lingWAVES Tutorial

Get to know...

Voice Clinic Suite Pro

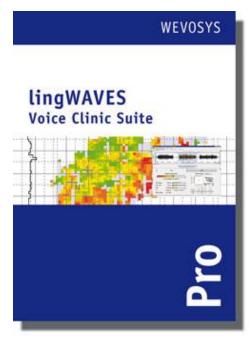
Carol Bishop June 2019

This is a basic tutorial to help you become familiar with some of the modules. Instructions for the other modules are in the Handbook, or press the Help button for detailed instructions while using the modules.

This tutorial does not cover the Voice Protocol Module which is covered in the You Tube video tutorial and separate "Cheat Sheet". (We suggest you go to our website

http://www.mmsp.com.au/lingwaves-voice-protocol/ and watch the video before starting this tutorial).

Quickstart tutorial



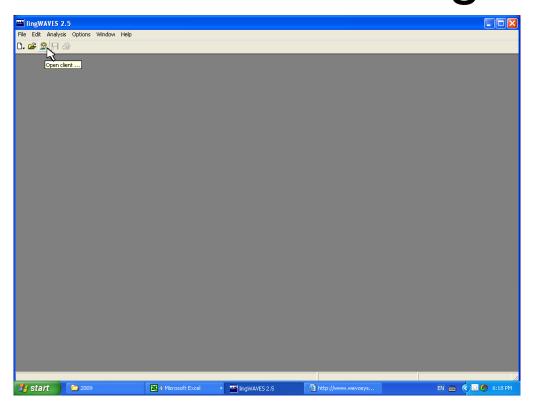
- This tutorial is designed to help you begin to explore some of the features of the lingWAVES Voice Clinic Suite Pro
- This set includes a high quality voice recorder with extended voice analysis, an easy to use patient/client database, a professional and up-to-date biofeedback system for voice and speech, a new motor speech disorder assessment and the latest generation of voice quality assessment. The new Voice Protocol is also in this set but is not covered here but in the You Tube video tutorial (watch this first)
- http://www.mmsp.com.au/lingwaves-voice-protocol/
 You should also see "How to" video tutorials on our website at
- www.mmsp.com.au and http://www.wevosys.com
 and read the handbooks at
 - <u>www.wevosys.com/support/support_download.html</u> and on the Global Setup CD ROM.
- As you use the program, we encourage you to access help from the Help Button on the Menu Bar of lingWAVES.
 Click on Help > More Contents to read instructions on each module as you use it.

Contents

- Client Manager
- 2. Recording
- 3. Vospector
- 4. Voice Diagnostic Centre
- Motor Speech Disorder Assessment
- TheraVox Voice and Speech Biofeedback
- Help and Support

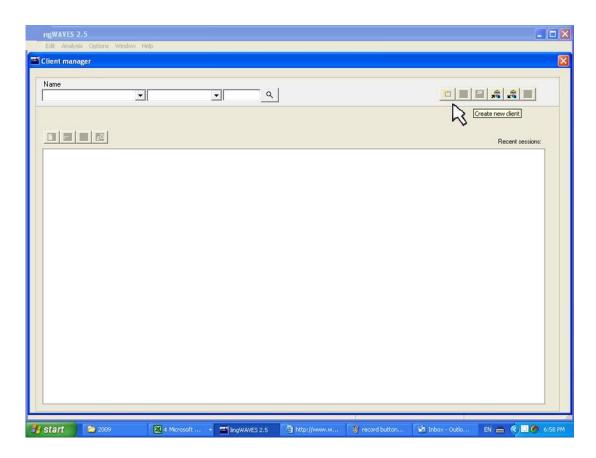
Before you start - We recommend you watch the video demonstration of the lingWAVES Voice Protocol Module to familiarise yourself with some of the lingWAVES features before you start this tutorial. View it at http://www.mmsp.com.au/lingwaves-voice-protocol/ or search for it on YouTube.

1. Client Manager



- All our work in this tutorial is done in Client manager which organises and saves all your files conveniently.
- Open lingWAVES from the icon on your desktop or from the START menu.
- Click on the Client Manager icon on the Task Bar to open the Client Manager.
 It looks like this.

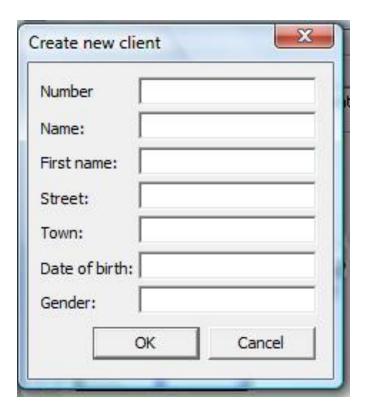
Create a new client



- This is what the Client manager looks like. It will be your starting point for all exercises in this tutorial. (lingWAVES also allows you to work outside Client Manager, but it is not as convenient.)
- Click on the "Create new Client" button (first of the buttons on the top right of the Client Manager window)

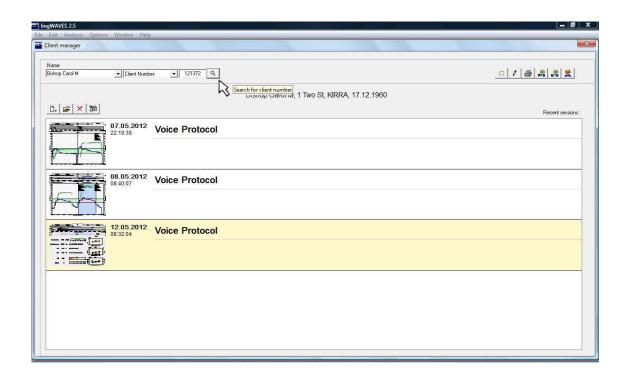
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Insert client details



- Insert a file number for your client (use your organisation's medical record number (UR number) for easy searching.
- Fill in your client's last name (surname), then first name, Address, Date of Birth (2 digits for day, 2 digits for month and 4 digits for year) and gender. (gender is important for correct norms)
- Click OK.

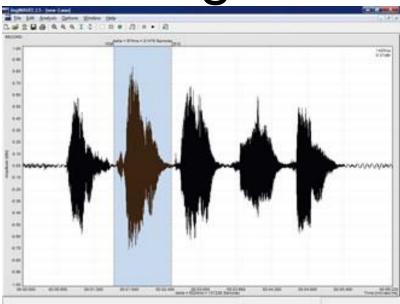
How to search for a client



- Now see your Identifying information at the top of the client manager screen.
- If you want to edit the client information, click on the pencil Icon.
- To view other clients, or view the sample files you installed earlier using the installation instructions, click on the arrow to the right of the name and select from the drop down list.
- You can search for clients by Name (type in their name) or by Client file number (type in their number and click on the search icon)

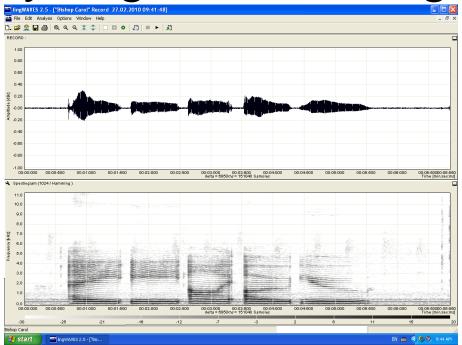
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2. Recording



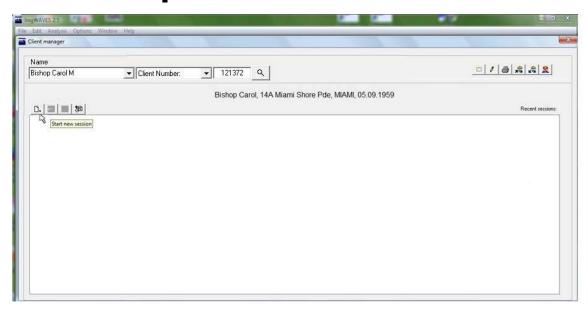
- With lingWAVES, you can either open archived speech recordings (.wav files you have recorded earlier) or record your own data to be saved and analysed.
- Now record some speech start with the vowels "A E I O U" then try a standard reading passage like The Rainbow Passage. Follow these steps:
- Start a recording window in the menu File > New > Record or with a click on the New File icon. A recording window is displayed and additional functions appear on the icon bar.
- 2. Open the dialog "Record Properties" with a double click on the recording window. Here, you can adjust the sampling rate (depth) and the sampling frequency (frequency). For speech, select a frequency of 22.050 Hz and a 16-Bit solution. A record in CD-quality requires a frequency of 44.100 Hz and a 16-Bit solution. With a click on "Set as default", you can permanently save your settings as standard settings.
- 3. Press the ENTER key or click on the "Record" icon to start the recording.
- 4. Stop or interrupt your recording session with ESCAPE or with a click on the "Stop Record"
- 5. Click on the Save icon to save in Client manager or Save Wav File icon (far right) to save anywhere in your computer as a .wav file.

Analysing a Recording



- Now you can analyse your recording.
- Select Analyse on your Menu Bar to analyse your recording. This set includes standard acoustical voice analysis like spectrogram, energy and pitch (fundamental frequency) plus extended voice analysis features: spectrography with formant tracking/energy/F0, jitter, shimmer for long term analysis and LPC, AMDF, Cepstrum and Autocorrelation for short term analysis.
- You can add multiple voice analysis windows to a signal (e.g. Spectrography, F0, jitter, ...)
- Click on Help/More Contents on the Menu Bar for instructions on analysis or see the pdf or printed handbook for instructions on using Spectrograms.
- You can now print out the whole analysis and/or save the analysis as bitmap for further documentation (e.g. in word processing programs).
- A simpler way for everyday recording of Standard Voice Passages, Monologues and Pitch Glides is to open Multi Real Time instead which will display time signal, spectrogram, pitch and energy at the same time. (For females the maximum frequency displayed can be increased to 1000 Hz by right clicking in the Pitch view and selecting Fundamental frequency properties)
- You can open Multi Real Time in 2 windows to use in therapy for good comparing and matching the client's speech to the clinician's model.

