

## **The FechDeck: a hand-tool for exploring psychophysics**

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The FechDeck is an ordinary deck of playing cards modified to support exploration of psychophysical methods. Card backs are printed with noise textures that span a range of densities. Faces are augmented with line segments arranged in “L” patterns. Jokers are printed with ruled faces and with backs that serve as noise standards. The FechDeck allows users to conduct threshold experiments using Fechner’s methods of adjustment, limits, and constant stimuli, and scaling experiments using Thurstone’s ranking, pair comparison, and categorical rating methods, and Stevens’ partition and magnitude estimation methods. Instructions and spreadsheets support clear use and efficient data processing. For example, for the method of adjustment, the user selects a card containing an “L” pattern, and places the joker face down on top. They then slide the top card until the arms of the exposed L match in length. Flipping the two cards and reading the ruler value indicates the accuracy of the match. Entering repeated measures into the spreadsheet estimates the psychometric function, the discrimination threshold, and the point of subjective equality. Similarly, for pair comparison scaling, the user separates the deck into suits, shuffles each suit and turns the piles face down. Using the spades as standards, they then repeatedly compare the other cards with the standards, sorting into piles of greater and lesser noise density. Turning the piles face up and entering their values in the spreadsheet populates the frequency matrix used by Thurstone’s law of comparative judgment to derive an interval scale of perceived density. Additional instructions and analysis tools are provided for the other methods. Thus the FechDeck enables hands-on exploration and learning of the psychophysical methods. Finally, in addition to its valuable didactic purpose, the FechDeck, can be used for a serious round of Poker or a relaxing game of Hearts.