

SPEECH ARTICULATION & HEARING PERCEPTION SOFTWARE FOR THE WEB

A Thesis

Submitted to the Faculty of Graduate Studies

In Partial Fulfillment of the Requirements

for the Degree of

Master of Science

Department of Electrical & Computer Engineering

University of Manitoba

Winnipeg, Manitoba

Canada

By

Ali Morawej



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**SPEECH ARTICULATION AND HEARING PERCEPTION
SOFTWARE FOR THE WEB**

BY

ALI MORAVEJ

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba
in partial fulfillment of the requirements for the degree of**

MASTER OF SCIENCE

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Fonetix

**Speech Articulation & Hearing Perception Software
for the Web**

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Dedication

For my father and my mother, without them nothing,

would be much worth doing

To my brother *Samad*, who encouraged me

to pursue an engineering career.

To my sisters, *Shahrazad*, *Shahla*, *Shahnaz*, for

providing a world full of hope and opportunity to me.

To the woman who I love

(mrsdh)

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ABSTRACT

The interaction between audio and visual information has been an interesting, yet mysterious, research field for many years. A simple example is the well known fact that the perceptual quality of a video can be significantly enhanced if it is associated with high-quality sound. For human speech perception, audio-visual interaction is even more prominent.

Fonetix is a multimedia software kit developed for the Web for improving speech language and hearing perception. The initial phase involved development or modification of existing Web applications to accommodate interactive repositories of audio and video and an assessment of which aspects are most suitable for deployment on the Web. This included the display of animated mid-sagittal views of the vocal tract in real-time on Personal Computers.

Several existing systems allow patients to experiment with notions of pitch and volume but are of limited benefit without a speech pathologist present to assist in improving the person's speech. The addition of animation allows the person to see how the mouth, tongue, teeth, and lips (Oral Cavity), are used in producing phonemes or isolated words. The Fonetix system permits users to see in a graphical and an easily comprehensible way how closely they approach the targeted speech pattern.

Fonetix also provides valuable comments and suggestions on the modification to articulation needed to improve speech. This is useful for patients in rehabilitation, who have problems with speech, resulting from various injuries such as, stroke, brain damage, hearing loss, and head injuries, and also for students who are learning English as a Second Language (ESL). The types of tools being developed here are intended to augment current practices and techniques being used by speech language pathologists. The long term goal of the Fonetix system is to allow speech pathology patients to interact in a meaning full manner with a speech pathologist albeit remotely over the Internet.

One of the main goals of the thesis is to develop an Internet application which is value-added and of potential advantage in a social context.

ACKNOWLEDGMENTS

I would like to take the time here to thank my advisor, Dr. Robert D. McLeod, for providing the thesis topic and for guidance throughout the entire process of the research and development of Fonetix. I am looking forward to continued work with him in the future.

My years at the University of Manitoba have been both challenging and rewarding. Through it all I have been fortunate enough to make some good friends. They have all helped me grow as a person and as an academic. I would like to give special thanks to Ms. Heather Dawes for her help with recording all audio and Ms. Janet Amorim for capturing videos and also to Kris Kobylinski for finding the name of Fonetix and some other discussion and organization through programming.

As I have been away from home for close to ten years, I would also like to say thanks to my mother, father, brother and all my sisters, for their love and support over long distance phone calls during the good as well as the bad times through out my University career.

ABOUT THE LOGO



The Internet Innovation Centre is located in the Faculty of Engineering, at the University of Manitoba. The Center provides funding for research and development of value added applications that use the Internet and corporate Intranets for their deployment.

The main application development areas include distance education and training, remote consultation services, remote instrumentation and control, interactive and visual environments for special needs groups, security, software agents, and customized Netscape plug-in and Java applet development. The emphasis is on content and application development.

The Centre maintains best of class and state-of-the-art compute, network, and software development environments. Being relatively short term application oriented, we are able to maintain strong ties with industry in terms of providing graduate students working in areas of immediate and direct interest.

This thesis is the first to be completed through research funding provided by the Internet Innovation Centre.

MY THESIS ON THE WEB

I have created a WWW site which includes the entire thesis documentation as well as several interactive applications that I have developed for Fonetix. This Web site has been accessible as of August 1996 and can be found at;

<http://www.ee.umanitoba.ca/~morawej/Speech/>

Please feel free to visit this site. Any comments and suggestions are always appreciated.

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Appendix A: Graphic User Interfaces.

Appendix B: Source Codes.

ABBREVIATIONS

ATM	Asynchronous Transfer Mode
URL	Uniform Resource Locator
SNR	Signal-to-Noise Ratio
LAN	Local Area Network
TCP	Transmission Control Protocol
IP	Internet Protocol
WAN	Wide Area Network
IAP	Internet Access Provider
POP	Point Of Presence
ISDN	Integrated Services Digital Network
BRI	Basic Rate Interface
PRI	Primary Rate Interface
SLIP	Serial Line Internet Protocol
PPP	Point to Point Protocol
E-mail	Electronic mail
FTP	File Transfer Protocol
Telnet	Virtual Terminal Access
WWW	World Wide Web
HTTP	HyperText Transport Protocol
HTML	HyperText Markup Language
DBMS	Database Management System
CGI	Common Gateway Interface
VLML	Virtual Reality Modeling Language
OOP	Object Oriental Programming
SLP	Speech Language Pathology
IPA	International Pronunciation Alphabet

Chapter One

Introduction

“1995 - 96 The year of the Intranet”

Newsweek, January 15, 1996

This thesis represents a study and development of a value-added Internet application that is oriented towards providing a service to people who are hearing impaired. The application is a speech therapy Web site intended for deployment over a traditional Internet or clinical intranet.

1.1 - Purpose

Through the past half-decade of development of the World Wide Web, new browser technologies have routinely altered the common view of the Web and on-line communication. Java and JavaScript programming languages mark significant advances for interactivity of Web browsers. Other advances include new protocols, compression techniques and new media formats found on the Net, tools to navigate the Web, as well as helper and plugin applications to display specialized media formats such as movies and

audio files. The purpose of this thesis project is to utilize the Web employing advanced interactive techniques to develop a Web-centric speech therapy site.

1.2 - Thesis Motives

This thesis project was inspired by a keen interest in topics related to the Internet and multimedia. Additional motivation was derived from curiosities about rehabilitation engineering as it relates to *Speech Language Pathology* (SPL). These motives have resulted in the implementation of an actual Speech Therapy system suitable for deployment on the Internet or a clinical intranet. Although the application is quite specific, it has allowed experimentation with high technology software and equipment supporting video and audio and other plugin applications for the Internet. The speech application has also provided the opportunity to investigate the use of the Internet as a training and educational environment for delivering educational content and services in a remote manner. Another principal motive was to develop a value-added web based application for the Internet of social value.

1.3 - Thesis Objectives

The objectives of this thesis are three-fold. The first objective is to examine speech language disorder and attempt to determine which aspects can be addressed by an Internet application. The second objective is to investigate clinical methodologies for therapy suitable for deployment over the Internet or intranet. The third objective is to design and

implement a speech therapy intranet application denoted Fonetix which incorporates the basic notions of speech therapy in a Web-centric manner.

1.4 - Thesis Structure

The thesis document is partitioned into seven chapters. The following chapter is an overview discussion of the basic Fonetix system. Chapter three discusses the articulation of speech and phonetic modeling. Chapter four discusses clinical methods and practice in speech and language pathology. Chapter five overviews the Internet and related software and hardware developments. Chapter six covers the design and implementation of the Fonetix system. Chapter seven presents conclusions and opportunities for future work.

Chapter Two

Background

Attempting to model a native speaker's pronunciation of a word is difficult because the place of articulation is often not apparent, especially on phonemes like [r] or [sh] where the tongue position is not visible.

Fonetix software is being developed to address this problem whether in speech therapy or in learning English as Second Language (ESL) with a real-time display of the vocal tract. This is accomplished by using both animation and video. Furthermore, the Fonetix prototype system allows patients to record the audio and video of his/her speech. Real-time comparisons of the captured and repository video can then be played back and compared. This provides an effective mechanism for biofeedback. As computational power of desktop computers become even greater there is also an opportunity to automatically classify captured and repository video to provide additional measures of closeness.

In any application which involves video based user interaction, the display needs to be real-time or near real-time to provide response while it is still meaningful to the user.

In addition for a Web-centric speech therapy application, the system must be produced on the type of equipment that can be purchased and easily installed within a standard educational, home, or clinical setting. To meet this specification Fonetix is designed to run on any type of personal computer with a standard audio and video card (Fig. 2.1). An Internet service is also required as Fonetix is designed to be a Web-centric application.

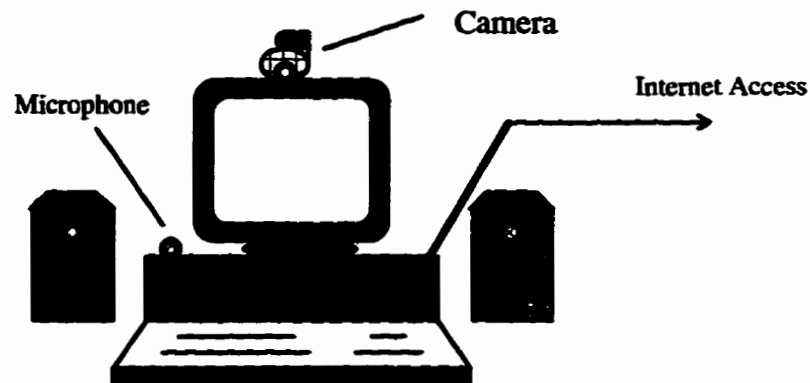


Figure 2.1. Fonetix Multimedia System.

The cross platform usability is accomplished using languages and user interfaces such as Java and standard web browsers. A standard or common audio card would be a Soundblaster¹. The audio card records the voice through an ordinary microphone that plugs into the digitizer. Video is recorded from an ordinary video camera that plugs into the serial port or video editing board. This allows the user to record and the view aspects of the oral cavity during speech production.

The system produces an animated mid-sagittal picture of the vocal tract. Speech segments are displayed in an idealized manner, as if they were spoken by a native English

¹ Soundblaster is an industry standard audio card manufactured by Creative Labs.

speaker. Since the goal of speech therapy is to help people articulate words accurately, regardless of compensatory muscle movements that may be used, Fonetix can also be used to produce appropriate feedback based on the audio alone. It would be disheartening for a stroke patient, for instance, to be informed that a vocal tract position was unacceptable, even though she/he had produced the correct sound.