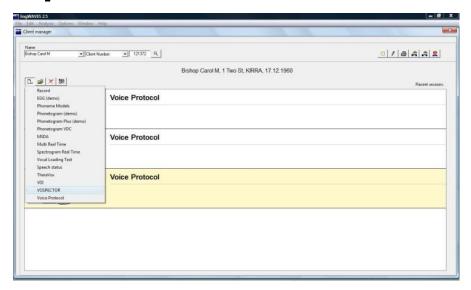
3. Vospector



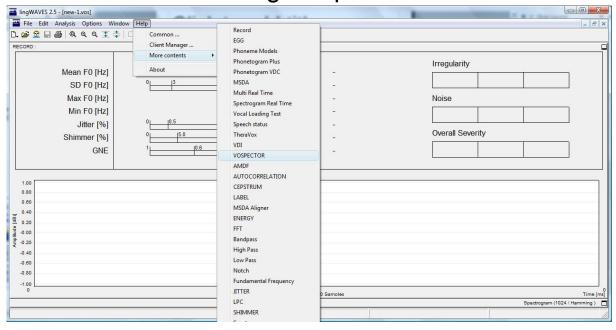
- View a video of Vospector at <u>http://www.wevosys.com/support/lingWAVES_how_to/support/lingWAVES_how_to/support/lingWAVES_how_to/support/lingwayer
 </u>
- Vospector quickly measures the acoustic correlates of perceptual attributes of voice (roughness, breathiness and hoarseness) according to the RBH/ORB Rating System.
- Start the Vospector trial in the Client Manager Window. (Open lingWAVES from the icon on your desktop or from the START menu and click on the Client Manager icon on the Task Bar to open the Client Manager.
- Select your name from the drop -down list in the top left corner.)
- Click on the "Start new session" icon at the top left below your name.

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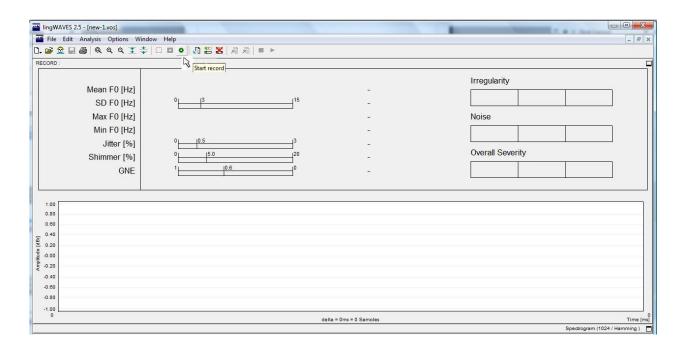
Vospector - Start



- Select Vospector from the drop down list.
- The Vospector analysis display appears.
- Click on "Help" on the taskbar and select "Vospector" in "More contents" to read detailed information on using Vospector.

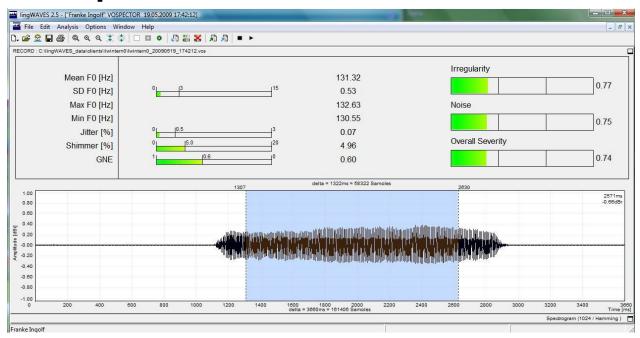


Vospector - recording



- Start the recording process by pressing ENTER or by clicking on the icon "Start Record" on the task bar.
- Say "AH" or "EE" at comfortable pitch and sustain it for at least 2-4 seconds.
- The middle section of the screen shows a sound pressure waveform calculated from the microphone input.
- Stop the recording process by pressing ESC or by clicking on the red square icon "Stop Record".

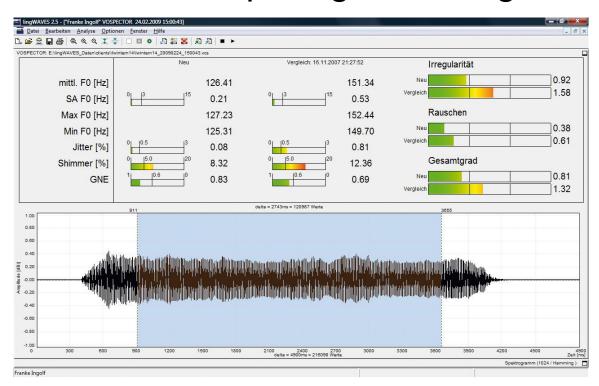
Vospector - measurement



- Listen to the recording by pressing the triangle Play button.
- Select a signal segment that you want to take a Vospector measurement. Select approximately the middle two-third portion of the signal for the calculation of speech parameters, excluding the phonation onset and offset. Hold down the left mouse button and drag from left to right to select the middle portion of the signal.
- Now you should be able to read the Vospector measurements. All the information on speech parameters is colour-coded making it simple for the clinician to see and interpret the results.
- Close the Vospector analysis window by clicking the x in the upper right corner. Click OK to save the measurement.

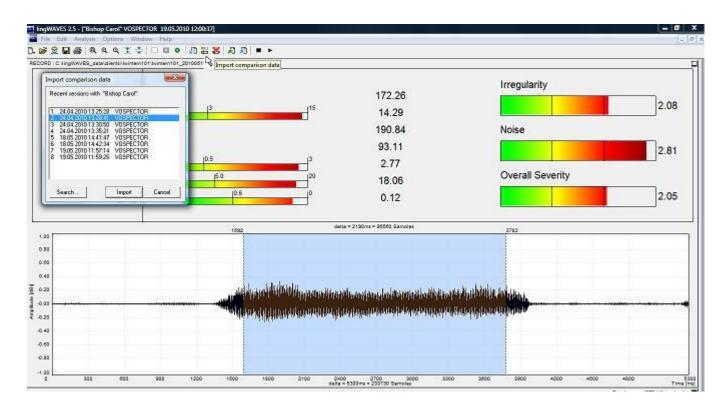
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Cross comparing recordings



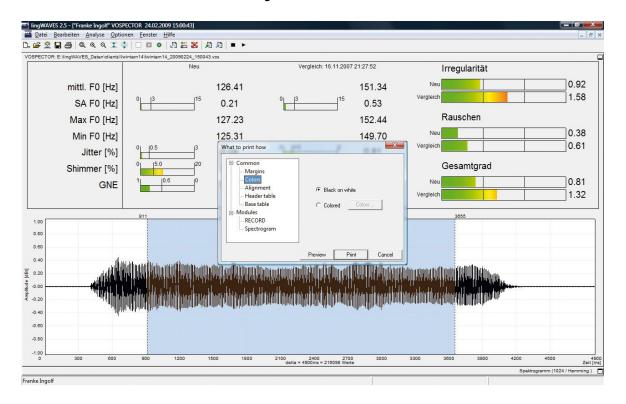
- You can now see your session listed in Client Manager and type a comment next to it.
- Now go to the "Start new session" icon at the top left again and press the round green start button again to make another recording (use a more breathy or constricted voice this time.)

Cross Comparison



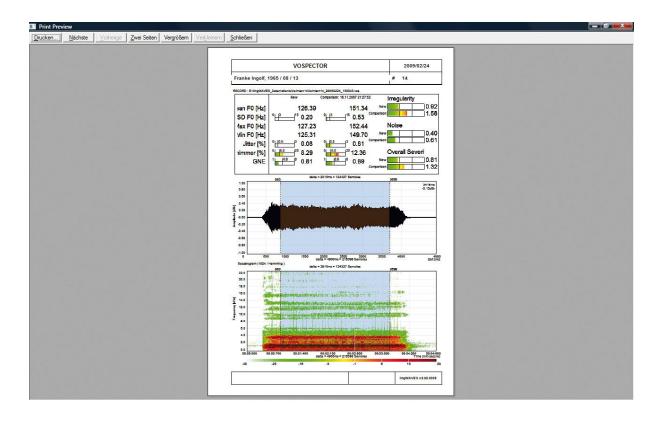
- Now you can cross compare the two recordings.
- Click on the "Import comparison data" icon on the taskbar.
- Select your other recording in the window which opens.
- Click Import.

Print your session



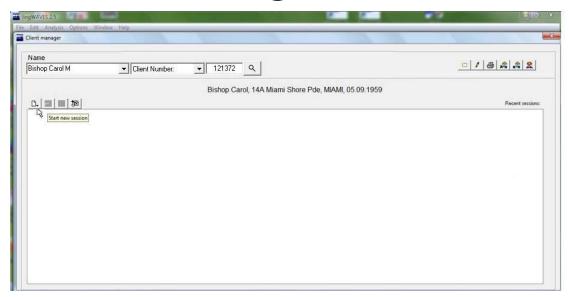
- Open one of your Vospector sessions in Client Manager.
- Click on the Printer icon on the task bar.
- Select Colour on the print screen.

