

## **INSTRUCTIONS FOR THE HVEM CAR TEST.**

### **A. DATA COLLECTION**

Print out all 6 worksheets of the **SubjectSheets.xls** file (11 pages total).

#### **1. SUBJECT SELF-RATING (OPTIONAL)**

Using the **self rating** worksheet, have the subject do the 18 Likert scales, rating their sense of their own expertise with cars in each of the 18 categories (e.g. Asian cars made in the 1980s), on a scale from 0 (completely ignorant) to 10 (very expert).

#### **2. VERBAL SEMANTIC KNOWLEDGE ASSESSMENT**

There are three parts:

- a) cars with names – **NameCarsQuiz** worksheet – 4 pages
- b) cars whose names begin with numbers – **NumberCarsQuiz** worksheet – 1 page
- c) cars whose names begin with letters – **AlphabetCarsQuiz** worksheet – 1 page

- Each part shows a list of car models (e.g. Pinto). Ask the subject to write down in the line provided (to the left of the named item) the manufacturer of that car (e.g. Ford). *Encourage them to guess: no marks will be taken off for wrong answers.*

- They can refer to the **makerslist** worksheet, which you should print out and place beside them on the table. These are all the possible answers.

- They should not write in the little box, which you will use for scoring.

- These three parts can be done in any order.

#### **3. VISUAL CAR RECOGNITION**

There are 150 car pictures, divided into three sections (A,B,C) of 50 items each, on on-line powerpoint files **Cars Section A.ppt**, **Cars Section B.ppt**, **Cars Section C.ppt**. You will find these on the webpage where you downloaded this form, in the section “*images for the visual recognition component of the test (online powerpoint presentation)*”.

- The subject is given the **VisualRecognition** worksheets – 3 pages, on which to write down their response (if they cannot write, the examiner can do so). Each section has one page – make sure the subject is filling out the right page for the right section.

- Each item is a picture of a car, with a number on the screen. Each powerpoint slide should remain visible until the subject has written their answer or is ready to move on.

- Subject writes down, for each item, the manufacturer, model name, and decade of make in the three lists on the **VisualRecognition** answer worksheets. *Encourage them to guess: no marks will be taken off for wrong answers.*

- *They should always check that the number on the screen matches the number on the line of the worksheet upon which they are writing their answer.*

- A, B and C can be done in this order or in a different one (controls did them in random order); if you are doing multiple subjects, we recommend randomizing the order.

## **B. DATA SCORING**

### **1. SUBJECT SELFRATING (OPTIONAL)**

Average the scores of all 18 Likert scales.

Next, download and open the **CarScoring.xls** workbook. This has several pages on which you will enter data.

Note: there are three pages you ***MUST NOT TOUCH***, because these have the numbers to adjust verbal scores. These are the **Alphaweights DO NOT ALTER**, **Numberweights DO NOT ALTER**, and the **Nameweights DO NOT ALTER** worksheets.

### **2. VERBAL SEMANTIC KNOWLEDGE**

For each part there is a corresponding scoring worksheet:

- a) cars with names – **Namescoring** worksheet
  - b) cars whose names begin with numbers – **Numberscoring** worksheet
  - c) cars whose names begin with letters – **Alphabetscoring** worksheet
- These scoring worksheets show the correct answers for each item. Note that some items have two possible correct answers (e.g. Plymouth or Dodge for Colt) – either will do.
  - On the paper worksheets of the patient, you can score in the small boxes for each item, 1 for a correct answer, blank for incorrect answer or no answer, and transfer these later to the appropriate electronic **Scoring** worksheet...or you can just directly enter on the latter.
  - Enter the patient's score in the **blue boxes** on the **Scoring** worksheet: **1** for correct, **0 or blank** for incorrect or no answer.
  - The **yellow boxes** at the top of the Scoring worksheet contain the final tabulated data. This is given for each decade and continent, but the main summary is in the **Total yellow box** on the left surrounded by bold margin. These data will be automatically transferred to the linked **Final Score Summary worksheet**.

**NOTE: ONLY ENTER DATA IN THE BLUE BOXES OF ANY SHEET!**

### **3. VISUAL CAR RECOGNITION**

- In the **blue boxes** of the **Visual score** worksheet, enter the score, 1 for correct answer, 0 or blank for incorrect answer or no answer, **FOR EACH OF THE THREE CATEGORIES** of manufacturer, model and decade (note that the precise year of the model is listed, but the subject only has to get the correct decade). The **yellow boxes** will give the three summary scores automatically.

### **4. FINAL SCORE SUMMARY**

The summaries of the data you have entered in the 2. Verbal and 3. Visual scoring sections above are automatically transferred to the **Final score summary** worksheet. The *final verbal semantic score* is indicated in a *yellow box*, which is the sum of the adjusted scores for each of the alphabet, number and name car lists. The visual scores for manufacturer, model and decade are also listed in *green boxes*, and a *weighted overall perceptual score* is calculated and shown in a *yellow box*.

The *purple boxes* indicate first the *predicted visual score*, which is the visual recognition (weighted overall perceptual score) that the linear regression would have predicted from their *final verbal semantic score*. The last *purple box* for degree of abnormality indicates the difference between the *predicted visual score* and the *weighted overall perceptual score* obtained by the subject. Positive values indicate worse visual recognition than expected. The magnitude of this can be compared to the numbers in the box to determine the p-value of the result.

For more information, feel free to contact [jasonbarton@shaw.ca](mailto:jasonbarton@shaw.ca)

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OPTIONAL – it is also possible to do a concordance analysis, using the **concordance** worksheet. This determines on an item by item basis whether the fact that the subject was able to name the manufacturer of the car in the verbal semantic knowledge part of the test influences the likelihood that they would be able to provide accurate information when a picture of that car is shown in the visual recognition part of the test.

\* **concordance** worksheet (optional) will automatically take the data you entered in the verbal score sheets and the visual score worksheet, and calculate a 2X2 concordance table for each of the three categories. These are visible in the *yellow boxes* to the right.

The boxes give the following:

# of items not identified either visually or verbally (A)	# of items identified verbally but not visually (B)
# of items identified visually but not verbally (C)	# of items identified both visually and verbally (D)

From these one can calculate odds and odds ratios. For example, the **odds** of visually recognizing a car given that one knew its manufacturer on the verbal test is D/B. The **odds ratio** indicating how much more likely the subject was to recognize a car when they had correct verbal knowledge versus when they did not, is  $(D/B)/(C/A) = (A*D)/(B*C)$ .