2.1 - Speech Language Analysis

Combining audio and video is often complicated with perception in many cases being dependent upon both. For example, a video clip where the speaker is saying [ga] but with the audio dubbed with the sound [ba] is often perceived as [da]. Similarly, the combination of visual [ga] and acoustical [pa] is perceived as [ta] and the visual [da] and acoustic [ma] is frequently identified as [na] (Owens and Blazek, 1985). As such, many of the existing analysis studies concern detailed consideration of responses to auditory-visual presentations. Several additional interdependent responses are categorized according to the operational definitions illustrated in Table 2.1.

Another example of audio-visual interaction is human lip-reading. A person skilled in lip-reading is able to infer the meaning of spoken sentences by looking at the configuration and variation of the visible articulators of the speaker, such as the tongue, lips, teeth, etc., together with clues from the context.

Table 2.1 Stimulus conditions and responses from auditory-visual presentations.

<i>Stimulation</i>		<i>Response Categories</i>				
Auditory component	Visual component	Auditory	Visual	Fused	Combination	Other
ba	ga	ba	ga	da	---	---
ga	ba	ga	ba	da	gabga bagba baaga gaba	dabda gagla etc.
pa	ka	pa	ka	ta	---	tapa pta kafta etc.
ka	pa	ka	pa	---	kapka pakpa paka kapa	kat kafa kakpat etc.

2.2 - Hearing Lips and Seeing Voices

Lip-reading is widely used by the hearing-impaired for speech communication. People who are not hearing impaired also utilize lip-reading to some extent, especially when the auditory environment is not good, as when there is background noise. For example, sounds such as [p] and [t] that are acoustically similar but visually different, can be distinguished by lip-reading.

One reason audio-visual interaction is important is that human speech is biomodal both in production and perception. Human speech is produced by the vibration (or absence of vibration in the case of voiceless sounds) of the vocal cords and the configuration of the vocal tract. The vocal tract is composed of articulatory organs

including; the pharynx, the nasal cavity, the tongue, teeth, velum, and lips. Using these articulatory organs, together with muscles that generate facial expressions, a speaker produces sounds or speech. Among articulatory organs, lips, teeth and the tongue are often visible. Thus, an observer listens to the acoustic speech and looks at visible articulatory organs and facial expression to perceive speech.

2.3 - Articulatory Phonetics

Phonetics is concerned with describing the speech sounds that occur in the languages of the world. We want to know what these sounds are, how they fall into patterns, and how they change in different circumstances. Most importantly, we want to know what aspects of the sounds are necessary for conveying the meaning of what is being said. The first job of a phonetician is therefore, trying to find out what people are doing when they are talking and when they are listening to speech.

The same sounds can be produced in different ways and different speakers may use different strategies for generating the same phonemes (DeGlerk, Lindau, and Papcun, 1972). Sounds are often classified depending upon the position or orientation of articulators within the vocal tract. However, this type of classification scheme may also include maneuvers that may not in fact be performed. Nevertheless, this scheme provides a good framework for classifying speech sounds. Figure 2.2 (Lieberman 1977), provides an example of a vowel chart or “quadrilateral” illustrating mouth positions used during vowel production.

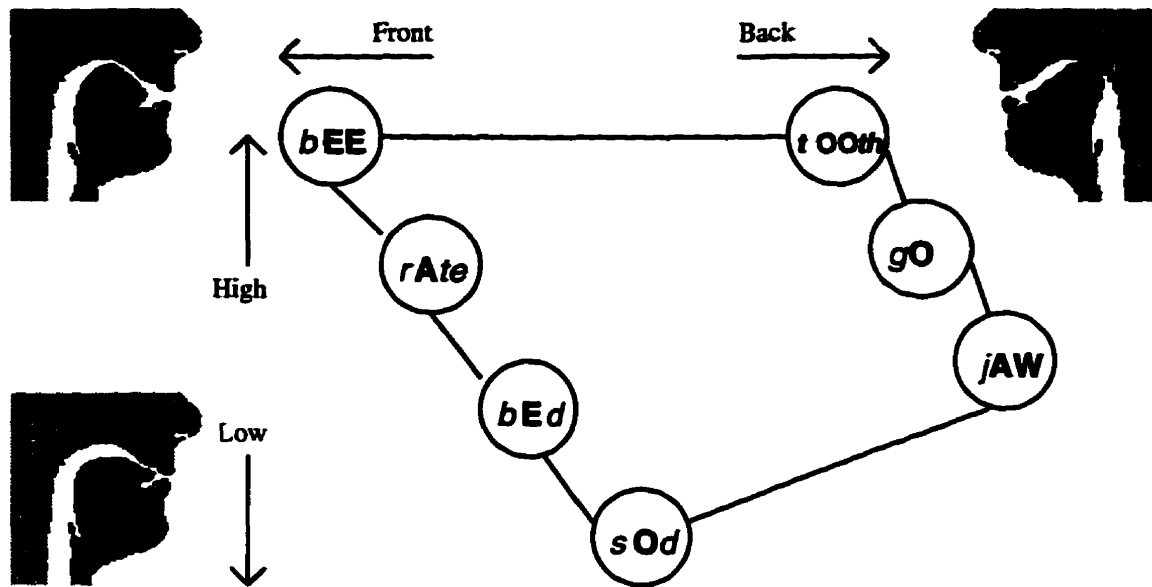


Figure 2.2. The vowel “ quadrilateral “ showing how the different vowel sounds depend on tongue position.

The consonants are somewhat more complicated than vowels, as they vary along more dimensions. For example, most consonants require rapid blocking of the airway to create the sound. The dynamics of this process is more complicated than that for a simple vowel. Like the vowels, consonants may be classified by major constriction of the articulatory pathways near the front, middle, or back of the mouth. Much of this type of information can be made available to a user by efficiently including animation and audio/video as is the case with the Fonetix system.

2.4 - Relation of Chapter 2 to the Thesis

Chapter 2 provided a brief background into computer requirements for a speech therapy Web-centric application. The rational for incorporating both video and audio aspects of speech analysis and production was also briefly discussed.

Chapter Three

Articulation Speech Theory

3.1 - Biomodality in Speech Production

Speech production is based on the basic mechanisms of phonation, related to the vibration of the vocal cords, and of vocal articulation, which is in turn related to the time-varying geometry of the vocal tract responsible for the phonetic structure of speech. Figure 3.1 illustrates the vocal tract (Ladefoged, 1993).



Figure 3.1. The Vocal Tract.

The branch of phonetics dealing with the production of sounds is called articulatory phonetics. Sound is produced by forcing the diaphragm up pushing air out from the lungs

into the trachea, glottis, and the vocal tract, formed by the pharynx, nasal and oral cavities. The periodic closure of the glottis interrupts the air flow, generating a periodic variation of the air pressure whose frequency can be raised to the acoustic range. The harmonic components of this acoustic wave, multiples of the fundamental (pitch frequency), are then modified as long as the air flows through the vocal tract. The modification of the acoustic wave depends upon the geometry of the vocal tract. The vocal tract, in fact, can be shaped variously by moving the jaw, lips, tongue, and velum. In this way, the vocal tract implements a time-varying system capable of filtering the incoming acoustic wave, reshaping its spectrum, and modifying the produced sound. Figure 3.2 illustrates how sound is produced.

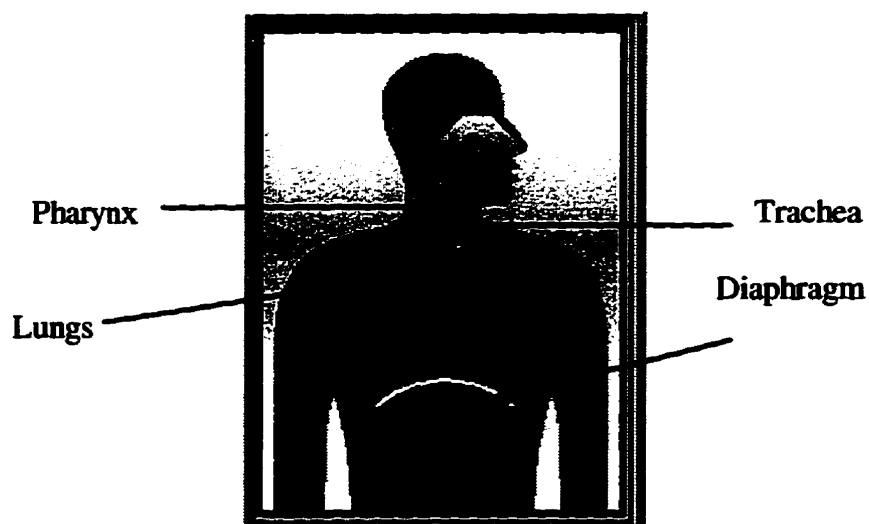


Figure 3.2. Air flow illustration.

Speech is the concatenation of elementary units, called phonemes. Phonemes are generally classified as vowels if they correspond to stable configurations of the vocal

tract, or alternatively, as consonants if they correspond to transient articulatory movements. Figure 3.3 illustrates the principal articulators.

Each phoneme is characterized by means of a few attributes (open/close, front/back, oral/nasal, round/unround) which qualify the articulation manner (fricative, like [f], [s]; plosive, like [b], [p]; nasal, like [n], [m], ...) and the articulation place (bilabial, dental, alveolar, palatal, glottal, ...).

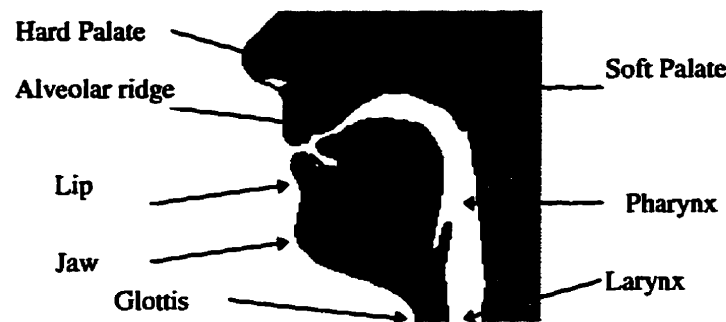


Figure 3.3. The principal parts of the upper vocal organs.

3.2 - Place and Manner of Articulation

There is a wide variety of consonants in languages of the world. The places of articulation employed in speaking English do not represent all of the possibilities. Different manners of articulation also occur in other languages. The place of articulation refers to where obstructions are made and the manner describes the nature of the obstruction. The following discussion is concerned with consonants as they are generally more complex than vowels.