Print Preview and Print



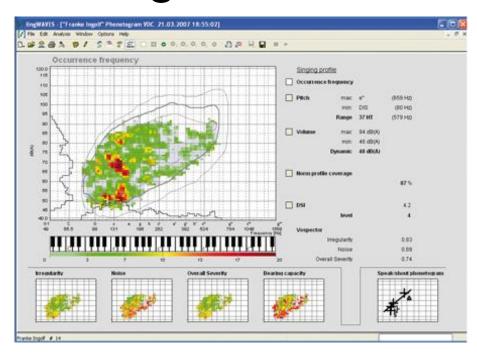
- Select Print Preview to see what you will print.
- Click on the Print button on top left of the window.

4. Voice Diagnostic Centre



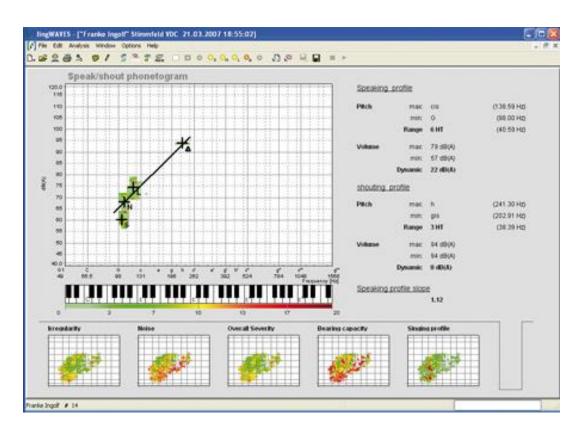
- View a video of Voice Diagnostic Centre at <u>http://www.wevosys.com/support/lingWAVES_how_to/support_how_to.html</u>
- Start the Voice Diagnostic Centre trial in the Client Manager Window. (Open lingWAVES from the icon on your desktop or from the START menu and click on the Client Manager icon on the Task Bar to open the Client Manager.
- Select your name from the drop-down list in the top left corner or search for their file number.
- Click on the "Start new session" icon at the top left below your name.
- Select Phonetogram VDC from the drop down list.

Voice Diagnostic Centre



- lingWAVES Voice Diagnostic Centre (VDC) is a reliable, time saving analysis tool for the accurate measurement of quantitative (singing/voice range profile) and qualitative voice parameters (vocal ring/singer's formant, hoarseness/overall severity of dysphonia, roughness/irregularity, breathiness/noise).
- It has too many features to cover in this Tutorial, so we will only briefly describe how to measure your Speaking Range, Singing range, voice quality and dysphonia severity.
- For a full explanation on how to use and interpret the VDC click on the Help button on the task bar in lingWAVES and select More Contents and then Phonetogram VDC.
- Also read or print the lingWAVES Voice Diagnostic Center Handbook or the Voice Diagnostic Center section in the lingWAVES Voice Clinic Suite Pro Handbook at www.wevosys.com/support/support_download.html

Phonetogram - Speaking Profile

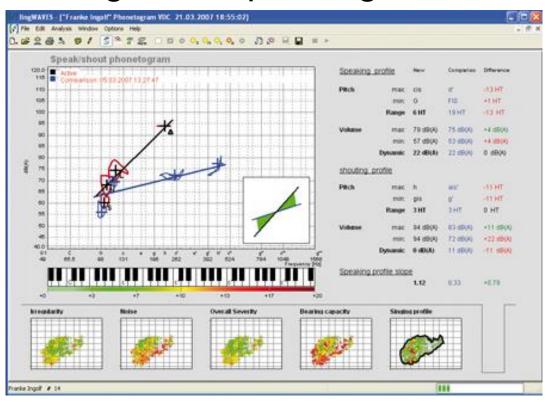


- Start your assessment by measuring your average Speaking Voice Range with the Speaking Profile.
- Open the speaking profile by clicking on the small screen on the lower far right.
- Select "Cluster display" with
- Place the Sound Level Meter microphone on a stand 30 cm from your mouth in standing position.
- The microphone should have been turned on before starting lingWAVES (press the power button for 3 seconds. It switches off in the same way – or switches off automatically when not used for a 30 minutes)

Record your Speaking Profile

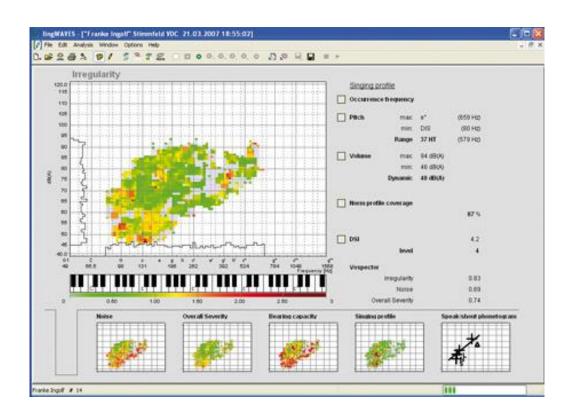
- Click on the "Start speaking profile (normal)" button and count slowly from 21to 40. You will see an enclosed cross in the analysis window.
- Stop the recording process by pressing ESC or by clicking on the "Stop Record" button.
- Click on the "Start speaking profile (soft)" button and count slowly from 21 to 40 in a soft voice (not whispering)
- Press ESC or click the "Stop Record" button.
- Click on the "Start speaking profile (loud)" button and count slowly from 21 to 40 in a loud voice (as if giving a speech, not shouting.)
- Press ESC or click the "Stop Record" button.
- Click on the "Start shouting profile" button and shout the sentence "Hey Tony...come over here!" in a slow, drawling way (imagine calling out to your friend across a busy street)
- Press ESC or click the "Stop Record" button.

Phonetogram - Speaking Curve



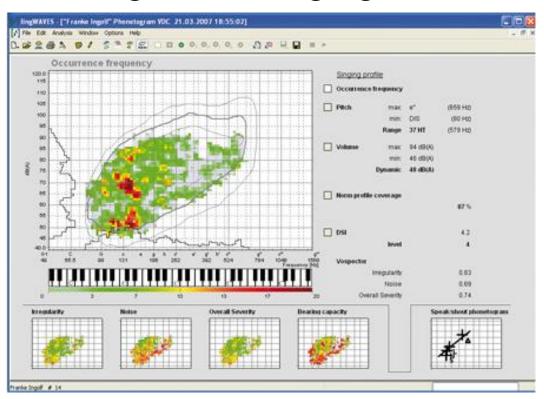
- The slope of speaking curve is shown as a straight line and specifies how fast the pitch rises with increasing volume.
- A steep rise of speaking curve (slope of speaking curve greater than 1 (> 45 degrees) shows good voice control. Otherwise, the rate at which the pitch changes is too fast with respect to increase in volume.
- The speaking profile for normal, soft and loud voice modes is located in the lower to the middle third of the singing profile with healthy subjects.
- Use the "Import comparative" button on the taskbar to compare profiles and demonstrate improvements in speaking voice control. Positive or negative changes are highlighted by green and red colours respectively.
- Use the statistics given for Normal Voice at the right of the screen for your Fundamental Frequency and average speaking volume, pitch range and dynamic range measures.

Phonetogram - Singing Profile



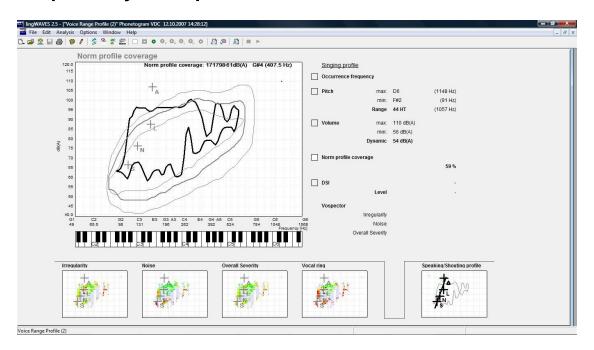
- Now start your Singing Profile.
- Make sure you are in a quiet room.
- You should have already turned on your Sound Level Meter microphone before opening lingWAVES.
- It should be on a stand, 30 cm from your mouth.
- Click on the small screen at second to right to open the Singing Profile.
- Click on the "Occurrence Frequency" view on the statistics menu on top right.

Phonetogram - Singing Profile



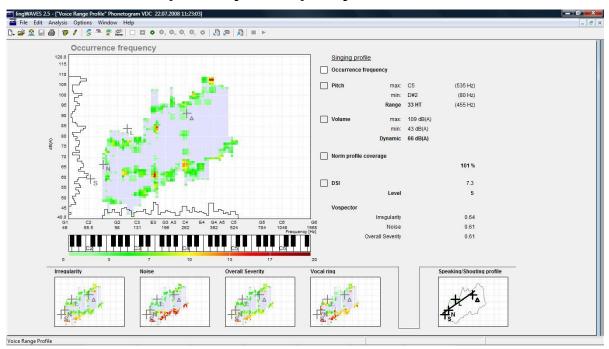
- Start recording for the Phonetogram by pressing your ENTER key or clicking on the "Start Singing Profile" button on the taskbar.
- Now you need to sing prolonged AHs for the full range of your singing voice, both your Chest register and Head register (Falsetto) at different volumes.
- Click on the virtual keyboard to play scales for you to match. Note: It only starts recording when you let go with the mouse. (A laptop needs to be connected to external speakers as laptop speakers don't play the full range)
- For a standard Phonetogram, sing scales in your softest voice starting with your lowest tone and stepping up to the highest frequency in your range. Hold the notes for about 3 seconds until you see the note displayed on the cluster view.
- Now sing your full range in your loudest singing voice.
- Press ESC or click the "Stop Record" button.

