

Appendix H

Preparing DMDX Program Specifications

Prior to running the DMDX software, it is necessary run TimeDX which requires four initial basic tests. The *Select Video Mode* command permits the selection of a display mode. The command *Millisecond Timer Test* synchronizes the millisecond timers; imperative for a successful timed-based experiment. The *Input* command verifies the input system that will be used in the experiment; in this case the mouse was the input device. Finally, the *Refresh Rate* command indicates how the program will determine refresh rates. Once these tests are performed, it is necessary to run advanced tests, including the *Time Video Mode*, the *Video and Millisecond Timer* and the *Tachistoscopic Acid Tests*.

The DMDX software requires the elaboration of an item file, which tells the software which items to show, in what order etc. The former is separated into a header line and an item line. The header line specifications for this experiment are displayed in Table H1. The first element specified the number of items incorporated in the experiment, namely 176 word pairs excluding the practice trial. The second specification <azk> indicated that the program required Ascii Text Files. The <cr>, signified that the items are automatically presented on the screen after a response is provided or after the occurrence of timed-out. A timed-out was configured after 4000 milliseconds of exposure time. The <fd>, specified that the item would appear on the screen for a maximum of 60 ticks. The DMDX requires that timing specifications be measured in ticks, where one tick equals 11.80 milliseconds. The <d> indicated the delay between items. The <t> indicated the maximum time allocated for a participant to produce an answer, again measured in milliseconds. The, <cr>, ensured that the subsequent item appeared after the 4000 milliseconds, without having to make a

request. Randomization was specified by the <s>. Here groups of 6 words were automatically reordered and randomized thereby eliminating factors related to fatigue and familiarity with the task. The <vm> referred to the preferred display, in this case 640 480 480 8 0, which is recommended for simple text presentation. The <id mouse> specified that answers would be provided using the mouse where <mr>, stood for *Mouse Request*, <pr> for *Positive Response* and <nr> for *Negative Response*. The <nfb> specified that no feedback was to be given to the participant after providing a response. Finally <dbc 255255255> and <dwc 0> specified that the default background color of the screen is white, and the default writing color for the stimuli is black.

Item Line Specification	Interpretation
<n 176>	Number of Items
<azk>	Ascii Text Files
<cr>	Continuous Running
<fd 60>	Frame Duration
<d 90>	Delay
<t 4000>	Time
<s 6>	Sample
<vm 640 480 480 8 0>	Video Mode
<id mouse>	Input Device Specifications
<mr +button 2>	Mouse Request
<mnr +button 1>	Mouse Negative Response
<mpr +button 0>	Mouse Positive Response
<nfb>	No Feedback
<dbc 255255255>	Default Background Color
<dwc 0>	Default Writing Color

Table H1. Details of the item line specifications with its interpretation.

The second element in the item file is the item line (Figure H2). The written instructions, the practice items, the target items and the delay between the appearance and disappearance of each word pairs are specified here. It is crucial to begin and end

the instruction paragraph with a \$ sign, which voids the specifications embedded in the header line.

\$0 <ln 0> “**Bienvenido**”,
<ln 4> “Presiona la rueda del ratón únicamente una vez”,
<ln 5> “para pasar a la siguiente pantalla.”;
0 <ln -2> “Gracias por ayudarnos con este proyecto”,
<ln -1> “sobre el vocabulario de inglés”,
<ln 0> “que conocen los estudiantes de la UDLA.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0<ln -1> “En esta actividad”,
<ln 0> “verás una palabra escrita en español”,
<ln 1> “seguida por una palabra escrita en inglés.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln -2> “Debes decidir lo más rápido que puedas”,
<ln -1> “si las palabras que aparecen son:”,
<ln 1> “. traducciones correctas”,
<ln 2> “ó”,
<ln 3> “. traducciones incorrectas.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln 0> “Mantén tu dedo en la rueda.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln -2> “Cuando aparece una traducción correcta.”,
<ln -1> “presiona el botón **derecho** del ratón”,
<ln 0> “marcado por la estampilla verde.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln -2> “Cuando aparece una traducción incorrecta.”,
<ln -1> “presiona el botón **izquierdo** del ratón”,
<ln 0> “marcado por la estampilla roja.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln -1> “Para familiarizarte con el ratón.”,
<ln 0> “la actividad y el ritmo de la actividad.”,
<ln 1> “vamos a empezar con unos ejemplos de práctica.”,
<ln 6> “Presiona la rueda del ratón para continuar.”;
0 <ln -2> “Acuérdate.”,
<ln -1> “debes contestar lo más rápido que puedas.”,
<ln 2> “Presiona la rueda del ratón para empezar.”;
+500 < % 40 > "hoja" / *"leaf"/;
+501 < % 40 > "cena" / *"dinner"/;
-550 < % 40 > "botella" / *"cable "/;
+502 < % 40 > "amarrillo" / *"yellow"/;
-551 < % 40 > "fuente" / *"office "/;
+503 < % 40 > "amigo" / *"friend"/;
-552 < % 40 > "hermano" / *"dog"/;
+504 < % 40 > "boda" / *"wedding"/;
+505 < % 40 > "mago" / *"magician"/;
-553 < % 40 > "hambre" / *"sadness"/;
+506 < % 40 > "mercado" / *"market"/;
-554 < % 40 > "cajón" / *"door"/;

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+507 <% 40 > "felicidad" / *"happiness"/;  
0 <ln -1> "¡Muy bien!",  
<ln 1> "Favor de guardar silencio y esperar un momento.",  
<ln 2> "Enseguida entrará la responsable.";  
0 <ln 0> "Cuando quieras empezar,",  
<ln 1> "presiona la rueda del ratón.";$
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$0 <ln -3> "¡FIN!",  
<ln -2> "¡Gracias por haber participado!",  
<ln -1> "Favor de guardar silencio",  
<ln 0> "y espera a que los demás terminen.",  
<ln 2> "En un momento",  
<ln 3> "recibirás instrucciones del responsable.";$
```

Figure H2. Item line specifications for the experiment.