 4.80 | 2.77 | 7.20 | 75.00 | 70.80 | 72.92 | 78.00 |  |  |  |

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0 10 11 3 30 0

| .40 | .00 | .05 | .05 | .10 | .05 |
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| .00 | .00 | .00 | .10 | .05 | .15 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | 1.30 | .15 | 1.40 |
| .00 | .00 | .00 | .00 | .00 | .00 |

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    | 1.18 | $i$ |  |  |  |  |
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| .13 | .57 | .28 | .59 | 9.56 | 13.6 |
| .90 | 2.17 | 3.49 | 3.5 | 15.89 | 17.50 |
| 12.00 | 6.00 | 4.62 | .00 | 87.00 | 78.00 |
| 0 | 0 | 1 | 0 | .06 |  |
| 0 | 15 | 3 | 3 | 37 | 1 |
| .25 | .90 | .40 | .50 | .15 | .15 |
| .50 | .55 | .80 | .35 | .05 | .80 |
| .15 | .80 | .25 | .35 | .85 | .55 |
| .10 | .15 | .20 | .90 | .35 | .30 |
| .45 | .60 | .75 | .55 | .45 | .20 |
| .35 | 1.25 | 1.05 | .50 | .80 | .90 |

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| 4.39 | 4.55 | 5.02 | 2.80 | 12.33 | 14.04 | 8.70 | 16.92 |  |  |  |  |
| 6.00 | 3.60 | 5.54 | 7.20 | 63.00 | 62.40 | 59.07 | 70.00 |  |  |  |  |
| 00 | 10 | . 44 |  |  |  |  |  |  |  |  |  |
| 0.15 | 604 |  |  |  |  |  |  |  |  |  |  |
| . 75 | . 60 | . 10 | . 45 | . 30 | . 45 |  |  |  |  |  |  |
| . 55 | . 00 | . 35 | . 00 | . 00 | . 35 |  |  |  |  |  |  |
| . 45 | . 55 | . 00 | 1.00 | . 05 | . 05 |  |  |  |  |  |  |
| . 30 | . 25 | . 50 | . 25 | . 45 | . 50 |  |  |  |  |  |  |
| 1.95 | 1.40 | . 85 | . 45 | . 85 | . 15 |  |  |  |  |  |  |
| $\bigcirc .00$ | . 55 | . 00 | . 00 | . 00 | . 5 |  |  |  |  |  |  |
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| $\because 20$ | 0 |  |  |  |  |  |  |  |  |  |  |
| . 50 | . 07 | . 40 | 4.22 | 10.43 | 76.51 | 20.05 | 19.00 | 2 | 1 |  |  |
| 3.08 | 1.68 | 4.18 | 2.98 | 22.17 | 2i.57 | 19.38 | 23.74 |  |  |  |  |
| 6.00 | 3.60 | 8.00 | 14.40 | 69.00 | 73.20 | 58.00 | 78.00 |  |  |  |  |
| 00 | 10 | . 81 |  |  |  |  |  |  |  |  |  |
| 010 | 62 | 431 |  |  |  |  |  |  |  |  |  |
| . 10 | 2.30 | - . 00 | . 10 | . 20 | . 50 |  |  |  |  |  |  |
| T. 80 | 1.80 | 1.80 | . 00 | . 00 | .00 |  |  |  |  |  |  |
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    .00 .07 .06 2.05 2.34 3.62 4.41 4.22 3 4 i 19
2.0. 2.43 6.48 \Xi.72 16.68 10.56 15.96 24.25
6.00 3.50 6.46 0.60 117.00 104.40 09.69 117.60
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1.03 & .35 & .18 & .43 & & \\
.05 & .00 & .10 & .05 & .05 & .70 \\
.00 & .00 & .15 & .05 & 1.25 & .55 \\
.00 & .00 & .15 & 1.60 & .00 & 1.25 \\
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| .80 | .65 | .08 | .25 |  |  |
| .40 | .70 | .30 | .10 | .25 | 1.20 |
| .05 | .40 | .45 | .15 | .05 | .00 |
| .05 | .00 | .00 | .05 | .00 | .05 |
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| 1.17 | 1.92 | 2.05 | 3.56 | 13.53 | 13.08 | 11.57 | 21.59 |  |  |  |
| 6.00 | 3.60 | 3.60 | 16.80 | 75.00 | 60.60 | 80.31 | 74.40 |  |  |  |

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| .08 | .68 | .28 | .23 |  |  |
| .00 | .20 | .10 | .35 | .05 | .60 |
| .05 | .00 | .25 | .10 | .05 | .10 |
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| 2.15 | .45 | .00 | .00 |  |  |
| .25 | .85 | .20 | .30 | .05 | .15 |
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2 5 1
1.50 .28 . 47 3.74 8.76 12.26 13.50
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6.00}8.4.40 3.69 0.60 63.00 69.60 70.15 74.40
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1.67 & 1.40 & 1.10 & .83 & & \\
1.60 & .80 & 1.65 & .60 & .50 & .90 \\
.05 & .40 & .85 & .10 & .10 & 1.55 \\
.05 & .05 & .00 & .00 & .10 & .45 \\
.10 & .00 & .00 & .05 & .00 & .00 \\
.00 & .05 & .00 & .00 & .00 & .35 \\
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0 1 0 0 . 56
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.25 & .20 & .25 & .20 & .05 & .50 \\
.25 & 1.90 & .45 & .60 & .00 & .35 \\
- & .15 & .00 & .15 & .00 & .15 \\
.10 & .35 & .05 & .10 & .95 & .30 \\
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\(1.03 \quad .00 \quad .32 \quad 2.55 \quad 6.91 \quad 7.57 \quad 6.63 \quad 9.08 \quad 3 \quad 0 \quad 3 \quad 0\)
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.10 & .15 & .22 & .00 & & \\
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．\(=.01 \quad .15 \quad 1.37 \quad 8.23 \quad 8.80 \quad 9.34 \quad 8.36 \quad 3 \quad 1 \quad 6 \quad i\)
    .6こ 1.26 3.18 5.40 15.50 15.40 16.08 19.67
6.00}66.00 7.38 L.80 69.00 E-.20 70.15 % 72.00
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i2.00 3.50 6.45 12.00 96.00 92.40 89.54 9ミ.60
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.75 & .65 & .42 & .28 & & \\
.10 & .15 & .15 & .15 & .50 & 1.15 \\
.5 & .30 & .00 & .10 & .10 & .65 \\
.\(⿰ 氵\) & .80 & .15 & .25 & .55 & .45 \\
.20 & .10 & .00 & .05 & .00 & .00 \\
.80 & - & .00 & .55 & .25 & .20 \\
.15 & .00 & .25 & .05 & 1.20 & .70
\end{tabular}
# ミ ;
    .i0 .04 .14 1.03 5.59 6.86 6.63 7.87 6 4 1 i0
:. = 3.28 4.19 3.48 16.45 14.33 15.22 16.15
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.92 & .85 & .73 & .35 & & \\
.20 & .25 & .10 & .20 & .25 & .20 \\
.85 & .00 & - & .00 & .15 & .15 \\
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.00 & .00 & .05 & .05 & .00 & .05 \\
.00 & .45 & 1.90 & .40 & .00 & .05 \\
.80 & .30 & .35 & .15 & .35 & .00
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline . 43 & . 18 & . 30 & 2.35 & 5.85 & i3. 32 & 9.88 & 12.34 & 5 & 6 & 7 & \\
\hline . 58 & 1. 38 & 1.30 & 2.72 & 14.44 & 18.59 & 8.61 & 21.06 & & & & \\
\hline E.00 2 & 2.40 & 7.38 & 2.40 & 60.00 & 61.20 & 57.23 & 62.40 & & & & \\
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\hline ミ. 20 & 3.05 & 2.47 & . 45 & & & & & & & & \\
\hline . 25 & . 05 & . 30 & . 05 & . 10 & 2.35 & & & & & & \\
\hline \(\because .50\) & 1.25 & . 40 & 1.40 & . 20 & 2.05 & & & & & & \\
\hline -. 50 & ¢. 55 & 7.45 & 1.85 & 1.80 & 3.10 & & & & & & \\
\hline . 00 & . 00 & . 35 & . 25 & . 00 & 7.35 & & & & & & \\
\hline . 5 & . 15 & . 00 & . 00 & . 40 & ;. 20 & & & & & & \\
\hline . 20 & . 15 & . 05 & . 20 & . 15 & . 45 & & & & & & \\
\hline \(2{ }^{\text {2 }}\) & \(\because\) & & & & & & & & & & \\
\hline 2.20 & . 37 & \(\therefore .07\) & 1.71 & 0.38 & \(\bigcirc .37\) & 12.56 & 12.04 & 0 & & 6 & 0 \\
\hline -. 80 & E. 07 & ミ.63 & 4.1 & \(\therefore 2.22\) & \(¢ .08\) & 8.98 & 17.72 & & & & \\
\hline \(\because 2.00\) & 7.20 & 9.23 & 14.40 & 66.00 & 58.80 & 63.69 & 57.60 & & & & \\
\hline ; 0 & 00 & . 81 & & & & & & & & & \\
\hline \(0: 3\) & 14 & 200 & & & & & & & & & \\
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\hline \(\because .25\) & 1.05 & 5.45 & . 13 & & & & & & & & \\
\hline - & . 40 & 02.20 & 1.20 & - & 2.35 & & & & & & \\
\hline . 50 & 1.15 & 5.95 & 5.50 & . 20 & 1.50 & & & & & & \\
\hline . 45 & - & . 75 & 1. 1.25 & . 15 & 1.00 & & & & & & \\
\hline . 20 & . 55 & 5.10 & - . 25 & . 30 & 1.45 & & & & & & \\
\hline . 85 & 1.75 & \(5 \quad 1.15\) & 5.45 & . 00 & . 95 & & & & & & \\
\hline . 55 & 2.00 & \(0 \quad 1.45\) & 5 . 50 & .20 & 1.10 & & & & & & \\
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.00 . 10 .05 . 10 .00 . 20
. }15\quad.00\quad.75\quad.00\quad.75 . 30
.05 .20 .00 .00 .00 . . .5
217 1
.10 . .5 .06 . \&2 7.43 7.07 E.56 \&.80 is % इ ?
3.95 1.54 i. 58 1.83 9.16 13.55 i1.08 15.07