Compare your profile to Normative data



- Click on Norm Profile Coverage in the Statistics menu to compare your voice range to Norm phonetograms. (Prepared from data of normal vocal capacity of untrained subjects without vocal complaints or history of vocal pathology.) You can use norm singing profiles as a reference for comparing individual phonetograms to detect pathological voice changes (e.g. loss of the lower phonetogram contour, lowering of the upper phonetogram contour, loss of the modal register, vocal breaks occurring during transitions between registers in untrained subjects, etc.).
- The norm phonetogram is displayed as three areas surrounded with a contour of a neutral grey, the smaller area representing the minimal vocal capacity, the largest area - excellent vocal performance, that could still be regarded as normal. The area with a thick contour represents the average vocal performance of voice healthy subjects.

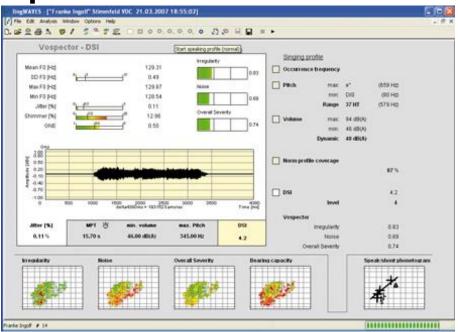
View vocal quality displays



Click on each Mini display to view your vocal quality measurements.

- Irregularity Irregularity estimates are plotted in green for regular and red for irregular phonations and gives an overview of roughness in different voice modalities (high/low, soft/loud). The irregularity measure correlates with perceived roughness.
- Noise/Breathiness Noise estimates are coded in green and red, red colour highlighting increased noise energy in registered data. The noise measure correlates with perceived breathiness and gives overview of breathiness in different voice modalities.
- Overall Severity/Hoarseness The overall severity measure correlates with perceived hoarseness and is represented by green (mild) and red (severe) colours.
- Singer's Formant The singer's formant has been known for years as a measure of vocal strength. It can be described as the relative prominence of frequencies near 3000Hz. lingWAVES VDC gives singer's formant estimates for each documented pitch and volume value and displays an overall picture of voice strength for soft, comfortable and loud phonations depending on pitch. Green points indicate a strong singer's formant, red points a weak one.

Vospector - DSI



- Open DSI from the Statistics Menu on the right of the VDC screen.
- Vospector-DSI-calculation is an integral part of phonetography with lingWAVES VDC. The DSI is calculated on the basis of a combination of phonetographic data, maximal phonation time and further voice quality measurements made on a sustained vowel. Objective correlatives of the RBH voice quality ratings complement the DSI value.
- Click on the blue "Capture audio signal for DSI jitter calculation" button on the taskbar or press ENTER to start recording.
- Say AH at a comfortable pitch for 3 4 seconds.
- Click on ESC or the Stop button.
- Drag over the waveform to select a 1 sec section for analysis.
- Now click on the Stopwatch icon and sustain "AH" for as long as you can at a comfortable pitch. Click on the stopwatch again when your phonation ends.
- This maximum sustained phonation time measurement contributes to your DSI score. (Dysphonia Severity Index.)

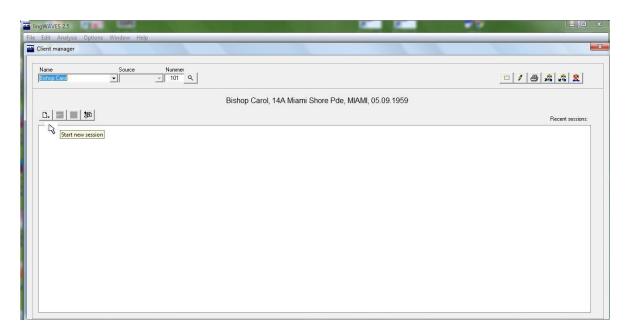
Interpretation of the DSI score

Level	DSI range	Description of Impairment Level
0	< - 2.0	Severe persisting aphonia: patient has no voice, is unable to phonate
1	-1.9 to +0.3	Constant dysphonia: Sporadic periods of phonation, aphonic periods may be present
2	+0.4 to +2.2	Moderate dysphonia: patient can produce voice, but there are frequent periods of dysphonia
3	+2.3 to +3.3	Slight to moderate dysphonia: less frequent periods of disturbed phonation or slight persisting dysphonia
4	+3.4 to +4.3	Slight dysphonia: sporadic dysphonic moments for short periods
5	> 4.4	No dysphonia

- The Dysphonia Severity Index (DSI) is designed by Marc S. De Bodt and Floris L. Wuyts - University of Antwerp as an objective and quantitative correlate of voice quality. It is based on a multivariate analysis of an extended database of more than 1000 normal and pathologic voices for the multi-center study trial initiated by the Belgian Study Group on Voice Disorders (Van de Heyning, et al., 1996).
- It is a calculation of four voice characteristics: maximum phonation time (MPT, sec.) highest frequency (Fo-high, Hz), lowest intensity (I-low, dB(A)) and jitter (%). The calculated weights are given in the following formula:
 - DSI = 0.13*MPT + 0.0053*Fo-high 0.26*I-low -1.18*jitter +12.4
- It is a continuous measure +5 for normal voice and -5 for severe dysphonia. Excellent voices can have higher scores.
- The Stats at the right of the Singing Profile screen show both the DSI score and the impairment level (0-5), described above which correlates with the Enderby TOMS used for outcome measurement.

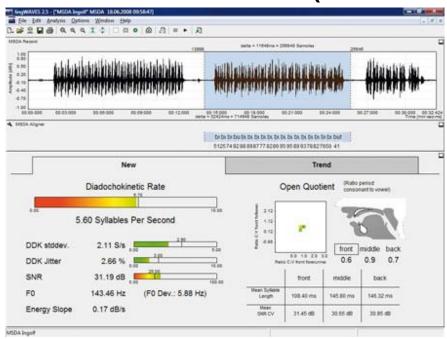
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5. Motor Speech Disorder Assessment (MSDA)



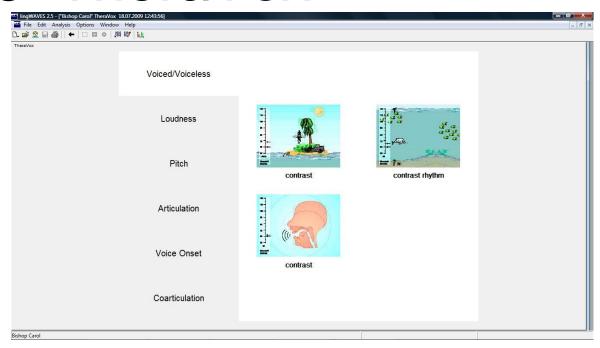
- Start the MSDA trial in the Client Manager Window. (Open lingWAVES from the icon on your desktop or from the START menu and click on the Client Manager icon on the Task Bar to open the Client Manager.
- Select your name from the drop -down list in the top left corner.)
- Click on the "Start new session" icon at the top left below your name.
- Select MSDA from the drop-down list.

Motor Speech Disorder Assessment (MSDA)



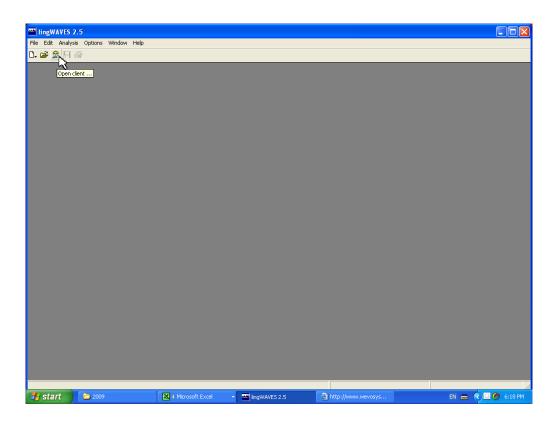
- The new MSDA can measure DDK, syllable rate, pitch and individual syllable features within seconds.
- Start recording by pressing your ENTER key or clicking on the "Start Record" button on the taskbar.
- Say the word sequence "buttercup, buttercup, buttercup..." as fast and clearly as possible on one expiration. Pause to breathe, then repeat the sequence.
- Click on ESC or the Stop button.
- Drag over the best selection to highlight it (as in the picture). Press the SPACE bar to hear the selection.
- Start the calculation by clicking on the "Start MSDA calculation" button.
- The calculation takes 3 4 seconds.
- For more information read the MSDA section in the lingWAVES Voice Clinic Pro Handbook.

6. TheraVox



- The TheraVox exercises are divided into 5 groups of exercises for 5 different voice and speech parameters:
- Voiced/voiceless: for practicing voiced/voiceless contrast in phonemes
- Loudness: for practicing loudness at different levels with an increasing degree of difficulty
- Pitch: for practicing pitch and pitch variation at different levels with an increasing degree of difficulty
- Articulation/phoneme production: for practicing phonemes in isolation, phoneme contrast and phoneme chains consisting of up to four phonemes
- Voice onset: for practicing hard and normal voice onset for fluency training
- Coarticulation: practicing speech in syllable or word context.