3.2.1 - Place of Articulation

In order to form consonants, the airstream through the vocal tract must be obstructed in some way. Consonants can therefore be classified according to the place and manner of this obstruction. The most common places of articulation that are used in the English language are illustrated below;

1. Bilabial: The bilabial sounds of English include [p, b, m] and are made with the two lips. The lower lip articulates against the upper lip, completely closing the lips. Figure 3.4, illustrates the bilabial articulation and several examples.



Figure 3.4. Bilabial articulation

2. Labiodental: There are two labiodental sounds in English: [f, v], made when the lower lip articulates against the upper front teeth. Figure 3.5, illustrates labiodental articulation.



Figure 3.5. Labiodental articulation

3. Dental: The dental sounds of English are the [th] sounds, made when the tip of the tongue is usually near or just barely touching the rear surface of the upper front teeth.

Figure 3.6, illustrates dental articulation.



Figure 3.6. Dental articulation

4. Alveolar: The alveolar include more consonants in English than any other place of articulation. These include [n, t, d, s, z, l] which are made when the tip of the tongue hits the alveolar ridge. In many English sentences the tip of the tongue repeatedly hits the alveolar ridge. Figure 3.7 illustrates the tongue position for the alveolar articulation.



Figure 3.7. Alveolar articulation

5. Retroflex: The retroflex sounds are made by curling the tip of the tongue up and back towards the rear edge of the alveolar ridge. The only retroflex sound in English is [ɹ]. Figure 3.8, illustrates the retroflex articulation.



Figure 3.8. Retroflex articulation

6. Palato - Alveolar: The palato-alveolar sounds in English include [ʃ, ʒ, tʃ, dʒ]. The tongue is arched with the blade near the back of the alveolar area. Figure 3.9 illustrates the palato-alveolar articulation.

/sh/ *shelf, tissue, mesh*

/g/ *treasure, garage, rouge*

/ch/ *chin, etching, roach*

/j/ *jam, edgy, ridge*



Figure 3.9. Palato-Alveolar articulation

7. Palatal: Palatals are made with the front of tongue articulating against the hard palate. The only palatal in English is the sound [y]. Figure 3.10 illustrates palatal articulation.

/y/ *yell, onion, fuse*



Figure 3.10. Palatal articulation

8. Velar: The velar sounds in English are [k, g, ng] and are made with the back of the tongue articulating against the soft palate. Figure 3.11 illustrates velar articulation.

/k/ *kiss, locker, sock*

/g/ *gun, rugger, sag*

/ng/ *singer, bang*



Figure 3.11. Velar articulation

3.2.2 - Manner of Articulation

At most places of articulation there are basic ways in which articulation can be accomplished. The articulators may completely close off the oral tract for an instant or relatively long period, they may narrow the space considerably, or they modify the shape of the tract by approaching each other. Table 3.1 provides a summary of place and manner of English consonants. The different manners of articulation that occur in English language are listed below.

Stops: Complete closure of the articulators so that the airstream can not escape through the mouth. There are two possible types of stops, nasal stop and oral stop.

Fricatives: Two articulators in close approximation so that the airstream is partially obstructed and turbulent airflow is produced.

Approximants: The approach of one articulator towards another, but without the tract being narrowed to such an extent that a turbulent airstream is produced.

Laterals: Obstruction of the airstream at a point along the center of the oral tract, with incomplete closure between one or both sides of the tongue and roof of the mouth.

Nasals: The sounds [m, n, ng] are called nasals. For these three sounds, there is a velic opening, allowing air to pass out through the nose.

Table 3.1 Summary of English Consonants

Place manner	Bilabial	Labio	Dental	Alveolar	Palato	Retroflex	Palatal	Velar
Stop	p b			t d				k g
Fricative		f v	th	s z	sh ch			
Nasal	m			n				ng
Approximant						r	y	
Lateral				l				

3.3 - Secondary Articulations

It is appropriate to consider secondary articulations in conjunction with vowels because they can usually be described as added vowel-like articulations. The formal definition of a secondary articulation is that it is an articulation with a lesser degree of closure occurring at the same time as another (primary) articulation. There are basically four types of secondary articulation.

Palatalization is the addition of a high front tongue position. ***Velarization*** involves raising the back of the tongue. ***Pharyngealization*** is the super imposition of a narrowing

of the pharynx. **Labialization** is the addition of lip rounding, and differs from the other secondary articulations in that it can be combined with any of them.

Some phonemes, like vowels and a subset of consonants, are accompanied by vocal cord vibration and are called "voiced" while other phonemes, like (plosive consonants, are totally independent of vocal cord vibration and called "unvoiced".)

3.4 - Bimodality in Speech Perception

Lip-reading represents the highest synthesis of human expertise in converting visual inputs into words and then into meaning. It consists of a personal database of knowledge and skills constructed and refined by training. A person who can read lips is capable of associating visual sounds to specific mouth shapes, generally called "visemes" and therefore is able to infer the underlying acoustic message. The lip-reader's attention is basically focused on the mouth, including all its components such as the lips, teeth, and tongue, but significant help in comprehension also comes from facial expressions.

In lip-reading, a significant amount of processing is performed by the lip-reader who is skilled in post filtering the converted message to recover from errors and communication lags. Through linguistic and semantic reasoning, it is possible to exploit the message redundancy and understand by context. This kind of knowledge-based interpretation is performed by the lip-reader in real-time.

Audio-visual speech perception and lip-reading rely on two perceptual systems working in cooperation so that, in the case of hearing impairments, the visual modality

can efficiently integrate, or even substitute, the auditory modality. It has been demonstrated experimentally that the exploitation of the visual information associated with the movements of the talker's lips improves the comprehension of speech. The Signal-to-Noise Ratio (SNR) is incremented up to 15 dB and auditory failure is most of the time transformed into near-perfect visual comprehension (Dodd and Campbell, 1985). The visual analysis of the talker's face provides different levels of information to the observer improving the discrimination of signal from noise. The opening/closing of the lips is in fact strongly correlated to the signal power and provides useful indications on how the speech stream is segmented. While vowels, on one hand, can be recognized rather easily both through hearing and vision, consonants are conversely very sensitive to noise and the visual analysis often represents the only way for comprehension success. The acoustic cues associated with consonants are usually characterized by low intensity, a very short duration, and fine spectral patterning. The auditory confusion graph reported in Figure 3.12 (Dodd and Campbell, 1985), shows that cues of nasality and voicing are efficiently discriminated through acoustic analysis, differently from place cues which are easily distorted by noise. For example, Figure 3.13 illustrates the degree to which sounds are confused with each other in the presence of noise (Dodd and Campbell, 1985). As the signal to noise decreases more and more sounds are clustered.

The opposite situation happens in the visual domain, as shown in Figure 3.12, where place is recognized far more easily between voicing and nasality.

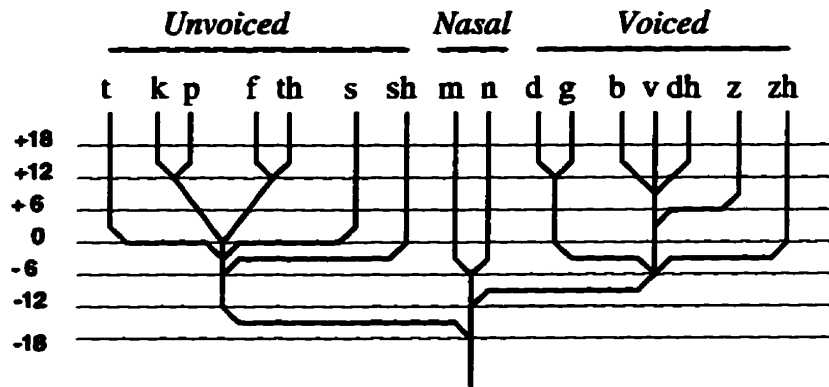


Figure 3.12. Auditory confusion of consonant transition in white noise with decreasing Signal-to-Noise Ratio expressed in dB.

Place cues are associated, in fact, with mid-high frequencies (above 1 KHz) which are usually scarcely discriminated in most hearing disorders, contrary to nasality and voicing which reside in the lower part of the frequency spectrum. Cues of place, moreover, are characterized by short-time fine spectral structure, requiring high-frequency and temporal resolution, contrary to voicing and nasality cues which are mostly associated with unstructured power distribution over several tens of milliseconds.

In any case, seeing the face of the speaker is evidently of great advantage to speech comprehension and almost necessary in the presence of noise or hearing impairments. Vision directs the auditory attention, adds redundancy to the signal, and provides evidence of those cues which would be irreversibly masked by noise or a hearing impairment.

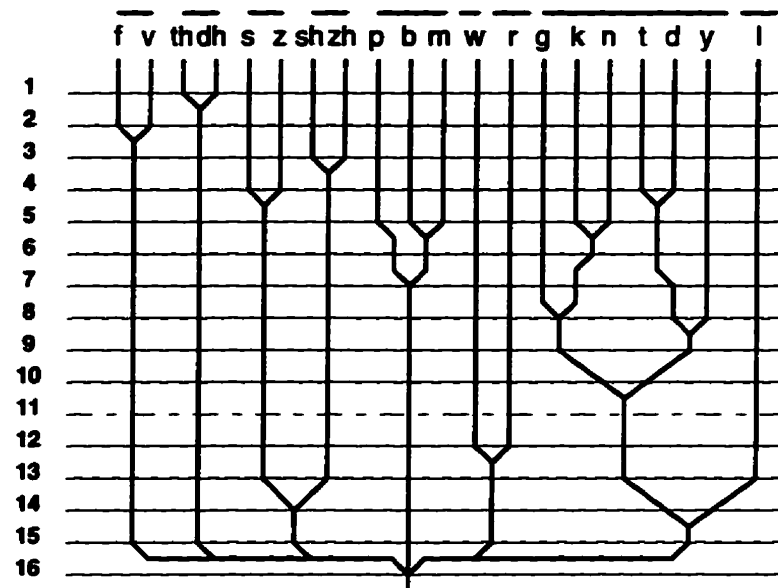


Figure 3.13. Visual confusion of adult hearing impaired persons. When the 11th cluster is formed (dashed line), the resulting nine groups of consonants can be considered distinct visemes.

In normal verbal communication, the analysis and comprehension of the various articulation movements relies on a biomodal perceptive mechanism for the continuous integration of coherent visual and acoustic stimulants (Summerfield, 1979). In the case of impairments in the acoustic channel due to distance or noisy environments, the perceptive task is consequently performed through the visual modality. In this case, only the movements and expressions of the visible articulatory organs are exploited for comprehension: vertical and horizontal lip openings, vertical jaw displacement, teeth visibility, tongue position, and other minor indicators, like cheek inflation and nose contractions. Figure 3.14 illustration visualize articulation organs of a native speaker.