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218 1
1.50 .28 ..78 2.21 11.94 9.24 14.78
.51 1.88
.00}44.80 0.23 0.60 69.00 68.40 70.15 72.00
i 0 0 0 . 81
016 2 5 24 0

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| 2.08 | 1.03 | .72 | 1.70 |  |  |
| .65 | 1.40 | .70 | .20 | .15 | 1.05 |
| - | .00 | .80 | .05 | . .50 | 1.80 |
| .00 | .05 | .15 | .40 | .05 | .35 |
| .20 | .00 | .00 | .00 | .35 | .25 |
| .25 | .00 | .00 | .15 | .00 | .25 |
| .00 | .10 | .40 | .05 | .00 | .30 |

2:0
.58 . 37 . 57 1.37 6.81 \&.56 10.60 11.82 5 7 9,
:.20 .55 2.6i 1.00 17.29 17.74 i6.29 %7.28
6.00 2.40 1.85 2.40 63.00 64.80
0 0 1 0 . 8i
0 6 2 25 0

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| 1.68 | 1.08 | .65 | .53 |  |  |
| .30 | .90 | .90 | 1.35 | .15 | 2.00 |
| .00 | .35 | .10 | .00 | .15 | 1.50 |
| .10 | .05 | .05 | .05 | 1.05 | .50 |
| .00 | .00 | .25 | .00 | .10 | .65 |
| .25 | .10 | .00 | .00 | .00 | .40 |
| .70 | .35 | .10 | .25 | .05 | 1.05 |

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220 1
.23 .14 . . 36 1.15 0.56 10.00 14.09 12.47 10 F
4.37 4.81 2.16 5.15 10.92 14. こ2 16.01 17.72
.00 0.60 2.77 14.40 102.00 85.20 85.85 96.00
0 1 0 0 1.00
0}77\quad1\quad425\quad

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| 1.28 | 1.03 | .70 | .83 |  |  |
| .35 | .45 | .65 | .30 | .20 | .60 |
| .30 | .40 | .45 | .10 | .15 | .15 |
| .50 | .25 | .65 | .35 | .45 | .15 |
| .00 | .00 | .55 | .00 | .20 | .25 |
| .00 | .05 | .00 | .00 | .10 | .0 |
| .05 | .00 | .50 | .00 | .10 | .25 |

221 i
.20 .20 .27 i.03 11.84 \ddots.0: 13.01 15.22 25 F E ! 3
\.86 1.50 2.42 2.51 13.81 i. .42 i3.52 19.61
6.00 6.00 4.62 9.60 69.00 66.00 71.08 76.80
0}000\mp@code{i .75
0 8 9 4 28 0
1.13 1.03 .43 . 33

| .05 | .45 | .40 | .20 | .75 | .65 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| .90 | .40 | .50 | .35 | .40 | .40 |
| .10 | .05 | .15 | .15 | .15 | .30 |
| .10 | .05 | .00 | .25 | .00 | .10 |
| .20 | .10 | .00 | .05 | .00 | .15 |
| .00 | .05 | .10 | .00 | .25 | .05 |

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222 1
1.35 . .57 . .58 i.05 14.46 14.76 16.63 15.14 74 9
    .93
12.00 8.40 i2.00 0.60 72.00
    10}0000.5
    010 4 3 28 0
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.73 & .70 & .65 & .80 & & \\
.05 & .45 & - & .45 & .40 & 1.05 \\
1.05 & .30 & 1.80 & .70 & .20 & .40 \\
1.55 & .20 & 1.00 & .55 & .80 & .70 \\
.50 & .35 & .10 & .20 & .20 & .15 \\
.20 & .30 & 1.85 & .30 & .15 & 2.05 \\
.25 & .50 & .30 & .90 & .05 & 1.05
\end{tabular}
    223
    .30 . 19 . 54 i. 23 23.40 26.73 28.59 28.62 11 8 % E
    1.16 1.56 1.82 .72 22.03 15.74 21.22 20.92
    6.00}7.7.20 6.46 2.40 69.00 72.40 72.00 74.40
    i 0 0 0 1.00
    0 & 7 5 24 0
    1.12 .78 .98 .70
\begin{tabular}{llllll}
.25 & .40 & .40 & .30 & .00 & .70 \\
.55 & .20 & .25 & .70 & .40 & 1.00 \\
.10 & .05 & .90 & .30 & .50 & .40 \\
.20 &. .75 & .10 & .15 & .00 & .20 \\
.10 & .20 & .55 & .35 & .00 & .60 \\
.00 & .20 & 1.10 & .75 & .95 & .45
\end{tabular}
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224 1
\begin{tabular}{lllllllllll}
.25 & .02 & .02 & .68 & 6.05 & 8.10 & 7.50 & 8.16 & 9 & 1 & 4
\end{tabular}
4.42
6.00 6.00 4.62 16.80
0 1 0 0 . 25
010 8 0 24 0
\begin{tabular}{llllll}
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.28 & .23 & .18 & .03 & & \\
.05 & .10 & .20 & .25 & .65 & .10 \\
.20 & .25 & .10 & .05 & .05 & .05 \\
.35 & .00 & .00 & .15 & .50 & .05 \\
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\end{tabular}
2 25 1
1.08 . 47 .17 2.03 11.13 12.50 23.23 20.10 15 5 & 1
2.09 1.89 2.24 4.68 15.81 16.02 10.26 15.86
.00}90.60 4.62 7.20 69.00 67.20 64.62 64.80
10}0001.0
010 11 0 25 0
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.67 & .10 & .50 & 1.15 & & \\
.00 & .55 & .00 & .20 & - & 1.45 \\
.00 & .00 & .70 & .00 & .00 & 1.10 \\
.00 & - & 1.50 & 1.15 & .00 & .20 \\
1.10 & - & - & - & .40 & .05 \\
1.70 & .00 & .00 & - & - & .10 \\
.00 & .05 & 1.00 & .50 & .40 & 1.40
\end{tabular}
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266 1
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12.00 1.20 6.46 .00 63.00 62.40
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.23 & .03 & .25 & .00 & & \\
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    3.62 3.77 6.32 1.15 18.80 19.88
    6.00 1.20 5.54 4.80 65.00
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.30 & .03 & .37 & .25 & & \\
.10 & .30 & .00 & .45 & 1.05 & .95 \\
1.00 & .00 & .10 & .10 & .20 & .85 \\
.05 & .00 & .20 & .35 & .05 & .25 \\
.15 & .80 & .10 & .90 & 1.40 & .50 \\
.00 & .00 & .00 & .00 & .15 & 1.40 \\
.10 & .00 & .00 & .00 & .00 & .05
\end{tabular}
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2 28 0
    .00 .00 .01 .15 2.09 2.40 2.42 1.70 0 0 0 1 0
    3.42 2.39 1.68 4.09 17.44 16.06 13.03 17.52
    6.00 0.60 7.38 4.80 9.0.00 85.20
0 1 0 0 1.00
04 5 4 27 0
    .59 .40 . 11 .00
1.46 .00 .02 .00 . 18 . 38
.00 .00 .00 .02 .00 .014
.00 .00 .00 . 34 - . }1
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.00
    .00 .00 .08 .00 .02 .00
220 0
    .18 .07 .00 1.30 6.23 7.40 7.03 7.07 2 1.010
5.07 2.35 3.41 3.65 16.15 16.38 15.:2 18.57
6.00 8.40 7.38 12.00 03.00 82.80 87.69 03.50
01001.00
0 8 5 1 27 0
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230 0