Start TheraVox in Client Manager



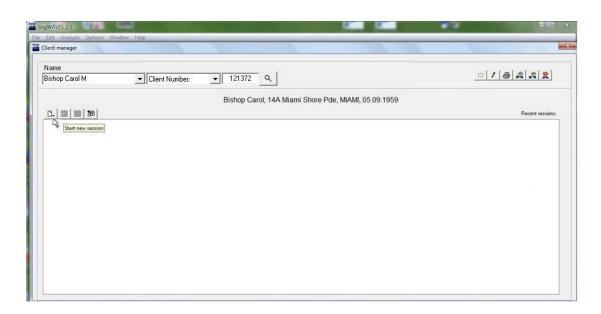
 Before you try out the TheraVox games, it's a good idea to watch the video demonstration on the CD sent with the trial or at

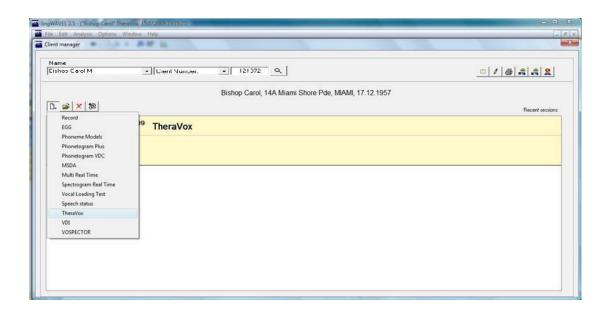
http://www.wevosys.com/products/lingwaves/lingwaves theravox.html

- Open lingWAVES from the icon on your desktop or from the START menu.
- Click on the Client Manager icon on the Task Bar to open the Client Manager.
- Select your name from the drop -down list in the top left corner.

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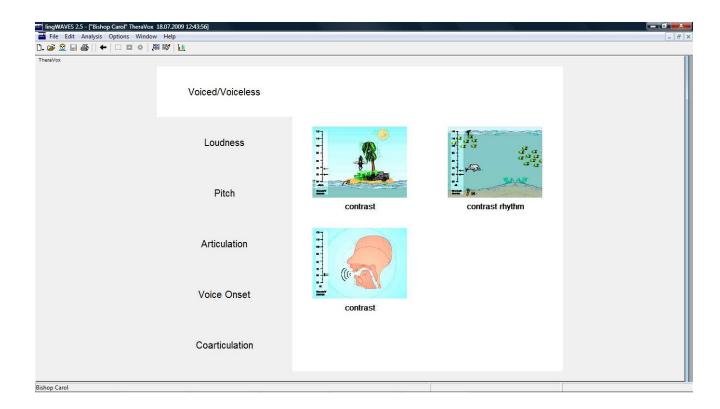
Open a new TheraVox session





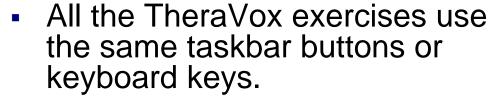
- Click on the "Start new session" icon
- Select TheraVox to open the TheraVox menu screen.

Voiced/voiceless



- for practicing voiced/voiceless contrast in phonemes.
- Click on the small screens to open each exercise.

Controlling the Theravox exercises



- Start each exercise by pressing the ENTER key or by selecting the green "Start" button.
- When you decide to stop an exercise, press ESC or click on the icon "Stop".
- A mouse click on the icon "Reset Game" will reset the exercise to the beginning.
- Exit an exercise by closing the current window or by returning to the Exercise Menu screen with the left arrow button.
- To display the statistic report on client progress with a particular exercise, click on the "Statistics" button on the task bar.



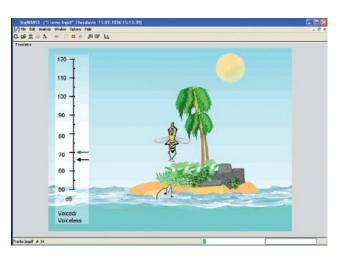


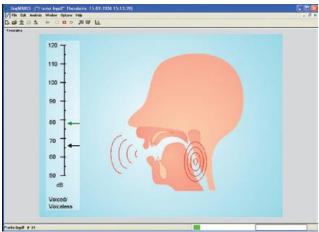






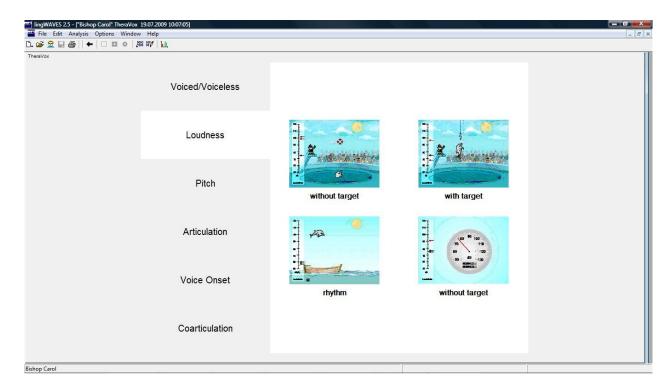
Voiced / Voiceless contrast





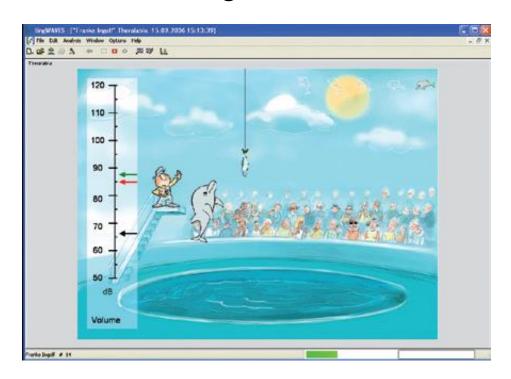
- Try the two Voice/Voiceless contrast exercises. One is a game and the other is the adult feedback presentation.
- Press the ENTER key or click on the green "Start" button.
- Say some voiced sounds eg Z, V to make the bee appear or the vibrations show on the larynx.
- Say some voiceless sounds eg S, F to see the snake.
- To finish, press ESC or click on the "Stop" button.
- Click on the left arrow button to go back to the TheraVox menu.

Loudness



- For practicing loudness at different levels with an increasing degree of difficulty.
- These activities appeal to children but there is also a dB meter/timer for use with adults.
- For this tutorial we will look at a game aimed at reaching a set loudness level target.
- On the TheraVox menu screen click on the small screen labelled "with target".

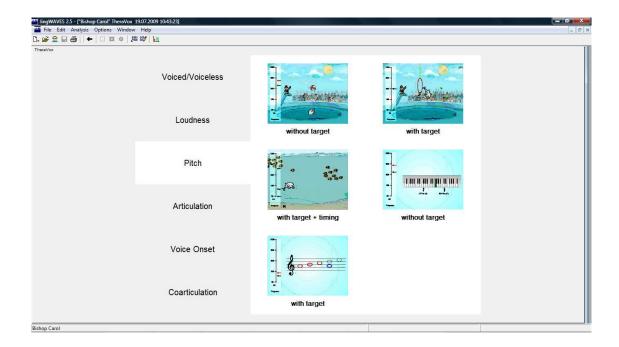
Loudness - with target



- Set the loudness level you want to achieve by dragging the black arrow up or down the dB scale.
- Press ENTER or click "Start".
- Say AH as loud as you can. The green arrow shows your loudness changes and the red arrow records your maximum achieved. If you reach your loudness target you catch a fish!
- To finish, press ESC or click on "Stop".
- Click on the left arrow button to go back to the TheraVox menu.

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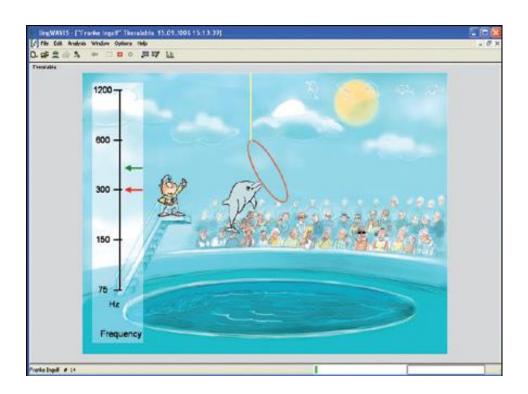
Pitch



- for practicing pitch and pitch variation at different levels with an increasing degree of difficulty.
- For this tutorial we will look at a game aimed at reaching a set loudness level target.
- On the TheraVox menu screen click on the small screen labelled "with target".

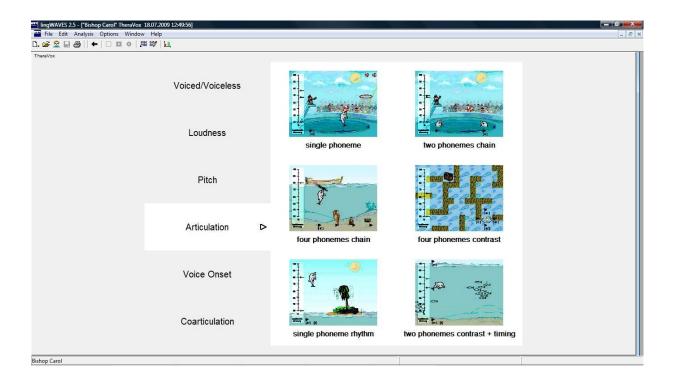
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Pitch - with target



- Set the pitch target you want to achieve by dragging the red arrow up or down the Hz scale. This raises or lowers the hoop.
- Press ENTER or click "Start".
- Use your voice to raise the dolphin high enough to go through the hoop by raising your pitch to the required level.
- To finish, press ESC or click on "Stop".
- Click on the left arrow button to go back to the Theravox menu.