Figure 3.14. The visualize organs

Results from experimental phonetics show that hearing impaired people behave differently from normal hearing people in lip-reading (Owens and Blazek, 1985). In particular, visemes like bilabial [b, p m], fricative [f, v], and occlusive consonants [t, d] are recognized by each of them, while other visemes like [k, g] are recognized only by hearing impaired people. The occurrence of correct recognition for each viseme is also different between normal and hearing impaired people. For example, hearing impaired people recognize nasal consonants [m, n] much more successfully than normal hearing people (Erber, 1972).

These two specific differences in phoneme recognition can hardly be explained by the visual organs only since the velum, which is the primary articulator involved in phonemes like [k, g] or [m, n] is not visible and their movements cannot be perceived in lip-reading. A possible explanation, stemming from recent results in experimental phonetics, relies on the exploitation of secondary articulation indicators commonly unnoticed by the normal observer (Owens and Blazek, 1985).

If a lip-readable visual synthetic output must be provided through the automatic analysis of continuous speech, much attention must be paid to the definition of suitable indicators, capable of describing the visually relevant articulation places (labial, dental, and alveolar) with the least residual ambiguity (Magno-Caldognetto, Vagges, Ferrigno, and Zmarich, 1992). This methodological consideration has been taken into account in the proposed technique by extending the analysis-synthesis region of interest to the region around the lips, including the cheeks and nose.

3.3 - Speech Articulatory Analysis

When articulatory movements are corrected with their corresponding acoustic output, the task of associating each phonetic segment to a specific articulatory segment becomes a critical problem. This is different from a pure spectral analysis of speech where phonetic units exhibit an intelligible structure and can consequently be segmented, the articulatory analysis does not provide, on its own, any unique indication of how to perform such segmentation.

A few fundamental aspects of speech bimodality have interested, interdisciplinary studies in neurology (Lashley, 1951), physiology (Kelso, 1982), psychology (Wickelgren, 1980) , and linguistics (Oehman, 1967).

Experimental phonetics have demonstrated that, besides speed and precision in reaching the phonetic target (that is, the articulatory configuration corresponding to a phoneme), speech exhibits high variability due to multiple factors such as:

- Psychological factors (emotions, attitudes),
- Linguistic factors (style, speed, emphasis),
- Articulatory compensation (jaw, cheek, nose), and
- Intra-articulatory factors (lip, teeth, tongue position).

To give an idea of the interaction complexity among the many speech components, it must be noticed that emotions with high psychological activity automatically increase the speed of speech production, the high speed usually determines articulatory reduction (Hypo-speech), and that a clear emphasized articulation is produced (Hyper-speech) in the case of particular communication needs.

3.4 - Relation of Chapter 3 to the Thesis

In this chapter we briefly discussed and became familiar with the biology of the vocal organs, the place and manner of articulations, articulatory phonetics, and bimodality in speech perception. In order to know how many articulatory parameters would be needed in the Fonetix system, we briefly discussed the dynamics of the basic sounds of English. In general this helps in understanding what types of problems we could have in speech, how we can categorize them and make a collection of audio, video, and animation segments for the Fonetix database.

Chapter Four

Clinical Methods in Speech Language Pathology

4.1 - Overview

Clinical methodologies in Speech Language Pathology (SPL) are services for rehabilitation patients. Clinical procedures usually involve interaction with an experienced therapist, who has professional skills of assessing and treating people with various communicative disorders.

4.2 - Organization of Clinical Methods

Clinical methods are organized on a hierarchy of clinical experiences and expectations. Clinicians are assigned patients and make decisions for treatment plans for each patient. Most SLP clinics are designed and equipped to facilitate clinical training and promote clinical research. This usually includes data collection for the sharing of information and research. The facilitates are arranged to maximize observation of sessions with minimal distractions. In clinical sittings observation windows for viewing

and an audio system for listening are frequently used for observations by supervisors and collages.

4.3 - Therapist Operational Tasks

Typically, the therapist will direct and help patients by identifying each patient's personal objective or rehabilitation targets for them to achieve. Therapists assist in developing diagnostic skills, self-analysis procedures and independent problem solving skills. Therapists evaluate assessment or treatment plans, figure out specific treatment techniques, develop prognostic statements, recommend objectives based on conclusions and results of evaluations, and develop statements regarding frequency, duration and type of treatment. Therapists also guide the selection of target behaviors and develop treatment procedures to increase desirable communicative behaviors. A therapist may also develop procedures to decrease undesirable behaviors, and develop methods to promote maintenance. Therapist also work directly with patients in assisting attaining rehabilitation targets.

4.4 - Clinical Methods in SLP

The clinical starting point for selecting target behaviors depends on what the therapist is able find out about the patient. This is complicated by the fact that initially many persons with communicative disorders are unable to produce many target behaviors. A child with an articulation disorder, for example, may not be able produce

several phonemes. Another child with a language disorder may not produce many classes of verbal behaviors including grammatical, semantic, or pragmatic features. Similarly, adults with aphasia, people who have had a laryngectomy, persons who are dysarthric, and children with cerebral palsy or with hearing loss are unable to produce many target behaviors that are essential for everyday communication. For these and other clients, there is a need to teach multiple target behaviors.

4.5 - Approaches to Target Behavior Selection

The two main approaches to selecting target behaviors are the normative and the client specific approach. In the well established normative approach, target behaviors are selected that are appropriate for the client in view of his or her age with respect to age-based norms. For example, if a 4-year-old child does not produce language behaviors appropriate for 4-year-olds, then those behaviors are the targets. In the more recently developed client-specific approach, targets that make an immediate and significant difference in the client's communication are selected regardless of the norms. In this approach behaviors are taught that best serve client's communicative, educational, and social needs.

A client with an articulation disorder doesn't produce or inconsistently produces certain speech sounds. One method of target selection is to select individual sounds for training when the client's speech is generally intelligible or only a few sounds are in

error. The treatment goal is to teach the missing patterns to the client, three basic patterns are available for selection:

- patterns based on place-manner-voice analysis,
- patterns based on distinctive features, and
- patterns based on phonologically processes (Hegde, 1985).

4.5.1 - Patterns Based on Place-Manner-Voice Analysis.

This older method of classifying speech places sounds into patterns on how they are produced normally. In the place-manner-voice analysis, errors of substitution are classified according to similarities in the place of articulation, manner of articulation, or the presence or absence of voicing.

4.5.2 - Patterns Based on Distinctive Features.

Distinctive feature analysis is not much different from the traditional place-manner-voice analysis (Elbert & Gierut, 1986). It is an attempt to be a more quantitative method albeit with little mathematical meaning. Clinical methods are still required to test the validity of distinctive features. Untrained sounds with the same features as the trained sounds should be produced on the basis of generalization. This notion of generalization is common in the area of artificial neural networks (Ekman and Friesen, 1977), biology, and adaptive systems (Hill, Pearce, Wyvill, 1988).

4.5.3 - Patterns Based on Phonological Processes.

As the most severe speech problems arise from multiple misarticulations, most experts now recommend a phonological approach to organize target behaviors (Bernthal and Bankson, 1988; Hodson, 1980; Stoel-Gammon and Dunn, 1985). Multiple misarticulations usually result in limited speech intelligibility increasing the complexity of analysis. As such there are several phonological processes that are not entirely compatible. Ultimately, the therapist selects the one that works the best. The basic and frequently used phonological processes are;

I - Syllable Structure Processes: in these processes, the structure of syllables is changed. Examples include, final consonant deletion, unstressed syllable deletion, reduplication, epenthesis, and cluster reduction.

II - Substitution Processes: in these processes, target sounds are replaced by other sounds and often involve changes based on place of articulation or manner of articulation.

III - Assimilation Processes: in these processes, one sound becomes more like another sound. In progressive assimilation, a sound is assimilated to a previous sound as in [bup] for boot; in regressive assimilation, a sound is assimilated to subsequent sound, as in [bmp] for jump.

4.6 - Methods Treatment in SLP

In speech language pathology, the term treatment includes medical and educational connotations for treating and teaching persons with communicative disorders. Basic methods of treatment are designed to evoke communicative behaviors. Various instructions are used in treating disorders of articulation, language, voice, and fluency. These instructions include:

4.6.1 - Instructions in Treating Articulation Disorders.

In teaching the correct production of speech sounds, explicit instructions are given on how to produce them. This includes the correct tongue positions, lip configurations, direction of air flow, mouth openings or closings, and other actions to produce the target speech sounds.

4.6.2 - Instructions in Treating Language Disorders.

In treating language disorders, instructions may be given about when to use the selected target language feature or element. This includes regular or irregular plural morpheme, as well as teaching appropriate greeting responses.

4.6.3 - Instructions in Treating Voice Disorders.

This includes treatment in voice therapy to change vocal quality, increase or decrease of loudness, raise or lower pitch, or control oral resonance (Boone and McFarlane, 1988; Wilson, 1987).

4.6.4 - Instructions in Treating Fluency Disorders.

In this disorder, skills are taught for more fluent speech production. Treatments address stuttering, cluttering, management of airflow, the gentle onset of phonation and reducing the rate of speech through syllable prolongation (Bloodstein, 1987; Hegde, 1985; Ingham, 1984).

4.7 - Target Behaviors for Persons with Hearing Impairments

Hearing impairment varies from a minimal loss to profound deafness. The degree of effect on communication depends on various factors including the age of onset and the type and degree of loss. Even mild hearing impairment in infancy is a potential cause of speech and language problems. Target behaviors are part of a carefully developed program of oral rehabilitation whose major components are the use of amplification, auditory training, oral language, speech production, improved articulation, and improved voice quality.

4.8 - Target Behaviors for Nonverbal Persons

Many children and adults with multiple physical and sensory disabilities may not master the skills of oral language needed for social communication. These people are candidates for nonverbal means of communication. There are several orally unaided systems of communication. Sign language is better known and perhaps more frequently used than several other systems. Signs represent words and morphologic features. The use of signs roughly parallel the word order of spoken English. Individual words are spelled by finger letters represented by various hand shapes.

4.9 - Increasing the Frequency of Responses

Instructions, modeling, and shaping are useful in creating nonexistent communicative behaviors. These clinical ways of reacting to a client's speech or attempts at speech are the consequences that either increase or decrease the response in the future. The consequences which help decrease undesirable behaviors are also encourages. In treatment, especially in the initial stages, and communicative behaviors which the patients are not as naturalistic as they are typically. A child who is nonverbal, a woman with aphasia, a man with laryngectomy, and a person who stutters need to do something different in their attempts at communication. Therefore, clinicians set up specific target behaviors for them.