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    010}001.0
0}710328\quad

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| . .23 | .15 | .18 | .00 |  |  |
| .50 | .25 | .10 | .25 | .35 | .85 |
| .30 | .75 | .10 | .10 | .00 | .5 |
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2310
`.03 . 33 .25 1.46 13.45 12.73 15.15 14.85 22 7 4 4, 5
2.24}1.750\mp@code{1.79}3.50 7.7.78 17.72 20.30 22.5
.00}1.004.204.62 14.40 96.00 06.00 107.08 110.40
0}1000.7
0 10 8 4 29 0

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| .03 | .88 | .03 | .60 |  |  |
| .35 | .35 | .00 | .00 | - | - |
| .15 | .25 | .20 | .00 | .00 | .55 |
| .10 | .15 | .00 | .15 | .20 | - |
| .10 | .15 | .00 | .00 | - | .30 |
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| .00 | .00 | .30 | .00 | .00 | .00 |

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232 0

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1.71 1.70 2.71 2.22 i8.68 17.80
.00 0.60 4.62 7.20 96.00 91.20 89.54 9.6.00
0 1 0 0 . 81
016 2 325 0

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.03 .01 .06 `.00 3.60 3.85 4.61 4.80 0 2 6 0
1.58 i.56 3.70 6.20 -..04 i3.16 i2.52 iE.5i
.00 2.40 3.59 7.20 02.00 87.50 84.92
010 0 . }1
0 2 5 127 0

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| .00 | .05 | .00 | .00 | .00 | .10 |
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234 0
    1.28 .24 .69 1.54 8.79
    .72 1.53 2.83 3.84 17.20
    6.00 2.40 7.38 9.60 87.00 85.20 83.08 86.40
0 0, 0 . %i
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1.77 & .90 & 1.20 & .50 & & \\
1.00 & .30 & .75 & .20 & .20 & - \\
.20 & .35 & .25 & .05 & .10 & - \\
.25 & .20 & 1.05 & - & .10 & .35 \\
.05 & .00 & .00 & .00 & .35 & .20 \\
.00 & .00 & .00 & .00 & .00 & .00 \\
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    .00 .02 .02 . 37 \.ET ..61 1.35 i.77 0 3 2 2
    .71 1. 33 i.67 2.83 16. ミ3 !5.37 14.24 19.20
    6.00 6.00 4.62 0.60 00.00 96.00 90.46 90.00
    010 0 :.00
    0 13 3 0 20 0
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236 0
    .00 .00 .00 i.74 4.79 E.34 E.44 5.96 0 0 0 3
    1.17 . 80 2.27 4.75 18.27 17.61 17.81 15.43
12.00 6.00 3.69 14.40 66.00 64.80 E3.69 64.80
    0 0 1 0 . 81
    013 6 3 24 0
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.08 & .03 & .07 & .00 & & \\
.00 & .00 & .40 & - & .00 & .00 \\
.00 & .00 & .00 & .00 & .10 & .0 \\
.00 & .00 & .00 & .70 & .15 & .00 \\
.45 & .00 & .65 & .05 & .00 & 6.40 \\
.00 & .00 & .05 & .70 & .00 & .00 \\
.00 & .00 & .00 & .00 & .00 & .00
\end{tabular}
237 6
    .00 . 00 . 1^ 2. ミ5 3.40 3.48 4.75 4.85 0 0 2 3
    4.05 1.60 2.18 3.35 14.48 %.30 &.70 % 4.3i
    .00 7.20 3.60 i2.00 06.00 OL.80 O5.08 08.40
0 0 0 . 81
020 7 2 2i 0
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238 0
.03 .00 .05 . .58 4.73 4.E1 4.31 4.88 3 0 2 3
.90}1.9.36 1.72 i.20 17.62 17.22 18.24 19.35
6.00 7.20 4.62 16.80 78.00 67.20 74.77 79.20
0}00100.8
015 9 4 22 0

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| .17 | .05 | .07 | .05 |  |  |
| .00 | .00 | .05 | .05 | .05 | .05 |
| .00 | .00 | .00 | .00 | .05 | .00 |
| .10 | .05 | .00 | .00 | .00 | .10 |
| .00 | .05 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .03 | .00 | .00 |
| .10 | .00 | .00 | .00 | .00 | .00 |

2390
i.53 .46 . 38 1.00 8.45 9.63 9.74 10.73 25 5 5 9
2.33 3.24 2.29 1.30 20.07 17.22 17.40 18.40
12.00}30.60 2.00 :2.00 90.00 04.80 85.00 98.40
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011 6 2 22 0

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| 1.33 | 1.15 | 1.10 | .60 |  |  |
| 1.50 | .25 | .90 | 1.15 | .05 | .40 |
| .70 | - | .25 | 1.65 | .00 | .00 |
| .05 | .50 | - | .05 | .15 | .10 |
| .00 | 1.55 | 1.25 | .00 | 1.55 | .00 |
| .45 | .00 | .15 | .00 | .05 | .00 |
| .20 | .00 | .00 | .00 | 2.75 | .10 |

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240 0
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1.25 1.51
6.00 1.20 8.31 19.20 75.00 70.80
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011 5 4 22 0
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.87 & .35 & .63 & .38 & & \\
.10 & .00 & .15 & .00 & .10 & .35 \\
.25 & .05 & .20 & .35 & .30 & .10 \\
.05 & .00 & .10 & .00 & .00 & .45 \\
.00 & .40 & .00 & .00 & .05 & .00 \\
.00 & .05 & - & .05 & .00 & .10 \\
.00 & .5 & .55 & .00 & .00 & .10
\end{tabular}
2L:C
    .j .ここ .i2 4.34 3.09 2.62 3.48 6.15 1 4 F 3
    .74 2.7 0. .27 2.65 14.18 13.84 
    6.00 4.80 4.62 4.80 96.00 98.40 104.31 108.00
0 1 0 0 1.00
0415 2 22 0
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1.47 & .63 & 1.30 & .50 & & \\
.20 & .40 & .10 & .10 & .05 & 1.60 \\
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244 0

| 1.50 | .07 | .10 | 1.57 | 11.00 | 7.55 | 7.92 | 12.54 | 39 | 5 | 3 |
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| 3.54 | 1.72 | 2.27 | 2.28 | 19.82 | 16.26 | 16.01 | 16.26 |  |  |  |
| 12.00 | 7.20 | 4.62 | 14.40 | 00.00 | 86.40 | 86.77 | 88.80 |  |  |  |

2.13 1.38 2.37 1.30
2.50 . .5 1.85 . 20 . .05 .50
.05 .00 i.25 . .35 . 65 1.80
. }55\mathrm{ i.40 .00 i.80 . 60 .55
.00 .00 .05 2.40 . 10 .00
.05 .05 i.85 .00 .00 .00
.00 .00 .00 .00 1.80 . . . %
245 c
.25 .28 .18 4.62 5.50 3.87 F.32 %.09 16 8 5 11
6.40 i.72 1.82 i.0@ 18.13 18.45 16.91 18.92
.00 3.50 \&.31 19.20 63.00 64.80 66.08 69.60
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| 1.88 | .45 | .82 | .55 |  |  |
| .65 | 1.05 | .70 | 1.70 | .45 | 1.05 |
| .45 | .95 | .00 | .15 | .00 | 1.05 |
| .05 | .35 | .35 | .50 | .30 | .30 |
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240}
    .75 . 25 . 60 2.56 16.30 12.91 15.88 16.32 15 7 7 7 7 9
2.87}2.00\mp@code{2.31
6.00 2.40 .92 4.80 90.00 86.40 86.77 
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1.23 & .52 & .63 & .58 & & \\
.35 & .35 & .05 & .10 & .10 & .35 \\
.20 & .40 & .10 & .40 & .55 & .75 \\
.35 & .10 & .85 & 1.05 & .10 & .00 \\
.15 & .90 & .00 & .05 & .00 & .10 \\
.00 & .90 & .45 & .20 & .00 & .00 \\
.20 & .20 & 1.05 & .20 & .70 & .15
\end{tabular}
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    .83 .23 . 29 1.81 11.69 12.05 14.03 %3.03 32 O
    .78 i.10 i. .7 4.34 i. 1.21 11.09 11.68 !5.22
i2.00 2.40 8.31 28.80 00.00 82.80 85.85 84.00
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021}70324\quad
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1.50 & 1.35 & .73 & .90 & & \\
1.20 & .40 & 1.00 & .85 & .30 & 1.80 \\
.30 & .35 & .30 & 1.35 & .20 & 1.05 \\
.40 & .25 & .20 & .85 & .25 & .05 \\
.20 & .15 & .10 & .25 & .10 & .10 \\
.00 & .10 & .15 & .00 & .05 & .10 \\
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248 0

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5.72 2.52 2.44 5.26
6.00}10.80 7.38 2.40 96.00 90.00 88.62 96.00
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011 8 6 28 0