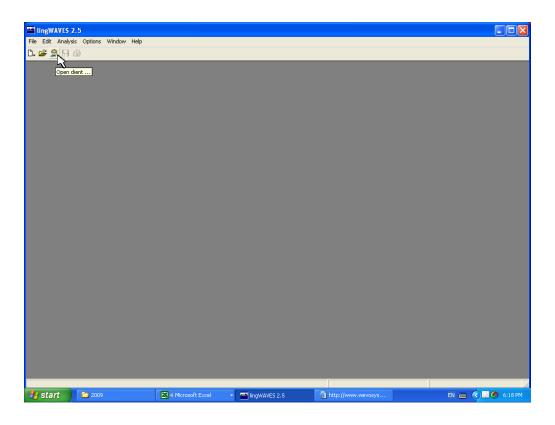
Articulation



- for practicing phonemes in isolation, phoneme contrast and phoneme chains consisting of up to four phonemes.
- Before you start a therapy session in "Articulation" you need to create Phoneme models.
- You can read an explanation of Phoneme Models on page 49 in the Theravox Handbook.

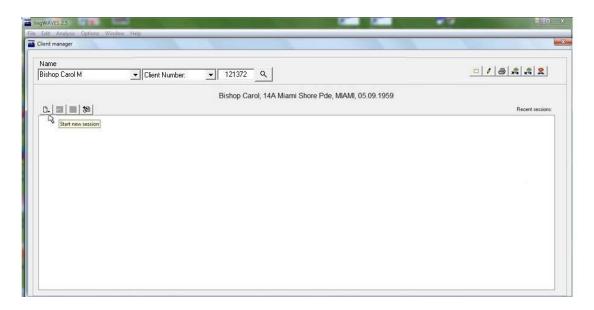
<u>www.wevosys.com/download/handbook_EN_lingWAVES_</u> <u>TheraVox.pdf</u>

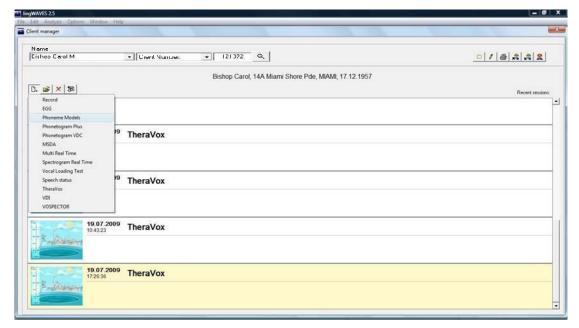
Create Phoneme models first in Client Manager



- Open lingWAVES from the icon on your desktop or from the START menu.
- Click on the Client Manager icon on the Task Bar to open the Client Manager.
- Select your name from the drop down list in the top left corner.

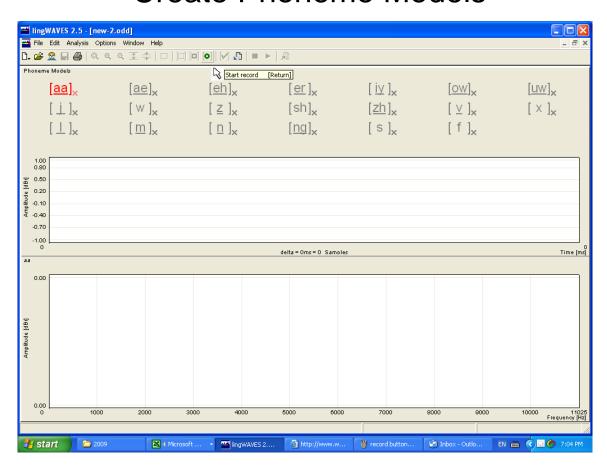
Create Your Individual Phoneme models





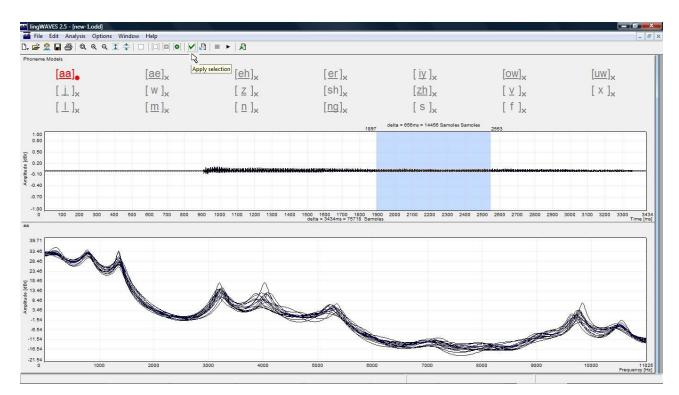
- Click on the "Start new session" icon.
- Select "Phoneme Models" from the list to open the Phoneme Models screen.

Create Phoneme Models



- The Phoneme Model screen opens.
- Click on the Phoneme you want to work on. For this tutorial we will work on AH [aa], EE [iy], OO [uw] and M [m].
- Click on [aa] first.
- It will become red.

Create phoneme model

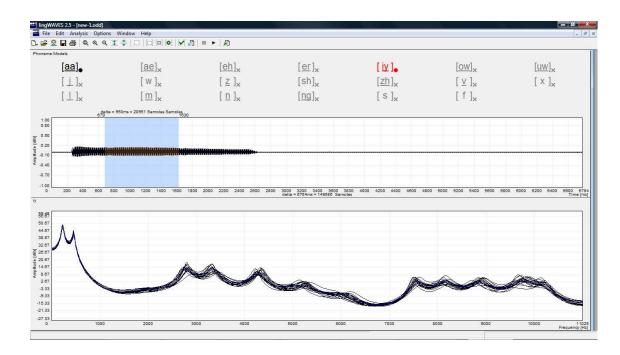


- Click on the green "Start record" button on the taskbar.
- Say AH for 2 3 seconds.
- Click on the red "Stop record" button.
- Press the triangle play arrow (or press the Space Bar) to hear your recording.
- Drag across a good section of your recording to select it.
- If your selection is acceptable, the tick icon on the taskbar goes green.

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Click on the green tick "Apply selection" and [aa] will be ticked.

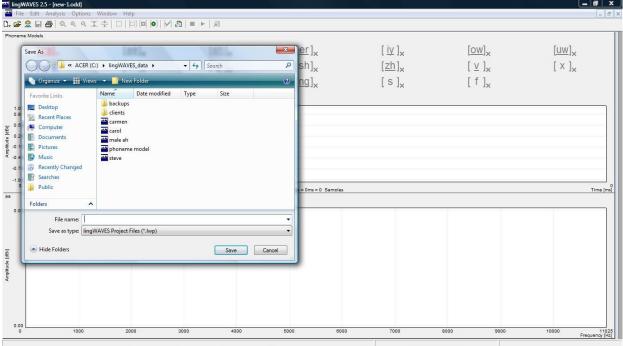
Create phoneme models



- Create phoneme models for EE [iy], OO [uw] and M [m] in the same way.
- Now click on Save on the taskbar to save the phoneme models and close the window.
- Now these phoneme models will be saved for use in your session.
- If you want to save models for use in other sessions or to send home with clients see instructions on the next page.

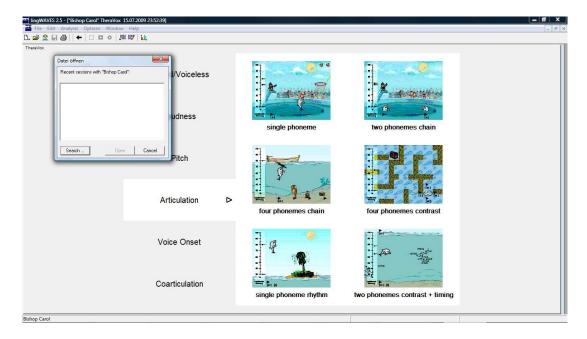
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Save Phoneme models for future sessions or for exporting for clients' Home Practice



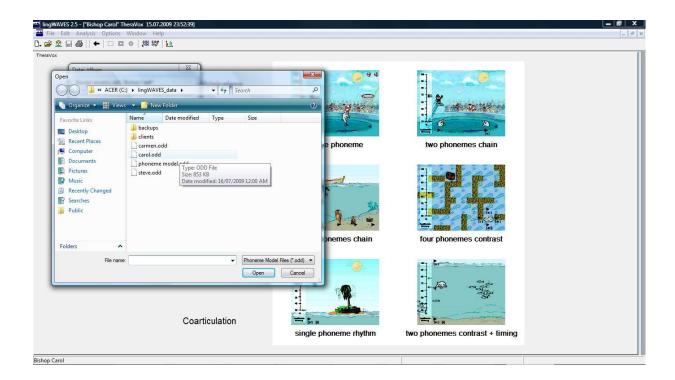
- The next 3 pages are optional for this tutorial.
- Before you close the Phoneme Model Display, click on "File" and "Save as"
- Save the file in lingWAVES_data.
- Type your name in the "File Name" box and click "Save" (you can save files here for all your clients. You can also save their files on a USB stick they can take their phoneme models home to use on TheraVox Home version).

Search for saved Phoneme Models



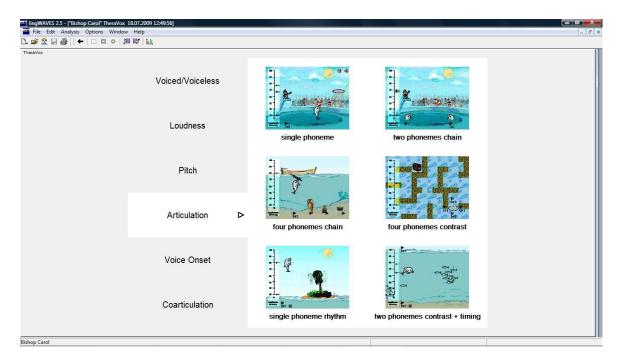
When you need to find your Phoneme Model files, click on the "Open Phoneme Models" button on the taskbar.