4.10 - Clinical Biofeedback

Both adults and children wish to know how well they are doing in therapy. When that information is systematically given to them, their performance or movement toward a target may be reinforced. The information given back to a person from a therapist or mechanical system about how the person is performing is called biofeedback. Biofeedback a powerful tool in changing behaviors. Biofeedback is used in treating stuttering and voice disorders. Several automated systems are available to monitor phonatory onset and continuous phonation. Audio and video systems are also used to help reduce the rate of speech in stutter problems using delayed auditory feedback of their speech.

4.11 - Relation of Chapter 4 to the Thesis

In this chapter we briefly discuss and become familiar with clinical organization, methodologies and requirements. Also some background into the techniques used by therapists in the analysis and treatment of speech disorders was introduced. Clearly the problem is complex requiring skilled clinicians and therapists in assessing and developing treatment plans. It should also be clear that the patient also has a very important role in the process of improving speech and language skills. Difficulties in effective SLP include the fact that a therapist is not always available when it is most convenient for the patient and vice versa. This problem is even greater if the patient and therapist are not located in the same local area. With this background it is clear that improvements in

modern SLP can be made by use of technology supporting remote diagnostics, customized patient target programs, and interactive audio and video. This thesis is one of the first attempts to extensively utilize the Internet as a means of improving SLP practice. This type of application is considered Web-centric adding value through system integration of existing technologies. One of the potential drawbacks of using the Internet is the issue of bandwidth. In general this is a problem but less so with this particular application as the therapist and patient would typically be in school settings as the technology is deployed. There is currently considerable incentive within countries to provide high bandwidth services to schools. The type of application developed here would leverage these initiatives.

Chapter Five

Internet Overview

The Internet is a large internetwork comprised of many *Local Area Networks* (LANs) and computers. Unlike the internetwork of a company that only connects its own offices together, the Internet connects networks and computers from any number of organization. These networks and computers can be located anywhere in the world, and share a common computer language or protocol enabling them to communicate.

5.1 - The Fundamentals of the Internet

The Internet is an on-line library of software and ideas, it means different things to different people. For some people, it is an on-line service that offers entertainment and educational value, and for others, it is just another wide-area network that provides for electronic communications. The term network has several definitions, one of which is “a configuration of data processing devices and software connected for information interchange”. All computers on the Internet agree to use a common language or protocol for communication. The protocol for the Internet is called *TCP/IP*, which stands for

Transmission Control Protocol / Internet Protocol. With this standard, it doesn't matter what kinds of computers are in place or what operating software each machine is running. For example, using TCP/IP, a Macintosh computer can communicate with a PC or UNIX based machine.

5.2 - Connecting LANs to the Internet

End-to-end Internet connectivity requires additional software, hardware, and services at both the sender and the receiver's end. The internetworking of LANs that are geographically separate is done using a *Wide Area Network* (WAN) service. TCP/IP operates effectively and efficiently over a variety of LAN technologies (i.e., Ethernet, Token Ring, and FDDI) and WAN technologies, such as a dedicated service (T-1, Frame Relay, 56/64 kbps links, or ATM) or a non dedicated service (Dial-up Analog, ISDN, or Switched 56). The Internet connectivity matrix is shown in Figure 5.1.

Layer 7	Security and Managment
Layer 6	Internet Access Providers (Regional, National, International)
Layer 5	WAN Access Devices (Routes, Modems, DSU/CSU)
Layer 4	WAN Access Services (Analog, ISDN, Leased, Switched 56, Frame Relay)
Layer 3	Internet Application Servers (E-mail servers, News servers, Web servers)
Layer 2	Internet Navigation Software (E-mail, FTP, Telnet, Netscape)
Layer 1	Network Communication Protocols (IP, IPX, AppleTalk)

Figure 5.1. The Internet connectivity matrix

5.2.1 - Dedicated Connection Service:

This connection uses a *Point-of-Presence* (POP) dedicated, leased line or frame relay circuit. Using a dedicated line provides the user with a permanent connection to the Internet. By attaching a router to your local network with a connection to the communications circuit from an *Internet Access provider* (IAP), permanent access to the Internet is achieved. Figure 5.2 illustrates a typical arrangement of Internet access for traditional WAN services. One of the significant advantages of a dedicated connection to the Internet is that the connection will provide a higher bandwidth connection than dial-up connections. These connections offer bandwidth options that typically range from 56 kbps to a T-1 circuit at 1.544 Mbps.

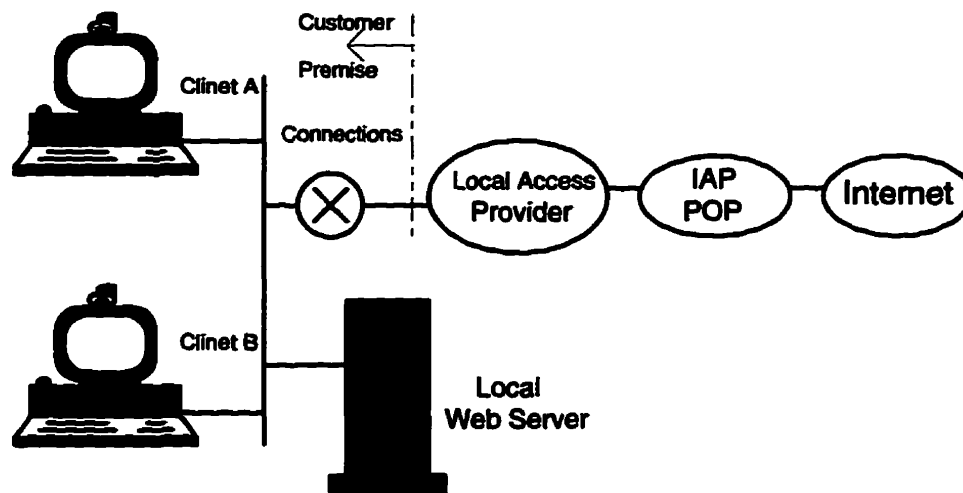


Figure 5.2. A typical arrangement for Internet access

5.2.2 - Non Dedicated Connection Service:

This connection uses an *Integrated Services Digital Network* (ISDN) service which is a set of digital transmission protocols devised by CCITT, the International standards organization for Telephone and Telegraphy. The protocols are accepted as standard by virtually all the world's telecommunications carriers. ISDN provides end-to-end digital connectivity. There are different type of ISDN services, with *Basic Rate Interface* (BRI) and *Primary Rate Interface* (PRI).

Switched 56 kbps is another switched data service that is similar to ISDN. In the same manner as ISDN, we can call up bandwidth when needed. In dial-up analog, we are restricted to a maximum raw throughput of 28.8 kbps. The most common start-up connection is a modem direct attached to a user's PC with *Serial Line Internet Protocol* (SLIP) or *Point-to Point Protocol* (PPP), and dialer software to dial the IAP POP. Table 5.1 Summarizes the type of connections we should consider for Internet connections.

Table 5.1 Comparison of Wan Access Service

	Analog	ISDN	Switched 56 kbps	Frame Relay	Point to Point Dedicated
Bandwidth	14.4 or 28.8 kbps	56/64 or 112/128 kbps	56 kbps	56 kbps to 1.5 Mbps	56 kbps 1.5 Mbps
Availability	High	Medium	High	Medium	High
Suitable for Inbound Access	Only if line in kept on all the time	Only if line in kept on all the time	Only if line in kept on all the time	Yes	Yes

5.3 - Internet Applications

To facilitate communications between Internet users, as well as to make the process of finding and accessing Internet data easier or to navigate the Internet, most services offered on the Internet are based on the client-server model and are composed of two components; a client portion and a server portion. A number of core applications have been developed for the Internet. Among these *Electronic mail* (E mail), *File Transfer Protocol* (FTP), Gopher, Web browses, and *Virtual Terminal Access* (Telnet) have been the most prevalent Internet applications used over the last decade.

5.4 - World Wide Web

The World Wide Web (WWW) is part of the Internet. The WWW is the most visual part and dynamic area of the Internet, and accessible with a Web browser. The Web refers to a specific kind of Internet interface. It is based on the display of Web pages, whereby any computer can present text, graphics, and sounds. The communication that occurs between the Web server and the Web browser is made possible by the network protocol called *HyperText Transport Protocol* (HTTP). Web pages use a common computer language called the *HyperText Markup Language* (HTML). With HTML any Web page can contain a link to any other Web page. These links can be to images, text pages, or can activate the transfer of digitized information such as video or audio clips. Other programming languages which make Web pages interactive are Java and JavaScript.

Java-enabled browsers such as Netscape can download Java programs, called applets, and execute them inside the browser window, where they appear to be part of the Web page. With applets written in Java, Web users can design Web pages that include animation, graphics, games, and other special effects.

Web page designers can create pages for Netscape users with rich multimedia and exciting content. Although Netscape is constantly updating the capabilities of their Web browsers, certain audio files, images, video clips, and other multimedia elements may be impossible for the browser to open. In such situations, we need to use a helper application or plug-in. Helper applications run independently from your Web browser and display the file contents in a separate window. Plug-ins take the concept one step further, they work seamlessly with Netscape Navigator to make the file appear as though it's directly part of the Web page we're viewing.

5.5 - The Data Sources

The most common sources of data used in constructing Web pages are; Documents, Spreadsheets, Presentations, Custom Graphics, and Databases. To take full advantage of data sources, first it is necessary to make a thorough assessment of existing information content and flow. Additionally, we need to determine the information needs of our intended audience and the presentation format they are accustomed to working with. If the source of data for Web pages is a database, the user needs a link between the hypertext page and the database via the Web server and the *DataBase Management*

System (DBMS). This link is a program commonly referred to as a script, and it contains a series of statements that are executed when the script is activated. In the Web hypertext world, these scripts are based on a protocol called the *Common Gateway Interface* (CGI). By marrying the results of the data source analysis and information destination analysis, we may be more effective in using the full potential of Internet technology.

5.6 - Programming Tools

As with other applications, such as accounting systems or database inventory systems, hypertext information systems usually require additional programming languages to construct and support the system. This is particularly so if any form of user interaction, or an interface to a database, is required. There are numerous programming tools available, which have been separated into two broad categories: General Purpose and Specialized Programming Language Tools.