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| 2.03 | 1.35 | 1.57 | 1.65 |  |  |
| .70 | 1.00 | 1.10 | .90 | 1.10 | 2.10 |
| 2.40 | 2.80 | 1.00 | 1.40 | .90 | 3.10 |
| .80 | 1.70 | 2.00 | 2.30 | 1.70 | 1.80 |
| .40 | .50 | .10 | .60 | .20 | 1.90 |
| 1.40 | 1.30 | 3.50 | 1.10 | 1.40 | 2.80 |
| 1.00 | 2.10 | 1.70 | 1.90 | 2.80 | .60 |

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250 0

| .00 | .00 | .00 | .69 | 2.18 | 2.32 | 1.41 | 4.90 | 1 | 0 | 1 |
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| .90 | 3.03 | 2.43 | 1.89 | 14.38 | 17.14 | 12.20 | 18.35 |  |  |  |
| .00 | 4.80 | 5.54 | 7.20 | 75.00 | 85.20 | 75.69 | 91.20 |  |  |  |

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| .00 | .08 | .02 | .08 | .00 | .14 |
| .08 | .00 | .00 | .24 | .00 | .18 |
| .04 | .00 | .02 | .00 | .00 | .05 |
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.03 .02 .70 2.23 14.03 10.05 19.12 15.97 3 1 4, %
.92 1.56 1.75 1.52 18.12 18.45
.00}66.00 9.23 7.20 84.00 75.00 79.38 79.20
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| .00 | .00 | .10 | .00 | .10 | .05 |

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252 0
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.55 & .03 & .01 & 1.85 & 6.04 & 4.32 & 5.15 & 8.51 & 5 & 2 & 1 & 7
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6.00
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011 2 1 31 0
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2.15 & .65 & .05 & .00 & & \\
.30 & .05 & 1.20 & 1.15 & .00 & .40 \\
.15 & .05 & .00 & .15 & .00 & .15 \\
.00 & .35 & .00 & .00 & .25 & .05 \\
.00 & .00 & .00 & .00 & .05 & .00 \\
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.30 & .00 & .00 & .00 & .00 & .15
\end{tabular}
2 =3 0
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.58 & .05 & .32 & .65 & 8.28 & 8.50 & 9.09 & 8.85 & 2 & 2 & 7
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3.44 1.87 1.34 5.30 16.62 14.28 14.59 17.14
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1.30 & 1.20 & 1.07 & 1.05 & & \\
.20 & .85 & 1.20 & .50 & 1.65 & 2.20 \\
.50 & .60 & .35 & .10 & .00 & 1.10 \\
.35 & 1.10 & .70 & .35 & .10 & 1.50 \\
.10 & .20 & .45 & 1.50 & 1.15 & 1.05 \\
.05 & .05 & .05 & .20 & .00 & 2.05 \\
.10 & .00 & .95 & .60 & .10 & 1.55
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254 1
    .60 .11 .72 1.25 7.63 8.37 9.89 8.55 30 6 % 8 & 
3.37 1.30 3.10 1.96 13.64 14.28 15.53 12.97
6.00 3.50 8.31 0.60 78.00 74.40 74.77 72.00
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1.22 & 1.23 &. .08 & 1.40 & & \\
.25 & .25 & .45 & 1.30 & .50 & 1.15 \\
.90 & .15 & .05 & .75 & .75 & 1.30 \\
.00 & .55 & .70 & .15 & .20 & 1.30 \\
.10 & .10 & .30 & .80 & .00 & .20 \\
.05 & .55 & 1.30 & .40 & 1.30 & .90 \\
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\begin{tabular}{rrrrrrrrrrr}
.00 & .00 & .03 & .32 & 2.55 & 3.01 & 2.89 & 3.46 & 1 & 1 & 0 \\
1.34 & 1.00 & 2.57 & 1.89 & 17.17 & 17.78 & 16.71 & 17.83 & & & \\
00 & 2.00 & 2.77 & \(=.00\) & 75.00 & 70.80 & 74.77 & 78.00 & & &
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.00 & .00 & .00 & .00 & .00 & .00 \\
.00 & .00 & .00 & .00 & .00 & .18 \\
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256 1
    .10}0.06 .29 1.32 7.00 10.73 10.05 10.48 3 % 3 6 6́
3.34 1.71 1.90 1.12 15.62 15.14 14.33 17.38
6.00
0}00001.7
076425 0
    .58 i.40 . 33 1.35
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.55 & .00 & .15 & .00 & .05 & .20 \\
.00 & .00 & .00 & .00 & .00 & .10 \\
.10 & .00 & .15 & .00 & .10 & .00 \\
.55 & .00 & .15 & .00 & .05 & .20 \\
.00 & .00 & .00 & .00 & .00 & .10 \\
.10 & .00 & .15 & .00 & .10 & .00
\end{tabular}
2シ-
    .65 ..1 .48 i.64 6.73 7..4 0.74 9.34 37 2 6 F
i.52 \.42 2.E1 1.88 14.54 17.48 14.84 20.15
    .00 [.80 2.77 12.00 72.00 72.40 76.62 
10000.44
0 12 6 2 27 0
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.97 & .98 & .50 & .33 & & \\
.75 & .20 & .40 & .05 & .20 & .30 \\
.15 & .25 & .60 & .00 & .10 &.\(\equiv 5\) \\
.55 & .35 & .30 & .00 & .05 & .45 \\
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.05 & 1.50 & .05 & 1.90 & .20 & .20 \\
.10 & 1.50 & .45 & 1.75 & .00 & .70
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262 1
1.33 .79 .91 2.26 21.10 21.77 24.04 22.77 38 10 9, 90
2.08

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0 10 i 1 29 0
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i.77 2.15 .75 1.33

| - | .20 | .00 | .15 | .00 | .90 |
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| .25 | .15 | .05 | .35 | .00 | .10 |
| .00 | .10 | .40 | .10 | .10 | .55 |
| .00 | .05 | .25 | .00 | .05 | .00 |
| .05 | .35 | .00 | .00 | .75 | - |
| .00 | .70 | .05 | .00 | 1.45 | 1.45 |

2E3
.00 .00 . .45 ..85 4.43 2.05 4.47 0.66 0- 0 5 0

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6.00 2.40 1.85 2.40 93.00 85.20 84.92 80.40
0 0 0 . }7

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| .90 | .03 | .08 | .03 |  |  |
| .00 | .05 | .05 | .00 | .05 | .15 |
| .05 | .05 | .05 | .00 | .05 | 1.10 |
| .00 | .05 | .00 | .00 | - | .00 |
| .40 | - | .00 | .00 | .05 | .00 |
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264 1

| . 13 | . 03 | . 36 | 1.36 | 6.85 | 7.92 | 10.79 | 9.43 | 5 | 37 |
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| . 72 | 2.44 | 5.89 | 3.30 | 19.31 | 19.97 | 20.45 | 23.40 |  |  |
| . 00 | ?. 20 | 5.54 | 4.80 | 90.00 | 90.00 | 87.69 | 96.00 |  |  |
| 00 | - 0 | 1.00 |  |  |  |  |  |  |  |
| 012 | 52 | 230 |  |  |  |  |  |  |  |
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| .77 | . 90 | . 50 | . 23 |  |  |  |  |  |  |
| .35 | . 65 | . 15 | . 35 | . 63 | . 75 |  |  |  |  |
| . 10 | . 00 | . 15 | . 95 | 1.10 | . 90 |  |  |  |  |
| . 10 | . 20 | . 25 | 2.40 | . 20 | . 65 |  |  |  |  |
| . 00 | . 05 | . 00 | . 00 | 2.70 | . 75 |  |  |  |  |
| . 30 | . 15 | . 15 | . 90 | . 00 | . 50 |  |  |  |  |
| . 00 | . $=5$ | . 15 | . 10 | . 80 | . 50 |  |  |  |  |

2 65

| .33 | .08 | .18 | .83 | 6.64 | 6.76 | 7.08 | 8.29 | 11 | 3 | 511 |
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| .97 | -.85 | 2.54 | 5.62 | 11.13 | 14.47 | 10.91 | 17.85 |  |  |  |
| 6.00 | -.20 | 5.54 | 0.60 | 00.00 | 90.00 | 100.62 | 103.20 |  |  |  |

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| .42 | .85 | .98 | 1.18 |  |  |
| .40 | .30 | .10 | .35 | .40 | 1.30 |
| .00 | .20 | .25 | .05 | .05 | .50 |
| .05 | .30 | .20 | .05 | .15 | .80 |
| .00 | .05 | .00 | .05 | .15 | .30 |
| .00 | .05 | .05 | .00 | .35 | .40 |
| .05 | .05 | .10 | .00 | .00 | .05 |

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256 1

| .25 | .00 | .04 | .56 | 12.63 | 12.10 | 12.27 | 15.02 | 0 | 0 | 3 |
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| 2.22 | 1.49 | 2.04 | 1.04 | 15.10 | 15.30 | 12.16 | 15.66 |  |  |  |
| 18.00 | 4.80 | 6.46 | 9.60 | 60.00 | 62.50 | 75.62 | 81.60 |  |  |  |