Select saved Phoneme model



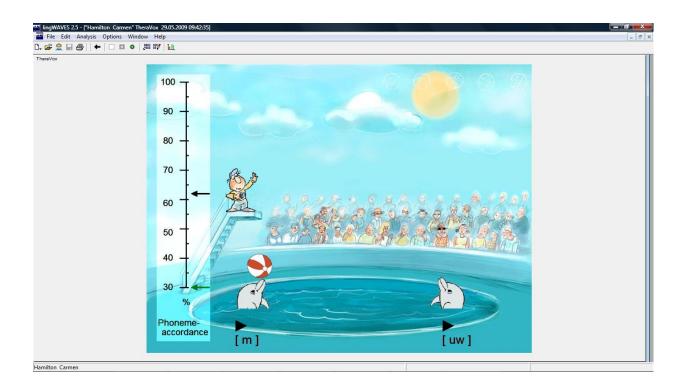
- Click on the "Search" button on the window which appears.
- Select the file with your name in the lingWAVES_data folder and click "Open" (or find the file on your USB stick if you have saved it there).

Articulation



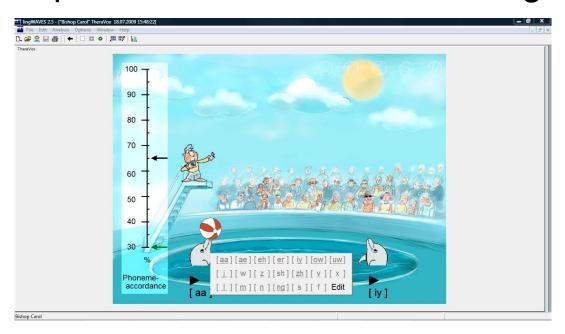
- Now that you have saved some Phoneme Models, close the Phoneme model screen and open TheraVox to play the Articulation exercises.
- In the Client Manger, click on the "Start new session" icon and select "TheraVox" from the list.
- On the TheraVox menu screen click on the small screen labelled "two phonemes chain".

Two phonemes chain exercise



- Now try out the "two phonemes chain" game. (Gives feedback for accurate articulation of single phonemes).
- Click on the "two phonemes chain" game to open the game.
- Now select two phonemes by clicking on the phonemes in the square brackets under each dolphin.

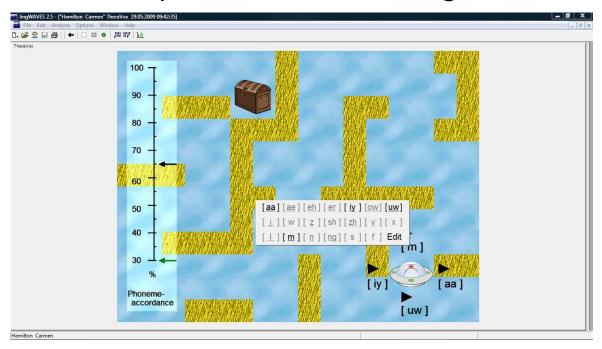
Two phonemes chain – select targets



- Select one of the phonemes you have previously saved for each dolphin.
- Now start the game with the green start button on the taskbar and make the dolphins toss the ball to each other by saying the phoneme correctly.
- To accept less accurate attempt, drag the black arrow on the left down.
- For closer approximation to the target sound, drag the black arrow up.
- Click on the red square "Stop recording" button to stop and the left arrow on the taskbar to go back to the TheraVox menu.

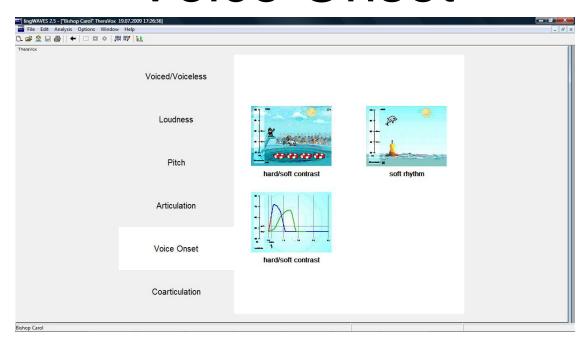
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Four phonemes contrast game



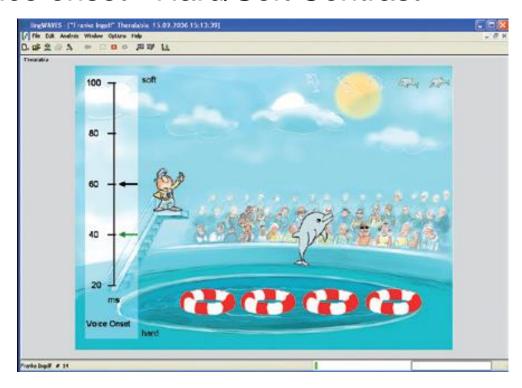
- On the TheraVox exercise selection screen, click on "Four phonemes contrast" to open the maze.
- Click on each of the 4 phonemes in square brackets to select the models you have saved. (you may need to create new phoneme models as described earlier if you don't have enough available).
- Now start the game by clicking on the round green start button on the taskbar.
- Steer the spaceship around the maze to reach the treasure. The direction it moves is controlled by the phoneme you produce. (Press the triangle play icons to hear and imitate the phonemes).
- Click on the square red "Stop" button on the taskbar to finish the game.
- Click on the left arrow button to return to the menu. 53

Voice Onset



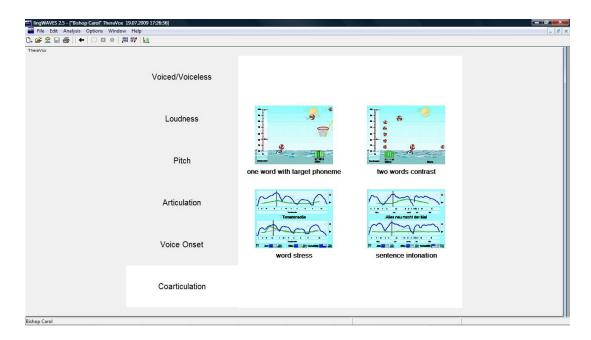
- for practicing hard and normal voice onset.
- For this tutorial we will look at a game which differentiates hard and normal voice onset to give feedback for fluency clients.
- On the TheraVox Voice Onset menu screen click on the small screen labelled "with target".

Voice onset - Hard/Soft Contrast



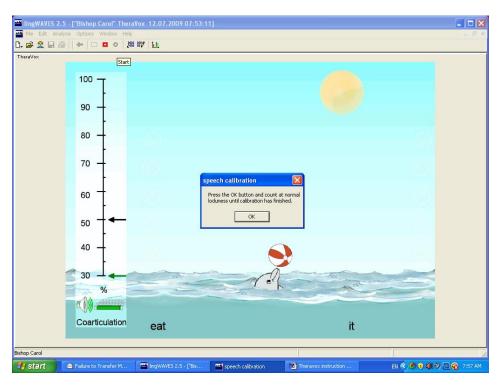
- Press ENTER or click "Start".
- Count or say a sentence using smooth speech, with gentle voice onsets and syllable prolongation.
- This should make the dolphin jump high and move smoothly to the next ring.
- Normal voice onsets are recorded by dolphins in the top right corner.
- Hard voice onsets result in jerky movements.
- To finish, press ESC or click on "Stop".
- Click on the left arrow button to go back to the Theravox menu. ←

Coarticulation



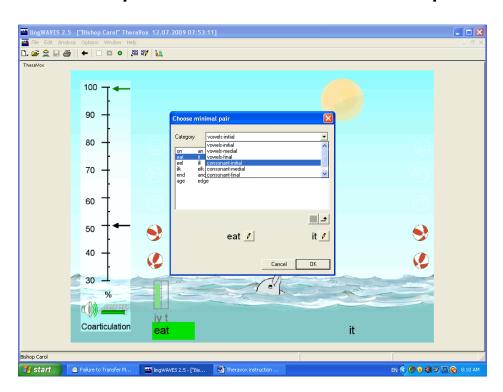
- For practicing speech in syllable or word context.
- These exercises use the latest Speech Discrimination technology to provide feedback on the accuracy of articulation at a word level.
- For this tutorial we will look at minimal pair speech production.
- On the TheraVox Coarticulation menu screen click on the small screen labelled "two words contrast".

Coarticulation - two words contrast



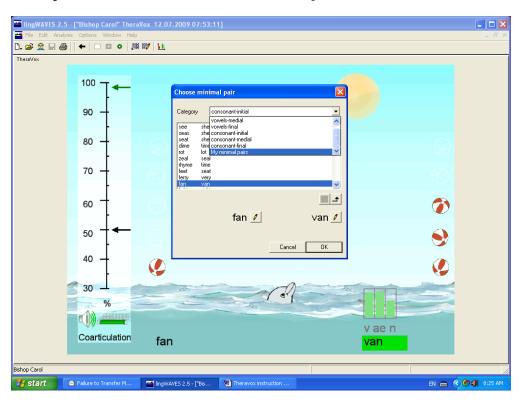
- You will see two target words at the bottom, "eat" and "it".
- Click on the green start button on the taskbar or press on the Enter key.
- A calibration instruction will appear.
- Count at normal loudness until it says calibration is finished.
- Now press your space bar to set the ball rolling.
- Say "eat" and you will hear your recording and see the ball go to the left.
- Press the space bar again and say "it" and you will hear your recording and watch the ball go to the right.
- To finish, press ESC or click on "Stop".