5.6.1 - General Purpose Programming Tools

General purpose programming covers the languages typically used for PC and workstation application development. They are the bread-and-butter tools for developing a variety of stand alone applications, or interfaces. Their strength lies in their ability to develop large, sophisticated applications that can handle virtually any type of data and information processing. These program languages include Visual Basic, C and C++.

5.6.2 - Specialized Programming Tools

With the tremendous growth of the Internet and the WWW pushing the limits of HyperText applications and their functions, new tools were needed to provide the features demanded by users. The main tools for the interface programmer are Perl (Practical Extraction and Report Language) and Java, also newer products such as JavaScript, ActiveX, and VBScript (Visual Basic Scripting Edition) are rapidly establishing themselves as mainstream programming tools for Web environments.

5.6.3 - Gateway Programming Tools

In the initial implementation of the WWW, the content of hypertext pages was static. When a user activated a link, the target object (page) was retrieved from the specified server - a one way transfer of information, with no content alteration at either end of the connection. CGI was developed to expand this capability, and can be viewed as an extension to HTTP. A CGI program is a collection of instructions following the CGI standard that executes in real-time and outputs dynamic information. The two main issues related to the use of CGI on a Web site are cost and security.

5.7 - Developing Web Pages

Producing basic hypertext pages using HTML, is, in itself, very simple. Creating a collection of well designed pages, and then bringing them together to form a high quality electronic publication and, finally, a cohesive Web site, is another matter entirely. To

design well constructed hypertext documents, it is necessary to start with a thorough understanding of how printed material is structured, plan and design activities, and determine hypermedia aspects of hypertext. There are emerging tools and utilities which track trajectories through Web pages that can also be used to assist the designer in determining the effectiveness of Web pages organization.

5.8 - Relation of Chapter 5 to the Thesis

In this chapter we become familiar with Internet foundations, and connections. The minimum basic requirement for is a local area network whose operating systems (Network and PC) can support TCP/IP.

Moreover we get familiar with how to develop Web pages and the communication between them, as well as the programming tools we need to make the Web pages.

Using the Internet for research is getting easier with a new class of point-and-click Internet navigational tools, such as Netscape. It is within Netscape and comparable browser technology that Fonetix is realized within.

Chapter Six

Fonetix Design and Implementation

Fonetix is a multimedia online software kit developed for the Web for improving speech and hearing perception. Design and writing online documentation is not a one-pass process. It is a continual process of successive refinement (Horton, 1994). Development of online documentation is iterative, cumulative, and empirical. It is iterative in that several cycles of development are required, cumulative in that we learn and improve through each cycle, and empirical in that improvements are based on testing and experience with working prototypes of the system.

6.1 - Authoring System Design

Authoring an online document is a complex process involving multiple activities. With Web technology, authors focus on building reusable information modules (much like *Object Oriented Programming*) (OOP) rather than creating specific linear structures (Wesley, 1996). This process breaks down a complex structure using separate programs

for each function. The activities required to author an online document can be grouped into three phases: data capture, content preparation, and database preparation.

In the data capture phase, individual media elements are created and stored as digital data. Words, pictures, sounds, animation, and video segments are all created or captured electronically and stored in a digital format. In the content preparation phase, the different media elements are integrated into a consistent form. Individual files are imported or referenced from a file or database of topics. In the database preparation phase, the topics are structured and indexed so that users can access individual topics. Links are added to connect topics, keywords are added to let users retrieve topics, and menus are created to permit selecting individual topics.

6.2 - Fonetix Organizational Structure

Fonetix, with its inherent complex organization, challenges the linear narrative as the sole way of organizing the document. Patterns of organization and manner of presenting information include sequences, hierarchies, and grids (Graham, 1997). Aspects of these types of organization as they relate to Fonetix are discussed below.

6.2.1 - System Sequential Cluster

Sequential organization presents the ideas of the online document in a sequence of topics or displays. Figure 6.1 shown the sequential organization of Fonetix including its startup and step-by-step traversal. Because Fonetix is a multiplex document and has

several digital formats we use a Java-enabled Web browser like Netscape 3.0 or a higher version. For viewing several of the digital documents we also need helper or plugin applications many of which one only running on Windows 95. As such Fonetix starts with a system detective, to determine the Web browser client or version and type the platform the user will be using.

The course system clusters form a pure sequential organization having a beginning, an end, and a single path in between. If the system detective result is matched, we are in the login area, otherwise we are in the download area allowing us to upgrade to the latest version of software required for the Fonetix program.

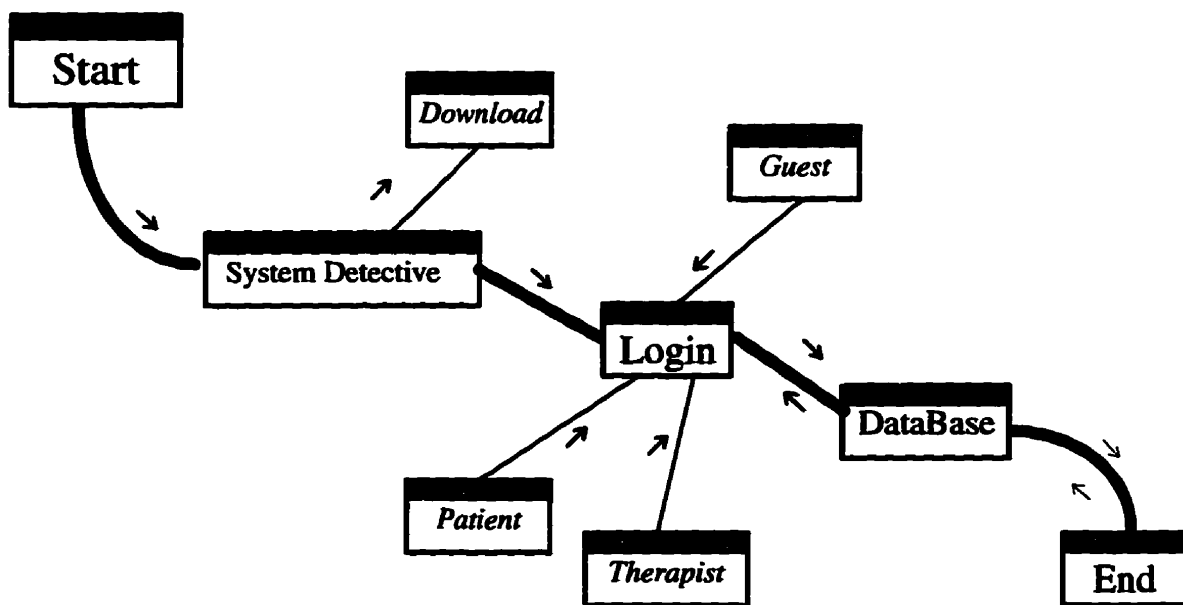


Figure 6.1. Fonetix sequential cluster

In the login section, Fonetix divides the users into three group, which are the *patient*, *therapist*, or *guest*. The patients and therapist have individual usernames and passwords

for logging into Fonetix. The guest is permitted to view the Fonetix demo and may subsequently become a new patient or user.

6.2.2 - System Hierarchical Cluster

Hierarchy emphasizes top-level generalities and overviews, and is the basis of a parts classification. Figure 6.2 shown the Fonetix hierarchical organization. As Fonetix is intended for clinical in SLP, patients first enter a diagnostic section, the results of which goes to the therapist database.

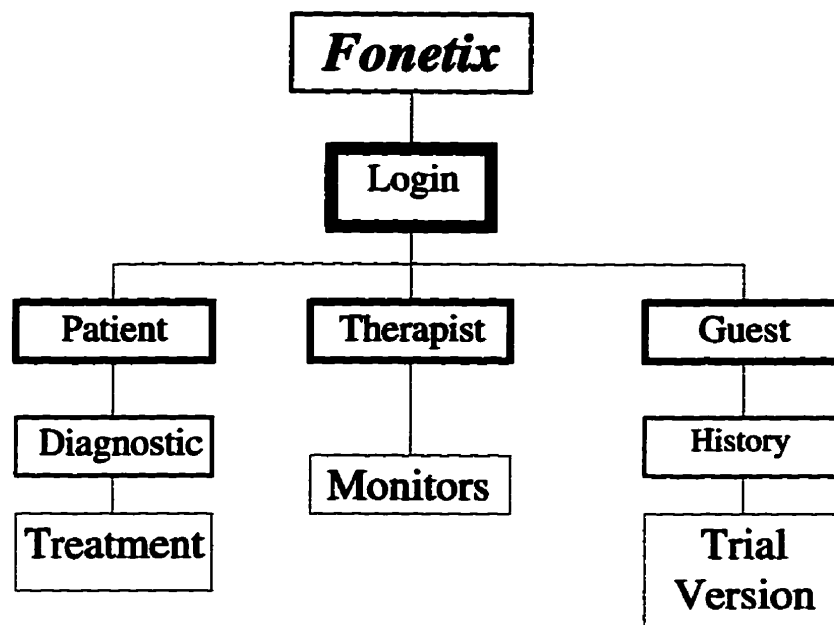


Figure 6.2. Fonetix hierarchy organization

Fonetix guests are provided a system demonstration, preceded by questions about age, sex, mother language and Internet address for Fonetix registration and logging.

The therapist helps patients improve on misplacing, manner, and other speech related problems. The therapist monitors them over the Internet, using a video camera and audio equipment, to see the patient, capture them on video, and is also able to record their speech behavior for analysis remotely. With this diagnostic information the therapist is able to make decisions for treatment plans for each patient. We would anticipate that a therapist may be able to work with a group of approximately to patients “simultaneously” depending upon the degree and severity of the disorder and help required.

6.2.3 - System Grid Cluster

The classic grid or orthogonal structure organization presents information along two logical dimensions. Grids are common because they enforce a simple, comprehensible organization onto separate pieces of information, integrating them into a familiar and readily accessible matrix. Figure 6.3 shown Fonetix database grid clusters.