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    0}1614\quad6\quad99
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| .35 | .25 | .03 | .28 |  |  |
| .10 | .00 | .10 | .00 | .00 | .05 |
| .00 | .00 | .00 | .00 | .00 | .00 |
| .00 | .00 | .00 | .00 | .00 | .00 |
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| .00 | .00 | .00 | .00 | .00 | .05 |
| .00 | .00 | .00 | .00 | .00 | .00 |

25
.E5 .05 .07 2.10 10.41 10.04 i2.20 i2.09 43 5 8 i1
4.60 2.シ3 2.14 2.63 9.51 16.57 10.87 77.46
.00
0 i 0 c 1.00
0 8 10 ミ25 0

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| 1.05 | 1.43 | .75 | .65 |  |  |
| 2.00 | .75 | .20 | .30 | - | 1.35 |
| .65 | .70 | .90 | .90 | .00 | .65 |
| .15 | .00 | .00 | - | .10 | .60 |
| .05 | 1.00 | .30 | 1.10 | .10 | .90 |
| .15 | .00 | - | .10 | .60 | .65 |
| .05 | .20 | - | .75 | .30 | .70 |

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258 0
.33 .00 .08 . .92 8.40 10.84 10.30 10.13 8 % 0 5 5 5
.70 .93 1.11 2.39 19.45 19.21
    .00}66.00 6.46 7.20 108.00 102.00 104.31 105.60
010}01.0
0 15 4 4 :7 0
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- & - & - & - & - & - \\
.05 & 1.35 & .82 & .70 & & \\
\(i .45\) & .00 & 2.10 & .25 & .40 & 1.70 \\
- & .35 & 1.95 & 2.50 & .25 & .30 \\
. .85 & .00 & 1.25 & .80 & .50 & .45 \\
.55 & .45 & .60 & .00 & .15 & .00 \\
.25 & 7.10 & \(i .80\) & .00 & .00 & .00 \\
.00 & 1.25 & .60 & .00 & .05 & .00
\end{tabular}
E5cc
    .08 .06 .01 . . 72 7.63 11.04 10.97 8.56 1 1 1 0 0 0
\therefore.54 I.75 2.80 5.16 18.55 19.40 19.16 22.21
5.00}6.00\mp@code{7.38
010 0 \.00
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.15 & .40 & .22 & .03 & & \\
.10 & .15 & .00 & .00 & .10 & .00 \\
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270 0
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6.07}20.87\quad2.64 3.17 11.98 16.40 13.79 12.68
    .00}30.60 3.69 2.40 75.00 72.00 72.00 72.00
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013 9 2 25 0
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    .13
    .00 . .10 .00 .90 .00 -
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    .00 .70 3.60 .00 .00 .00
    .45 .00 . 10 . .00 . 70 .50
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The thesis has been revised in the light of the detailed criticisms and suggestions of the examiners. It is considered that all points in the Agreed Recomendations for revision have been met with the possible exception of two. Part A of what follows itemizes the changes that have been made to the thesis in an attempt to correct the errors and misinterpretations raised by the examiners. Part \(B\) sets out the position adopted on the two suggestions/criticisms which have not been followed. In Part \(A\) and Part \(B\) the sections of the text that have been changed have been underlined.

\section*{Part A}
Revisions to chapter 3 for clarity (Recommendation (a))
Methodological shortcomings in chapter 5 (Recommendation (b))
Chapter 5: Accuracy Rates (Recommendation (d))
Detailed points of Examiner B (Recommendation (f))

Revisions to Chapter 3 for Clarity (Recommendation (a))
(1) Examiner A pointed out that it was stated "that 63 male and 63 female subjects constituted the sample, that two thirds of the sample constituted the experimental/control group, and that half of this subsample were questioned about cards they had not selected," and questioned what had happened to the other 42 subjects. The paragraph has been rewritten (see p. 49) and now reads:

Sample 1. A total of 63 male and 63 female undergraduates enrolled in the introductory psychology course at the University of New England were included in Sample 1. Two thirds of the sample ( 42 males and 42 females) constituted the experimental group. The remaining third of the sample ( 21 males and 21 females) constituted the control group. Due to equipment malfunction 5 subjects were lost from the analysis.
(2) Examiner A expressed concern about the problem of bias in the conduct of the control question test since the experimenter knew that all of the subjects were guilty. The second complete paragraph on page 47 has been rewritten to take account of this point. It now reads:

In the card test every effort was made to ensure that the subject's status was not known until all scoring of the data was complete. With only one experimenter a double-bind procedure was not possible, but procedures described in detail below were adopted to prevent bias in data reduction. In the mock agent test the problem of bias is more significant since in this test all subjects were guilty and the experimenter knew this. As Podesny and Raskin (1977) noted, "If the examiner displays a bias towards a particular outcome or treats the subject in an accusatory manner, this could produce reactions that may contribute to an erroneous outcome" (p.788). Although subjects in the present study were not treated in an accusatory manner, the examiner did know that all were guilty and this knowledge could have influenced the outcome. The extent to which bias of this sort influenced the results of the mock agent test, it must be admitted, is unknown.

Also, for clarity, the footnote on page 55 has been extended. It now reads:

There were no blank cards in the sets presented to subjects. Reference was made to blank cards to give subjects the impression that both innocent and guilty subjects were participating. All subjects were, however, guilty, and this may have produced examiner bias as discussed on page 47.

Further, and again for clarity, the second paragraph on page 159 has been included. It now reads:

Inclusion of an innocent group would also have helped ovecome a second limitation of the study, that of possible experimenter bias in administration of the \(C Q\) test. In the mock agent paradigm all subjects were guilty and the examiner knew this. Hence it is possible that the accuracy rates obtained in the mock agent test were reduced because of this knowledge. In hindsight it would have been more appropriate to have included an innocent group in the mock agent test and to have ensured that the subjects' guilt or innocence was unnknown to the experimenter at the time of conducting the \(C Q\) test.
(3) Examiner A commented on the lack of description of a procedure used "to create a strong motivation for the subjects to deceive successfully." Further Examiner A commented that "the relatively high error rate for the control question test ( \(34 \%\) ) probably reflects" the lack of subject motivation. The examiner also remarked on failure to cite high accuracy rates obtained in his laboratory.

The examiner's point is taken. Subject motivation is important in tests of PDD and extremely high accuracy rates reported in the literature are likely to be due to motivational set. However, the purpose of the thesis was investigation of the role of individual difference factors in PDD. To ensure individual differences in detectability, high levels of motivation were not induced in the studies. If high motivation had been induced, for example, and \(100 \%\) of subjects had been correctly detected there would have been no individual differences to examine. In recognition of the examiner's criticism the following changes have been made:
(i) Two new paragraphs have been included, one which commences on page 47 and continues onto page 48 , and the other, the first complete paragraph of page 48. They read as follows:

One other factor considered in developing procedures for the study was the degree of subject motivation to be induced. Studies of PDD have shown a positive relationship between level of subject motivation and accuracy of detection. Gustafson and Orne (1963) demonstrated that accuracy rates were substantially higher when subjects were motivated to deceive as a consequence of ego involving instructions and provision of a monetary incentive. In that study, two groups of subjects selected
one of five cards. One group, the motivated group, was informed that they were going to be tested to see how effectively they could conceal information and that while this was a very difficult task, they could succeed if they were of superior intelligence and possessed exceptional emotional control. Further, if they succeeded they received a \(\$ 1\) bonus. The subjects in the non-motivated group did not receive these instructions nor any bonus. Gustafson and Orne (1963) found that subjects in the motivated group were detected significantly more often than subjects in the non-motivated group ( \(p<.05\) ), and that detection rates were at a much higher than chance level, which was not the case for subjects in the non-motivated group. Work from Raskin's laboratory
has also emphasised the importance of motivating subjects prior to
conducting tests of deception. For example, Raskin and Hare (1978)
motivated prisoners in a mock theft paradigm by providing a \(\$ 20\) bonus
for successful performances. When an inconclusive category was excluded
these researchers obtained a \(96 \%\) detection rate.