Select word pairs for Minimal Pair practice.



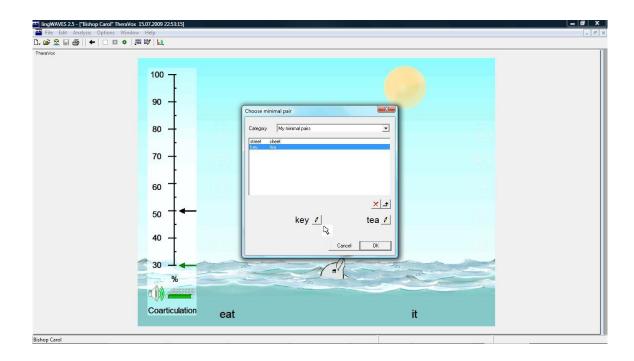
- Click in the word at the lower left in this example "eat".
- A screen appears which allows you to select word pairs grouped according to place of articulation.
- Select "Initial consonants" and any pair (eg "fan" and "van").
- Start the game with the green start button on the taskbar.
- Press the space bar and say each word to toss the ball to the appropriate side.
- When you have finished press the Stop button on the taskbar.

Create your own minimal pairs



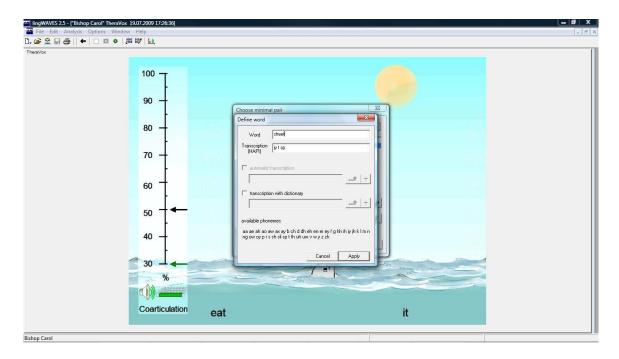
- You can create your own minimal pairs.
- Click in the word at the lower left in this example "fan".
- This opens the Word Selection screen.
- Scroll down next to "Category" and select "My Minimal Pairs".

Creating a minimal pair



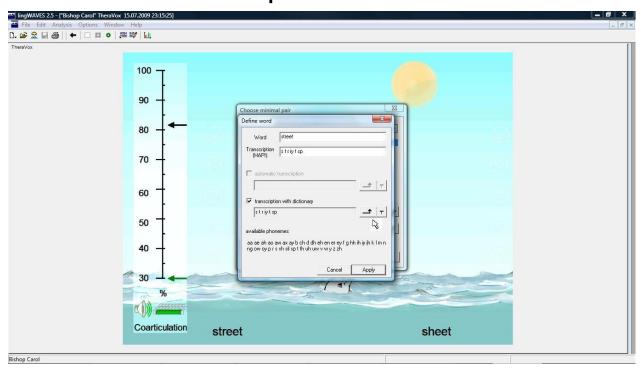
Click on the pen icon beside the word at lower left in the "Choose Minimal Pair" window which appears.

Add a new word to the dictionary



- A transcription window opens.
- Type a word eg "street"- in the "word" box in this window.

Phonetic Transcription



- Tick the available transcription dictionaries and a suggested transcription will appear.
- Check the transcription using the Phonetic symbol table on page 184 of the handbook (copied on next page).
- If you agree, apply this transcription with
- You can add or change the transcription manually - just type the transcription in the field. Note that the phonemes should have a space between and end with a "sp" (end of a word).
- Click Apply to add to the dictionary.



UK English

Symbol	Example	Symbol	Example
Vowels		Plosives	
aa	balm	b	bet
aa	barn	d	debt
ae	bat	g	get
ah	but	k	cat
ao	bought	р	pet
aw	bout	t	tat
ax	about	Fricatives	
ay	bite	dh	that
eh	bet	th	thin
er	bird	ſ	fan
ey	balt	٧	van
lh .	bit	S	sue
ly	beet	sh	shoe
oh	box	Z	Z00
OW	boat	zh	measure
ay	boy	Affricates	
uh	book	ch	cheap
UW	boot	Jh	Jeep
Semi-Vowels		Nasals	
1	led	m	met
Г	red	n	net
W	wed	ng	thing
у	yet	Silence	
hh	hat	sp	end of word

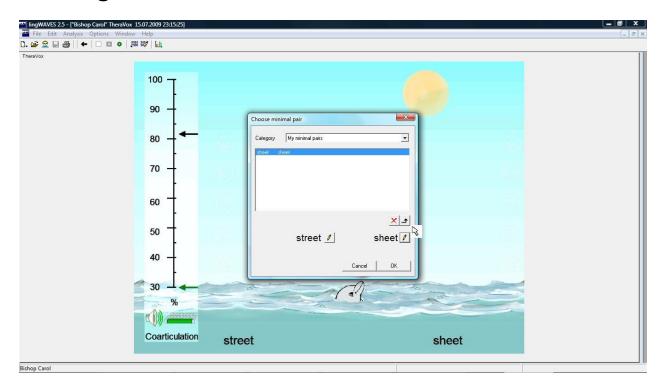
THR

Coartikulation

US English

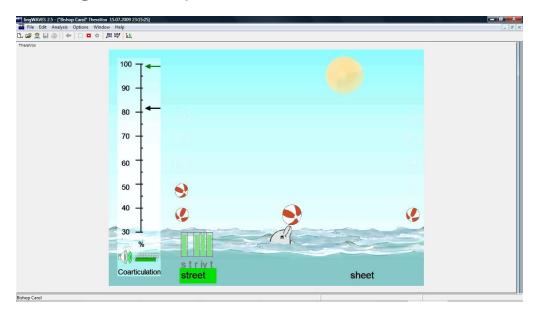
Symbol	Example	Symbol	Example
Vowels		Plosives	
aa	balm	b	bet
aa	box	d	debt
ae	bat	g	get
ah	but	k	cat
ao	bought	p	pet
aw	bout	t	tat
ax	about	Fricatives	
ay	bite	dh	that
eh	bet	th	thin
er	bird	f	fan
ey	bait	v	van
ih	bit	s	sue
iy	beet	sh	shoe
		z	Z00
ow	boat	zh	measure
oy	boy	Africates	
uh	book	ch	cheap
uw	boot	jh	jeep
Semi-Vowels		Nasals	
1	led	m	met
r	red	n	net
w	wed	ng	thing
У	yet	Silence	
hh	hat	sp	end of word

Saving the new Minimal Pair



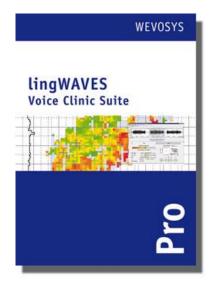
- Now click on the pen Icon next to the word at lower right, type "sheet" into the Transcription window and Apply a transcription as before.
- On returning to the "Choose Minimal Pairs" window you should see the new minimal pair at the bottom of the window.
- Click the "Apply Selection" button. —
- Now select the new pair to play the exercise and click OK.

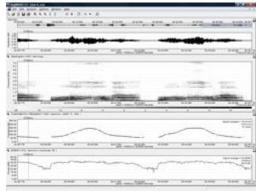
Working with your new minimal pair

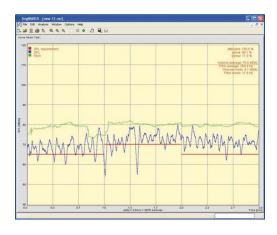


- You will see two target words at the bottom, "street" and "eat" (If not, click on the lower left word and search for your new pair in My Minimal Pairs.)
- Click on the green start button on the taskbar
 or press on the Enter key.
- Now press your space bar to set the ball rolling.
- Say "street" and you will hear your recording and see the ball go to the left.
- Press the space bar again and say "sheet" and you will hear your recording and watch the ball go to the right.
- To finish the game, press ESC or click on "Stop".
- To choose other TheraVox exercises, click on ←

Other Modules to explore







- You should now feel familiar enough with the program to explore the other lingWAVES functions using the Handbooks at www.wevosys.com/support/s upport_download.html
 - We recommend you continue your learning by looking up the Voice Clinic Suite Handbook to learn about Goettingen Hoarseness Diagram, Spectrograms, Multi Real Time (displays Time signal, Spectrogram, Pitch and Relative Intensity all in Real Time) and the Vocal **Loading Test** (measures Fundamental frequency and Absolute dB and now voice quality for a defined period of high intensity voice strain. For more instructions, click on the help button on the Menu bar in lingWAVES.

Where to find more help

- First go to the Help button on your top menu bar and select "More Options".
- More information is available on our Website <u>www.mmsp.com.au</u> or at <u>www.wevosys.com</u> Select the Support button to download Handbooks.
- View How-to videos on You Tube or at <u>http://www.wevosys.com/support/lingWAVES_how_to/support_how_to.html</u>
- WEVOSYS provides a 2 year Warranty on Hardware and software. Beyond that period there may be a charge for support and upgrades from WEVOSYS.
- We now offer International Remote Support: Using remote control technology WEVOSYS can assist a customer while using WEVOSYS programs on any computer around the world. Go to: www.wevosys.com/support/support_remote.html

Your local support is:

Multimedia Speech Pathology

Email: info@mmsp.com.au

Phone: 0407293579

Website: www.mmsp.com.au