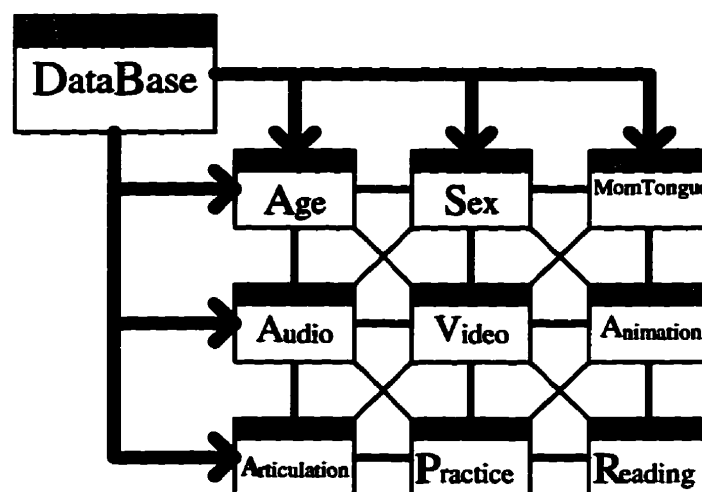


Figure 6.3. Database grid cluster

The Fonetix database can be also be illustrated with three-dimensions. 3D grids provide another dimension for organizing Fonetix information. For example Figure 6.4 shows the Fonetix articulation grid cluster. Combining Figure 6.3 and Figure 6.4, presents the organization information in 3D.

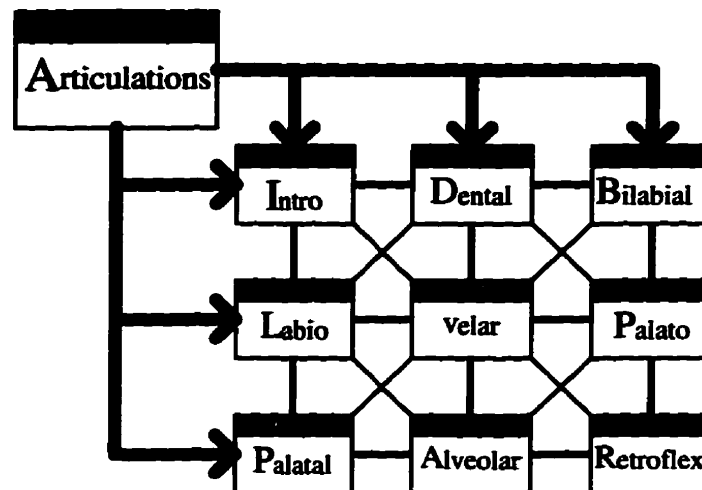


Figure 6.4. Fonetix articulation grid cluster

6.3 - Fonetix Navigating

Navigation generally means jumping from topic to topic in a systematic manner. Figure 6.5 illustrates Fonetix navigation paths, which identify the basic functions and an overview of the Fonetix program. The methodology for using Fonetix is to start with some of diagnostic session. Ideally this would use audio and video equipment to record the patient (possibly interactively with a therapist). The results would go to a database and a therapist would analyze them and choose the training plan from the learning

section. The Fonetix learning section covers articulation, reading skills, pronunciation, and sign language.

Fonetix includes some quiz or test sessions for patients to practice with. These test sessions can be audio or video or textual. Results collected may be sent to the database for problem analysis and provide the therapist with a audio/video patient history to improve the treatment plan.

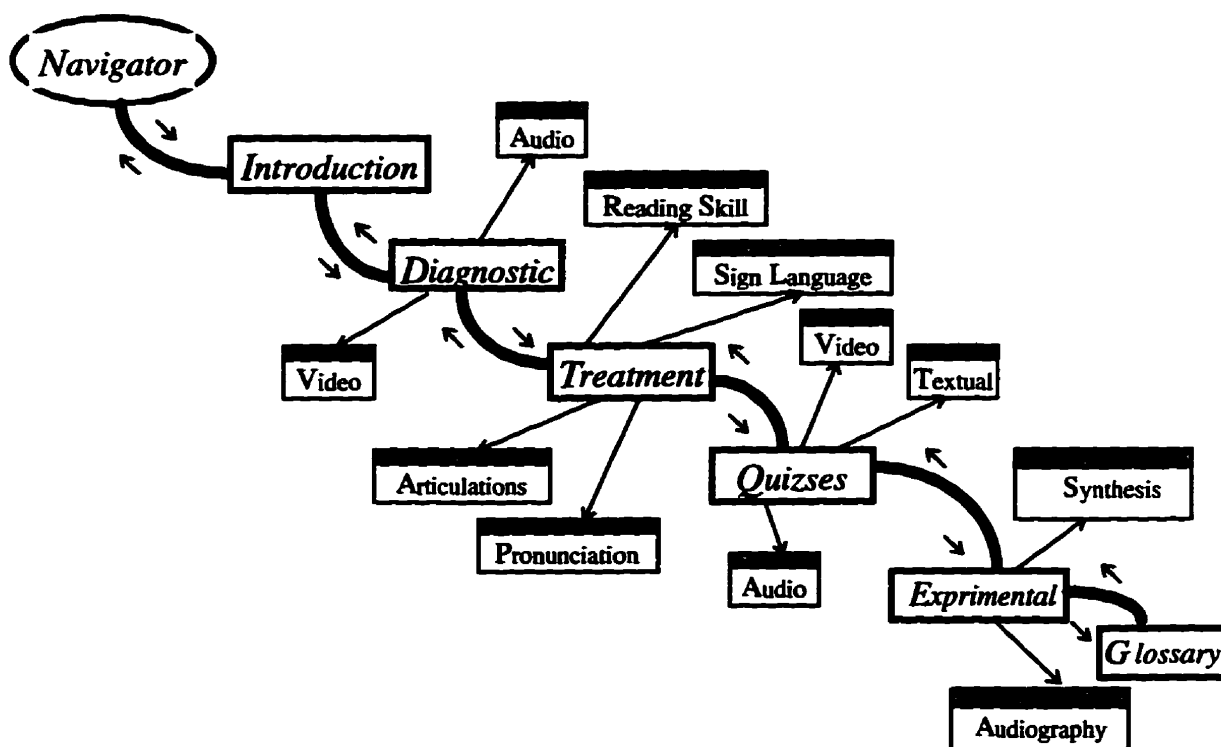


Figure 6.5. Fonetix navigator sequential cluster

6.4 - Diagnostics within Fonetix

Fonetix starts with patient diagnostics. The diagnostics are made in different styles, using combinations of audio and video for problem evaluation. The area of speech diagnostics are plosives, fricatives, affricatives, aspirates, glides, nasals and blends. The audio and video results can be scored with an error score which therapists can use to determine the patient's problems. Figure 6.6 illustrates Fonetix diagnostics.

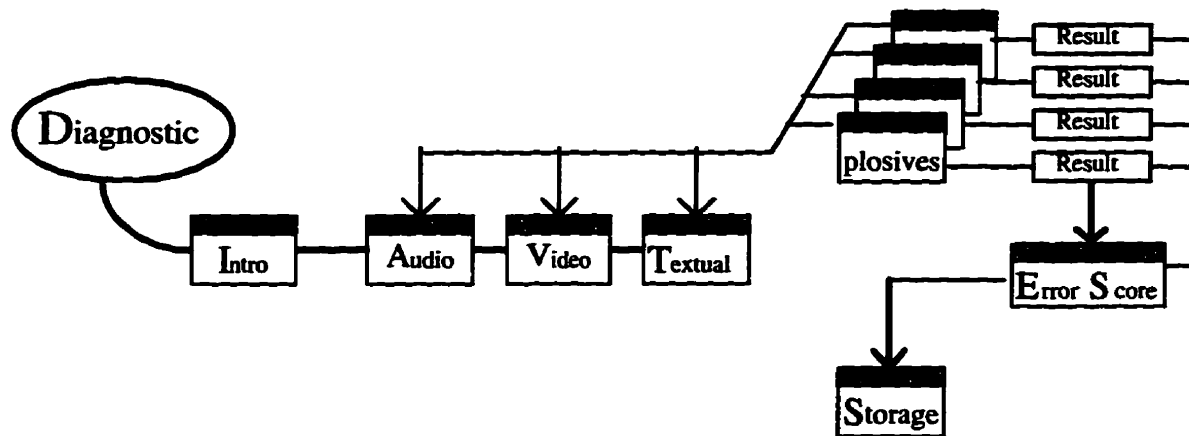


Figure 6.6. Fonetix diagnostics sequential cluster

For example, Fonetix asks the patient to say and record the words containing affricatives, like: matches or bridges. The therapist listens the patient's voice and makes a mark to indicate whether the pronunciation is correct or has indistinct or simple substitution problem or gross substitution or omission problems. The therapist is directly involved in the diagnostic section of Fonetix. The analysis however may be off-line using prerecorded audio and video. This process can also be automated.



6.5 - Treatment Plan within Fonetix

As mentioned in chapter four, the basic methods of treatment are designed to evoke communicative behaviors. Figure 6.7 shows the Fonetix treatment plan. The areas of treatment include articulations, reading skills, pronunciation, and sign language. The articulations include audio, video, and animation examples of the main places of articulation. Reading skills helps patients become familiar with fluency and speed. Pronunciation focuses on isolated words and learning language. The sign language section is included for the severely hearing impaired as well as for persons interested in learning sign language basics.

Various instructions are used in Fonetix to treat articulation disorders. Treatment plans may include, combinations of articulations, reading skills for speech fluency, as well as pronunciation treatment for particular types of words and numbers.