It was decided not to attempt to induce high levels of motivation in the present study because concern focused on the role of individual difference factors in PDD. In the light of studies just reviewed, strong motivational press could be expected to reduce variation in detectability among subjects and reduce the opportunity to show correlations with personality factors. If, for example, in the extreme case all subjects were detectable, no correlation with the factors of concern in the present study would be possible. To avoid ceiling effects, therefore, it was decided not to attempt to induce high levels of ego involvement or to offer a monetary incentive, even though this represented a departure from the optimal conditions for PDD.
(ii) The final paragraph of the thesis, which commences on page 159, has been expanded. It reads as follows:

In general, the results of the present research programme provide qualified support for the view that individual differences in electrodermal activity are important in laboratory studies of PDD which employ that response system. Whether this can be generalized to other response systems cannot be decided on the basis of the results reported here, although these encourage empirical attempts at such an extension. Further, the results of the present reseach programme and the conclusions from them pertain to an experiment where the motivation level of subjects was purposely kept to a minimum. Further research is required before it is permissible to generalize to deception experiments in which high levels of motivation are induced through ego involving instructions or use of monetary incentives. Whether the assessment of individual differences in responsiveness is of value to the field practioner is also impossible to judge on the basis of these data as there are sufficient differences between field and laboratory to make one cautious in extrapolating from the latter to the former.
(4) Examiner A expressed concern that the subjects was permitted "to answer yes to a relevant question in the pre-test interview" and continue with the test after the experimenter had explained the procedure. The word "relevant" was an unfortunate mistake in the original thesis. It should have read "control". The paragraph, on page 58, has been amended to read:

If subjects required clarification on any point or if they answered "yes" to a control question, the experimenter again explained the situation to subjects before proceeding to the next question. For example, if a subject responded in the affirmative to the ouestion \({ }^{n}\) In your whole life have you ever stolen anything?", the examiner asked for details concerning the theft. Invariably petty theft was involved. The examiner asked whether there was any other incidents of theft. When the subject answered "no". the examiner said, "When you are asked the question 'In your whole life have you ever stolen anything?' I want you to think about that but exclude the incident of theft that we have just discussed."

In addition, a footnote has been added to page 56. It reads

> No subject opted to reveal the code words.
(5) A related criticism was that "it was not clear whether or not the subjects were allowed to answer 'yes' to a control question". This has been clarified in the paragraph qouted in point 4. The examiner also pointed out in this regard that the introduction of the control questions to subjects and the importance attached to those questions is crucial to a successful test. Because of the standardized procedure followed it is quite possible that insufficient importance was attached to the control questions in the minds of the subjects. The validity of this is acknowledged in the comment which now appears on page 154.

The second and more likely explanation for the low reliability coefficients involves the very limited sample of behaviour on which the estimates of reliability are based. Fsychometrics (as well as common sense) suggests that the larger the sample of behaviour the more reliable is the estimate based on it. Psychometric tests, therefore, include a large number of items. The tests of deception used here, and these are not atypical, include few items (questions) on which to base a
cecision of deceptiveness. For example, the card test involves the asking of one critical question per trial. The problem of limited sampling is compounded by the use of a difference score as the basic measure in determining deceptiveness. As noted in Chapter 2, difference scores are notoriously unreiiable because they add the unreliability of each of the components:. A systematic study of reliability should pay particular attention to the conditions under which detectability is assessed. One criticism that could be leveled at this study is that not enough emphasis was attached to the control questions. Greater emphasis attached to the control questions might have altered accuracy rates and the reliability of detection.
(6) Examiner A pointed out that the control questions were of the non-exclusive type and that Podlesny and Raskin (1978) showed this type of control question to be less effective in control question tests than exclusive control questions. This criticism is accepted. The control questions used were formulated using examples provided in Waid's papers (e.g., Waid, Orne \& Wilson, 1979). A footnote acknowledging the point has been included on page 57. It reads

These questions were formulated using examples provided in a number
of papers (e.g., Waid, Orne \& Wilson, 1979). One difficulty with
them which must be acknowledged, is that the control questions are
all of the type labelled by Podlesny and Raskin (1978)
"non-exclusive". That is, they are questions which lack any specific time of reference and as such are to be distinguished from "exclusive" questions which are specific. Podlesny and Raskin (1978) reported that the latter are more effective in identifying guilty subjects.
(7) Measurement of cardiac activity. Examiner A commented that "calculating change in heart rate by taking the difference between the baseline and the average of a five second period following the introduction of the stimulus is a poor way to analyze heart rate." The examiner suggested that averaging across five seconds would underestimate the maximum increase and maximum decrease that is typical of a biphasic response such as heart rate. Further, the examiner noted that five seconds is not sufficient time to detect the decelerative component of the biphasic response. To attend to this problem
concerning heart rate (a problem which exists with respiration rate as well as it too is a bidirectional measure) two additional paragraphs have been included in the thesis. They are on pages 61 and 62 and appear below.

The measures of SC used are those typically employed in the psychophysiological literature. The \(H R\) and \(R R\) measures, however, require comment. \(H R\) unlike \(S C\) is a bidirectional response, with both increases and decreases in HR being possible. The exact pattern of HR change in response to stimulation has been the subject of considerable investigation (see e.g., Siddle \& Turpin, 1980). A number of stimulus and organismic factors are involved ranging from the intensity of the stimulus to the age of the subject, and there is, as a consequence, no standard index of \(H R\) for use in the individual case. Different researchers select for analysis different features of the profile of HR change following stimulation using considerations, such as the salient features of the profile shown in group data or the expected pattern of change, to guide their choice (Siddle \& Turpin, 1980). For present purposes the direction of change was not as significant as the magnitude of change since \(H R\) (and RR) were measured principally to assess the comparative reactivity of the electrodermal system. An average measure was judged to provide the necessary information although it was recognized that identification of the maximum or minimum rate following stumulus onset would have provided a more sensitive index. Determination of maxima and minima would have necessitated a beat by beat analysis which was not practicable given the method of recording available and the number of subjects in the study. For subjects changing predominantly in one direction or the other the average measure
is meaningful but conservative. It would, however, be a particularly insensitive index where a subject increased and decreased \(H R\) by equivalent amounts during the measurement period.

FR is also bidirectional and as such an average value shares the same problems as those of an average HR measure. A further difficulty is that, while \(H R\) (or its reciprocal heart period) is widely accepted as a basic measure of cardiac function, rate is but one of a number of competing measures of respiratory activity (e.g.. amplitude, inspiration/expiration ratio). Rate was used here for two reasons. The first was that Stein and Luparello (1967) recommended a rate measure in preference to an amplitude measure where, as in the present study, a girth technique of recording is employed. The second was that rate was
the index used in previous studies of IRS which had included assessment of respiratory activity (Engel, 1960; Engel \& Bickford, 1961; Johnson et al., 1963; Sersen et al., 1978). As respiration was included in the study primarily for the assessment of IRS it was considered most appropriate to follow past practice in this regard.

In addition to the above text, an additional footnote was entered on page 69, for clarity. It appears below:

It is possible that the level measure proved most satisfactory for the analysis because of the problems with the response measures noted on p. 61-62. Averaging in the case of bi-directional responses such as RR and \(H R\) may have reduced sensitivity of these measures and hence reduced their usefulness for analysis of IRS.

Methodological Shortcomings in Chapter 5 (Recommendation (b))
Examiner A noted that the methodological shortcoming mentioned by him in relation to Chapter 3 should also be noted in Chapter 5 of the thesis. To address this point the first complete paragraph on page 113 nas been inserted and appears below:

The procedure followed here departed in several respects from that usually followed in administering the \(C Q\) test. These departures were described earlier but need to be considered again here. First, the examiner knew that the subjects in the mock agent test were all guilty. Tris, it must be conceded, may have produced some degree of bias in the examiner, but the extent of this bias and its influence on the results are unknow. Second, subjects were not motivated to deceive. High jevels of motivation were purposely not induced because of the need to incuce a range of detectability scores. Certainly, the literature is ciear on the point that highly motivated subjects are more easily detected than non-motivated subjects (Gustafson \& Orne, 1963: Raskin \(\dot{\alpha}\) Hare, 1978). Lower average rates of detection are therefore to be expected. Tnird, the list of questions that constituted the \(C Q\) test were read to the subject. While this is not a strict departure from the normal practice of the pre-test interview, it is possible that the standardized procedure followed for all subjects resulted in less emphasis being placed on the control questions than is usually the case. In addition the type of control question employed in the study was the 'non-exclusive' control question, wich Podlesny and Raskin (1978) have shown to be less effective in identifying guilty subjects than the 'exclusive' type. All these departures could have contributed to the lower detection rates found here as compared to previous studies with the co test.

The point regarding the analysis of the cardiac data is mentioned in the first paragraph of page 81 and appears below:

\section*{CHAPTER 5}

ASSESSMENT OF DETECTABILITY

This chapter reviews the results obtained in the two detection situations, the card test and the mock agent test, and describes the construction of indices of detectability. The data presented are for the electrodermal response, since this was the primary concern of the research programme. Preliminary analyses of some of the data revealed little capacity to detect deception using heart rate and respiratory measures and these were dropped from further consideration. This could well have been of course because of problems with these measures as discussed above (see p. 6i-62). A more sensitive measure of the evoked
\begin{tabular}{llll}
\hline cardiac response (e.g., heart rate decleration) or the \\
inspiretion/expiration ratio or an amplitude measure in the case of
\end{tabular} respiration may have shown better results. There was also an attempt made to assess the records as might be done in a field situation. That is, activity in all three systems was scrutinized and a judgement made about deceptiveness. The results using this "clinical" approach as Szucko and Kleinmuntz (1981) have recently described it were equally disappointing and are not discussed further here.
- Chapter 5: Accuracy Rates (Recommendation (d))

Examiner A cited a "problem with regard to inadequate citations of literature concerning accuracy rates in control question tests." Further, the examiner did not think that the statement "The detection rate found here is within the range of sampling error indicated by the spread of results from other studies" was valid. The examiner stated "The accuracy rates with the control question test in this study are similar to those obtained in studies where weak procedures have been utilized." The examiner also said that "it would be a mischaracterization of the literature to state that \(65 \%\) accuracy rate is a typical finding with the control question technique."

On reflection, the examiner's criticism is accepted and the last paragraph of page 112 has been rewritten as follows:

For the \(C Q\) test, studies by Waid (Waid, Orne \& Orne, 1981; Waid, Orne \& Wilson, 1979; Waid, Wilson \& Orne, 1981) using a mock agent paradigm and listed in Table 1.3 report a mean accuracy rate of detecting guilty subjects of \(76.5 \%\). Studies by Raskin (Barland \& Raskin, 1975; Podlesny \& Raskin, 1978; Raskin \& Hare, 1978) using a mock theft paradigm and listed in Table 1.3 report a mean accuracy rate of detecting guilty subjects of \(90.3 \%\)., Both these accuracy rates are substantially higher than the 65\% found here. In view of this, the detection rate found here cannot be considered typical of those reported in the literature for the \(C Q\) test.

Detailed Points of Examiner B (Recommendation (f))
Examiner \(B\) also requested clarification of points and some reanalyses. What follows is a list of those points and comments regarding additions to the thesis in the light of those points.
(1) In chapter 4 , which deals with the analysis of individual differences in physiological reactivity, examiner B pointed out that the conclusion "the conditions selected to study individual differences in physiological responsiveness thus had a differential effect on SC and level does not follow from the two preceding sentences." They were: "For amplitude, the comparison of conditions yeilded an \(\underset{F}{ } 263.73\) (df \(\underline{d}=311 ; \mathrm{p}<.001\) )" and "For the level, the \(\underline{F}\) for conditions was
\(89.98(\underline{d f}=3.811 ; p, .001) . "\) The examiner requested that comparison tests be conducted. These tests were performed and the results inserted in the first paragraph of page 64 which appears below. The examiner also queried whether the mean skin conductance amplitude response during the relaxation condition was higher than that in the tone condition or whether this was a misprint. It was in fact higher during relaxation because it was not a measure of amplitude of NSR's as the examiner presumed but a measure of response to the experimenter's instruction to continue relaxing. The difference thus reflects the greater response to voice than to tone. This point is mentioned on page 64.
comparable because of differences in the number of stimuli or the time over which the scores were derived, and hence were not subjected to analysis of variance. For amplitude, the comparison of conditions yieided an \(E\) of 263.73 (df \(=3.811\); \(p<.001\) ). Comparison of the means for the four conditions using the Newman-Keuls method (Winer, 1962) indicated statistically significant differences ( \(\mathrm{p}<.01\) ) between all means. As inspection of Table 4.1 indicates, amplitude was largest for mental arithmetic and smallest to the tone stimuli. Relaxation might have been expected to evoke the smallest response, but the stimuli to which amplitude was measured in this condition was the experimenter's voice (see p. 60) which was heard after a period of silence. The nature and surprisingness of this stimulus no doubt accounts for the relatively greater amplitude in this condition. For the level measure, the \(F\) for conditions was \(89.98(\underline{d f}=3,811 ; p<.001)\). Again comparisons of means were performed using the Newman-Keuls method. Results indicated significant differences ( \(p<.01\) ) between relaxation and both the count-up and mental arithmetic conditions and between the tone series and mental arithmetic conditions, but no difference between the
relaxation and tone series or between the count-up and mental
arithmetic. Thus SC amplitude and to a lesser extent SC level differentiated among the four conditions.
(2) Regarding Table 5.1 which is a summary of analysis of variance on magnitude of SCR to the non-critical cards in the card test, examiner \(B\) suggested tests of simple main effects and simple-simple main effects on the significant interactions reported in that table. These tests were performed and the new text on pages 83 and 86 is as follows:

Statistical analysis of the data to check the reliability of these trencis was performed using the BMD package (Dixson \& Brown, 1981). In particular, BMDP2V was used to perform a repeated measures analysis of variance, first for the non-chosen cards, in which status (experimental/control).was a between groups factor, and serial position of the card (first through to fifth), trial (first or second), and condition (yes, no, mute) were within group factors. The analysis of variance summary table appears as Table 5.1. In assessing statistical significance the probability values provided by BMDF2V for the Greenhouse and Geisser (1959) correction were employed, since it could not be assumed that all the assumptions underlying the repeated measures ana?ysis had been met.

Inspection of Table 5.1 indicates two significant three way interactions, one involving status, conditions, and trials, and the ciher involving conditions, trials, and serial position. Tests for simple main effects following (Winer, 1962) were therefore performed. In the case of the first interaction, analyses for the effects of status and conditions were performed separately for each trial. For trial 7 , there was a significant main effect for conditions ( \(F=27.32\), \(p<.001)\). Comparisons of the means for the three conditions using the Newman-Keuls method indicated that under the mute condition responsiveness was significantly (p < .01) lower than under the yes or no conditions but that these conditions did not differ from each other. The effect for status was not significant ( \(\underline{F}=1.18\) ) , nor was the effect for the interaction of status and conditions ( \(\underline{F}=1.16\) ). For trial 2 , both the effects for status ( \(\underline{F}=4.23\), \(\underline{d f}=1,107, p<.05\) ) and
conditions \((\underline{F}=20.06, \underline{d f}=2,214, p<.001)\) were significant, but the
\begin{tabular}{l} 
interaction was not \((F=1.51)\). Control subjects showed greater \\
responsiveness than experimental subjects. The differences among \\
conditions, again tested using the Newman-Keuls method, were the same as \\
those occuring on trial 1.
\end{tabular}

Analysis of the conditions by trials by serial position interaction examined the effects for trials and serial position under each of the three conditions. For both the yes \((\underline{F}=4.21, d f=4,456, p<.01)\) and no ( \(F=6.07, \underline{d f}=4.436, p<.01\) ) conditions but not for the mute condition \((\underline{F}=0.29)\) the interaction of trials and serial position proved significant. Further analysis indicated that serial position was significant on trial 1 but not on trial 2 for both the yes ( \(\underset{=}{ }=8.71\), \(d f=4,456, p<.01)\) and no \((F=8.20, \quad \underline{d f}=4,452, p<.01)\) conditions.

These analyses indicate (a) that conditions requiring a verbal response from the subject (yes or no) elicited substantially greater SC response than the condítion in which the subject did not respond to the experimenter's questioning; and (b) that responsiveness decreased over presentations on trial 1 for those conditions in which a verbal response was required. The latter is interpretable as an habituation effect which is manifest only when a sufficient level of initial responsiveness is evoked.
(3) In chapter five, examiner B suggested that breakdown analyses be performed on the reliable interactions reported in Table 5.20. which is a summary of analysis of variance comparing SCR magnitude to the critical and non-critical items of the guilty knowledge test in the mock agent test. These analyses were performed. The results of the analyses now appear on pages 104 and 108:

The second analysis involved comparing response magnitude to the critical item with mean magnitude of response to the non-critical items. The data for this analysis are summarized in Table 5.19. Examination of this table suggests that response to the critical items was consistently greater than to the non-critical item. The effect was, however, more marked on the first than on the second trial. There is also a trend for response to the critical items of the topic bird to be greater than that to critical items under the topic tree or colour. An analysis of variance was conducted on these data in which trials, topic, and item type (critical/non-critical) were all within subject factors. The results are summarized in Table 5.20. Although the main effects for trial, topic, and item type were all statistically significant, these effects must be interpreted in the light of the significant interactions

In which the factors were involved. The significant trial by topic interaction could be inferred from the data presented in Table 5.19 as arising from the somewhat smaller differences between the two trials for the topic of colour than for the other two topics. Breakdown analyses indicated that the effect for trial was in fact weaker for colour \(\overline{(F}=4.30, d f=1,81)\) than for either bird \((E=22.31, d f=1,76)\) or tree \((\underline{F}=26.85, d f=1,79)\) but in all cases the effect was significant ( \(p<.05\) ). The trial by item-type interaction was due to the smaller difference between critical and non-critical items under the mute than under the no condition, but again breakdown analyses indicated that the effect was significant under both conditions \((E=42.96\), \(\underline{d f}=1,76\), p<.001 for no; \(\underset{F}{F}=4.84\), df \(=1.79 . p<.05\) for mute). The topic by item-type interaction was brought about by the larger difference between critical and nor-critical items for the topic of bird than for that of colour (see Table 5.19). However breakown analyses indicated that for all topics the differences were significant \((\underline{F}=18.99, \underline{d f}=1,76\), p<.001 for bird; \(E=18.70\), df \(=1,79, p<.001\) for tree; \(\bar{E}=6.83\), df \(=1,81, p<.05\) for colour).
(4) Examiner B pointed out that "the null hypothesis is either rejected or not rejected - it is not accepted." This examiner suggested that the sentences of chapter 6 that read "It (the null hypothesis) must be accepted in all other instances" should be altered to read "They cannot be rejected in other instances." The relevant sentences have been changed (see p. 120-121).
They cannct be rejected in other instances. However, mention should be made of the correlations with Detectability for yes and no conditions for control subjects. Although not statistically significant, the magnitude and sign of these coefficients are consistent with that for control subjects under the mute condition.

For the amplitude index (SCAMP) the null hypothesis must be rejected:
(a) in the card test for the mute condition, where both Differential Responsiveness and Detectability are assessed for control subjects (DIFRA3 and DETCA3);
(b) in the mock agent procedure, for the GKT in the no condition for both measures of Detectability (DIFRA 4 and DETCA4);
(c) in the mock agent procedure for the \(C Q\) test (DRC12).
The null hypothesis cannot be rejected in all other cases.
(5) Those typographical errors pointed out by this examiner and examiner \(C\) have been corrected.
See p. 41 (now p. 41, line 5 from bottom): "?" removed

See p. 43 (now p. 43, line 18):

See p. 43 (now p. 43, line 26):

See p. 43 (now p. 43, line 28):

See p. 48 (now p. 50, line 4):

See p. 59 (now p. 62, lines 28-29):

See p. 60 (now p. 63, line 5):

See p. 152 (now p. 158, line 17):

See p. 152 (now p. 158, bottom line):
"?" removed
"prs" to "pre"
"predicted" to "predicated"
"deivable" to "derivable"
". 5mv" to ".5V"
"beats" to "cycles"
"is" to "are"
"led" to "lead"
"nagative" to "negative"

Part B

Omission of the Respiratory Data (Recommendation (c))

Chapter 6: Reliability (Recommendation (e))
Omission of the Respiratory Data (Recommendation (c))
This recommendation has not been followed. Rather, the deseription of the way in which the respiratory data were collected has been corrected and extended, the method of recording chosen has been defended, and problems with the procedure for scoring acknowledged.

Examiner A drew attention to the unlikely nature of the respiratory data reported. As described, subjects were breathing at rates of the order of 36 cycles per minute. This of course was not the case, but the reader was entitled to assume that it was so. The description of the recording procedure had been abbreviated in the original version of the thesis to an extent that it was in fact in error. This section has been rewritten and appears on pages 60-61.

For each physiological index, measurements of level and amplitude were made using the intervals identified. For SC, amplitude was measured as the largest change in conductance in microminos occurring in a post-stimulus interval. Level was the SC level at the end of a pre-stimulus interval. For HR , the amplitude measure was the absolute
difference in beats per minute between average hr in the pre- and
post-stimulus intervals. Level was the average of the 5-sec.
pre-stimulus interval. For RR, the measurement intervals were used to
define the commencing points for scoring, rather than to define only the
sections of record to be scored. The commencing point for the
pre-stimulus measurement interval was the first peak or trough in the
respiratory cyole following stimulus offset. For the pre-stimulus
measurement interval it was the last peak or trough immediately
preceding stimulus onset. A rate measurement was cotained by determining the time taken for one or two complete cycies forward (for the post-stimulus) \(c:\) back (for the pre-stimulus) from the commencing point, and converting this to a cycles per minute index. One or two cycles was used depending on the inter-stimulus interval in the condition for which measurements were derived. Where the inter-stimulus interval was relatively long (relaxation, tone, and mental arithmetic conditions) two cycles were measured, unless artifact was present necessitating the rejection of a cycle and its replacement with a subsequent one. Where the inter-stimulus interval was short (the count-up, the card test, and the mock agent test), one cycle only was measured. RR amplitude was then calculated as the difference between the pre- and post-stimulus rates, and level as the pre-stimulus rate.

Examiner \(A\) also queried the use of rate as the basic datum. Rate was used for reasons now stated in the thesis on page 62:

RR is also bidirectional and as such an average value shares the same problems as those of an average HR measure. A further difficulty is that, while HR (or its reciprocal heart period) is widely accepted as a basic measure of cardiac function, rate is but one of a number of competing measures of respiratory activity (e.g., amplitude, inspiration/expiration ratio). Rate was used here for two reasons. The first was that stein and Luparello (1967) recommended a rate measure in preference to an amplitude measure where, as in the present study, a girth technique of recording is employed. The second was that rate was the index used in previous studies of IRS which had included assessment of respiratory activity (Engel, 1960; Engel \& Bickford, 1961; Johnson et al., 1963; Sersen et al., 1978). As respiration was included in the study primarily for the assessment of IRS it was considered most appropriate to follow past practice in this regard.

The problem of averaging with a bi-directional response, noted with the cardiac response, applies here as well and this is now acknowledged on pages 61-62 of the thesis in the following way:

The measures of \(S C\) used are those typically employed in the psychophysiological literature. The \(H R\) and \(R R\) measures, however, require comment. \(H R\) unlike \(S C\) is a bidirectional response, with both increases and decreases in \(H R\) being possible. The exact pattern of HR change in response to stimulation has been the subject of considerable investigation (see e.g., Siddle \& Turpin, 1980). A number of stimulus and organismic factors are involved ranging from the intensity of the stimulus to the age of the subject, and there is, as a consequence, no standard index of \(H R\) for use in the individual case. Different researchers select for analysis different features of the profile of \(H R\) change following stimulation using considerations, such as the salient features of the profile shown in group data or the expected pattern of change, to guide their choice (Siddle \& Turpin, 1980). For present purposes the direction of change was not as significant as the magnitude of change since \(H R\) (and RR) were measured principally to assess the comparative reactivity of the electrodermal system. An average measure was judged to provide the necessary information although it was recognized that identification of the maximum or minimum rate following
stumulus onset would have provided a more sensitive index.
Determination of maxima and minima would have necessitated a beat by
beat analysis which was not practicable given the method of recording
available and the number of subjects in the study. For subjects
changing predominantly in one direction or the other the average measure
is meaningful but conservative. It would, however, be a particularly
insensitive index where a subject increased and decreased HR by
equivalent amounts during the measurement period.

Although omitting the respiratory data would have conformed with the suggestions of both examiner \(A\) and examiner \(B\), it was judged, on reflection, to be defensible to continue to report these. The thesis is concerned with individual differences in ANS activity and the implications of these for detectability in laboratory tests of PDD. One of the individual difference measures employed is that of relative responsiveness. This involves rank ordering response systems, and as a consequence the measure is more valid the more response systems that are included. As acknowledged in the original version of the thesis the measure suffers from being based on only three response systems. Rejecting the respiratory data would mean basing it on two and this would reduce the value of the measure of relative responsiveness to a degree where it would hardly be worthwhile to include. Thus one of the three dimensions of individual differences originally considered in the thesis would be eliminated, and as such the scope of the thesis would be seriously compromised.

Omission does not seem necessary given that the basic measure is now more adequately described. Rate, particularly from a pre-stimulus observation point, is defensible as a measure of respiratory activity even though examiner \(A\) is no doubt correct in quering the sensitivity of such a measure as a dependent variable in experimental tasks. It may not be sensitive in PDD situations as now acknowledged (see p. 81), but its primary purpose in the thesis was not as a measure of detectability but as an index of relative responsiveness. Its use for this purpose is sanctioned by the literature.

\section*{Chapter 6: Reliability (Recommendation (e))}

Examiner A maintained that the low reliability of the detectability indices was not typical of findings reported in the literature. It is true that some studies (e.g., Barland \& Raskin, 1975; Podlesny \& Raskin, 1978) have reported reliability figures as high as 100\%. However, the reliability in these cases was inter-judge reliability whereas the reliability discussed in the thesis is test-retest reliability. This point is highlighted in paragraph two of page 153, which appears below:

On a second point, however, the acceptability of the measures as criteria can be criticized. In no case did a measure show the degree of reliability expected of a measure of individual differences by psychometricians. Reliability is of course an important characteristic of any criterion since low reliability attenuates the correlations with other variables to be used as predictors. Reliability in the test-retest sense has not been reported on previously and it is not possible therefore to establish whether the present findings are typical of measures of PDD. Where reliability has been discussed previously it has been in the inter-judge sense, i.e., where two or more assessors score the same record. Reliability in this sense has been found to be high, often as high as 100\% (Earland \& Raskin, 1975; Podlesny \& Raskin, 1978). The two types of reliabilities are, however, independent as one (test-retest) concerns sources of measurement error arising within the subject and the other (inter-rater) concerns sources within the judge.

The literature has been searched again on this point, and it is considered that the original statement of the position must stand. Problems with the procedure which might have influenced reliability are now, however, acknowledged.```