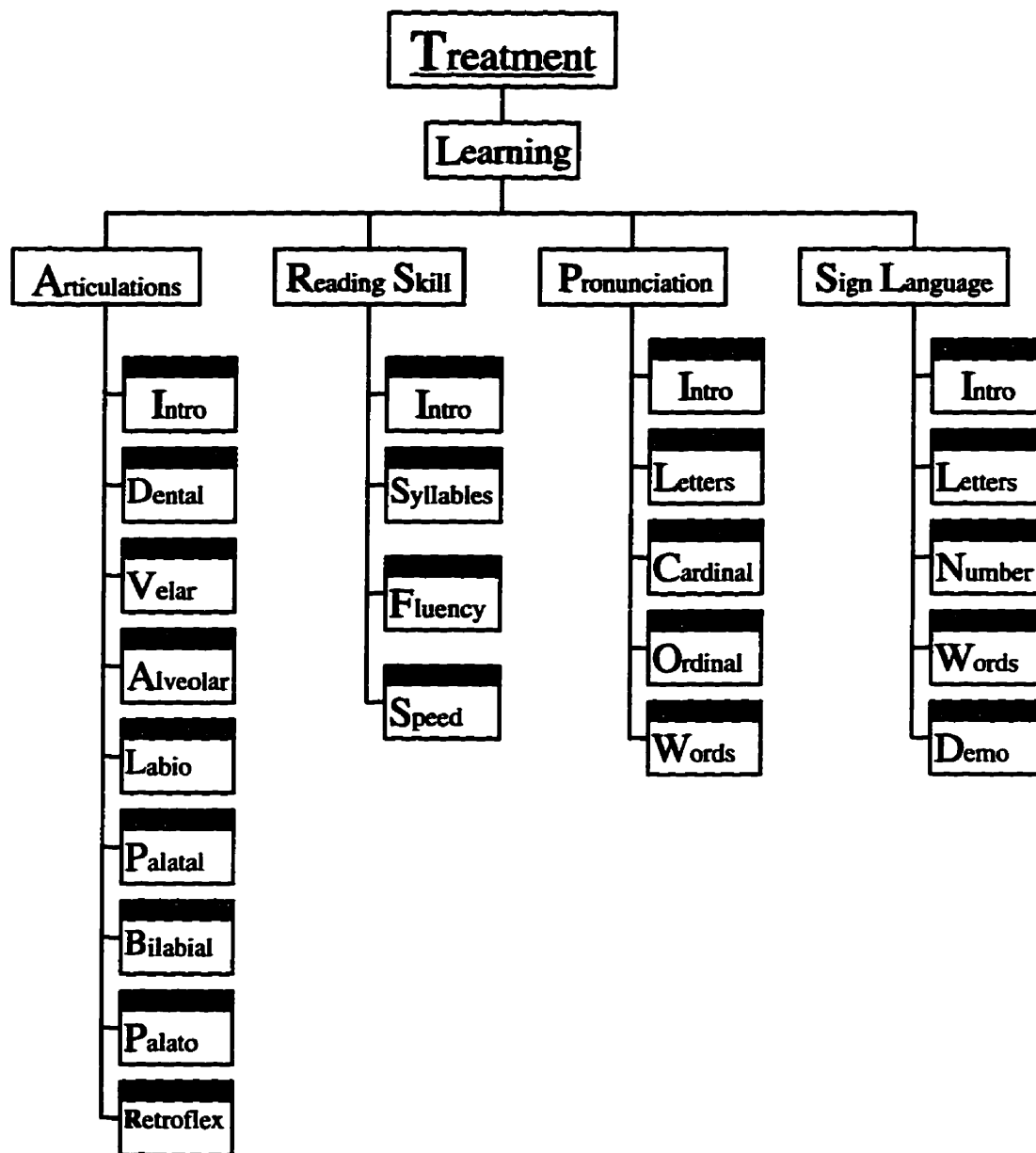


Figure 6.7. Fonetix treatment hierarchy

6.5.1 - Learning Articulations Rules

In order to form consonants, the airstream through the vocal tract must be obstructed in some way. Consonants can therefore be classified according to the place and manner of this obstruction. The primary articulators that can cause an obstruction in most languages are the lips, the tongue tip and blade, and the back of the tongue.

Articulations are classified into eight sections (Fig. 6.4). Each articulation section includes an introduction, animation, movie and practice component. Figure 6.8 shows the introduction to dental articulation. Every introduction page illustrates a specific articulation, using sample words with pronunciation and audio. From this page the user may navigate to movie, animation, or practice sessions for that articulation

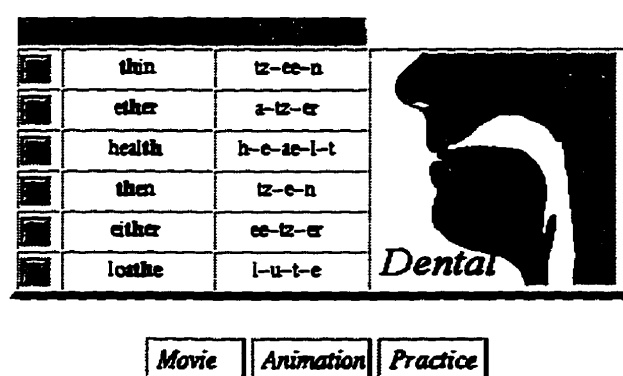


Figure 6.8. Fonetix dental articulation section

Every animation shows the movement of the oral organs, indicating the correct position of the tongue and lips. Figure 6.9 illustrates frames from the dental articulation animation.



Figure 6.9. Fonetix dental animation section

The movie sections shows the face, lips, and tongue movement of a native speaker during the production of the correct sound. Figure 6.10 shows sample movie frames within Fonetix.

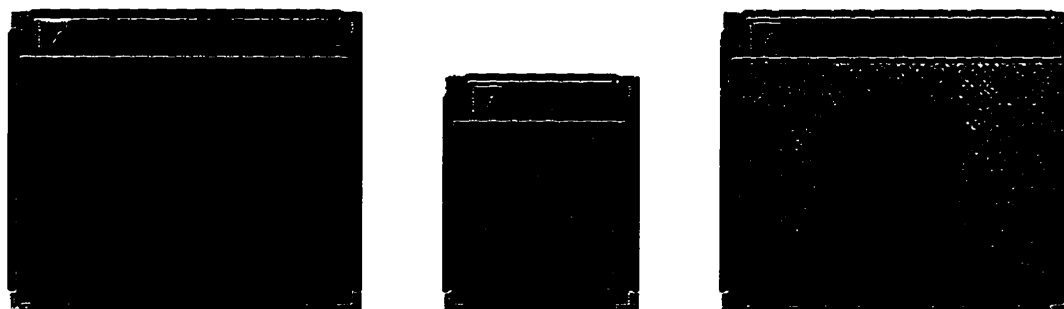


Figure 6.10. Fonetix dental movie section

Every practice section has sentences which have the same sound in different words in the sentence. With this practice session we able to remember the misplacing within the word, and subsequently try to produce the sound at the correct way. We also have the ability to step through the sentence slowing down or speeding up the whole sentence while at the same time saying the words. Figure 6.11 illustrates the dental practice section. The results of the practice sessions (audio and video) can be recorded and logged

for use by the therapist. The therapist may also introduce alternative sentences or isolated words for individualized practice.

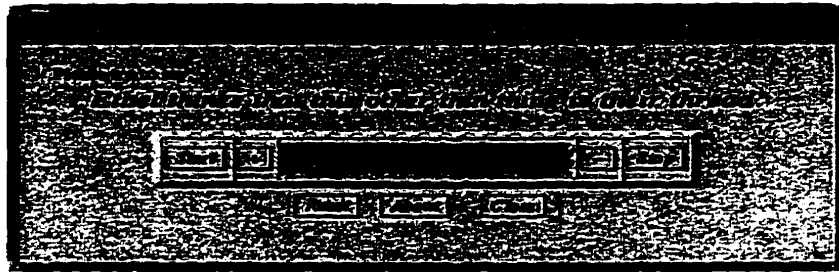


Figure 6.11. Fonetix dental practice section

6.5.2 - Learning Reading Skill Rules

Reading skills are useful for treating disorders of fluency. In speech, we control the pitch of an utterance by changing the vibration rate of the vocal cords. The faster they vibrate, the higher the pitch. English also distinguishes different phrases, and with different intonation contours. Intonation is the use of pitch in a phonetic phrase.

The intonation system of English is very complex and not completely understood. Fonetix examines a number of typical contours, using English tongue twisters, each sentence of twisters, illustrates different intonation contours. Twisters are useful for learning fluency in speech, controlling the speed of speech, managing airflow, controlling the gentle onset of phonation, and also for reducing the rate of speech through syllable prolongation or to a level where speech is free from stuttering.

6.5.3 - Learning Pronunciation Rules

The primitive building blocks of word structure are phonemes, phonemes are ultimate units of phonological structure. Phonetic transcription is the use of phonetic symbols to write down an utterance (a stretch of speech). One obvious goal of phonetics is to be able to transcribe accurately any utterance in a given language.

The symbols Fonetix uses are very much like Webster's and the International Pronunciation Alphabet (IPA) (Ladefoged, 1993). Fonetix attempts to give a systematic phonetic transcription that is in accord with the principles of the (IPA) and remain Web page friendly. They are devised for showing English readers the pronunciation of English words rather than for comparative phonetic purposes. Table 6.1 shows different ways pronunciation has been symbolized by different authors.

Table 6.1 A comparison of some system for transcribing vowel sounds.

Fonetix		Webster's	IPA	
ae	f-ae-t	a	æ	fat
oo	b-oo-t	oo	u	boot
eh	m-eh-t	e	e	met
ih	b-ih-t	i	I	bit
uh	d-uh-g	û	^	dug

Fonetix supports thirty six phonemes, which are specified as a one to two character code, as illustrated in Table 6.2. Two major reasons Fonetix represents phonemes in this manner are that the patient doesn't need to be specifically educated to understand the

meaning of each phoneme character, and Web browsers don't need to support the (IPA) font.

Table 6.2 Fonetix phonemes

a	f	n	tz
ae	g	oh	u
uh	h	oo	uh
aw	I	p	v
b	ih	r	w
ch	j	s	wh
d	k	sh	y
ee	l	t	z
eh	m	th	zh

For example, to say “affirmative” we could divide its representation into “uh-f-uh-r-m-uh-t-ih-v”, or “W” into “d-uh-b-l-y-oo”, or “ll” into “eh-l-eh-v-uh-n”.

6.5.4 - Learning Sign Language Rules

The sign language section within Fonetix helps to nonverbal people, who may have multiple physical and sensory disabilities. Basically nonverbal persons use lip-reading, or use sign language in order to communicate. Nonverbal persons may be candidates for several modes of communication, but most learn some degree of oral speech. Therefore, learning sign language is useful to communicate with hearing impaired persons, and also helpful in training the articulation of that sign to them. Figure 6.12 illustrates sign language within Fonetix.

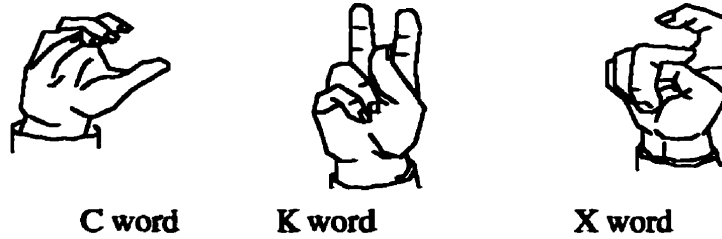


Figure 6.12. Fonetix sign language section

6.6 - Quizzes within Fonetix

Within Fonetix a therapist is able provide continuous feedback to a patient on his or her performance. Using quizzes on different text combinations is useful for treating stuttering and voice disorders. Audio quizzes are useful for hearing evaluation, video quizzes are useful for lip-reading and perception practice.

When this information is systematically given to patients, their performance or movement toward a target may be reinforced. Figure 6.13 shows the Fonetix quiz cluster. The information given back to a person from a system about how the person or the system has been performing is called feedback. Feedback provides a reinforcement when it increases the rate of response or some quality of it.

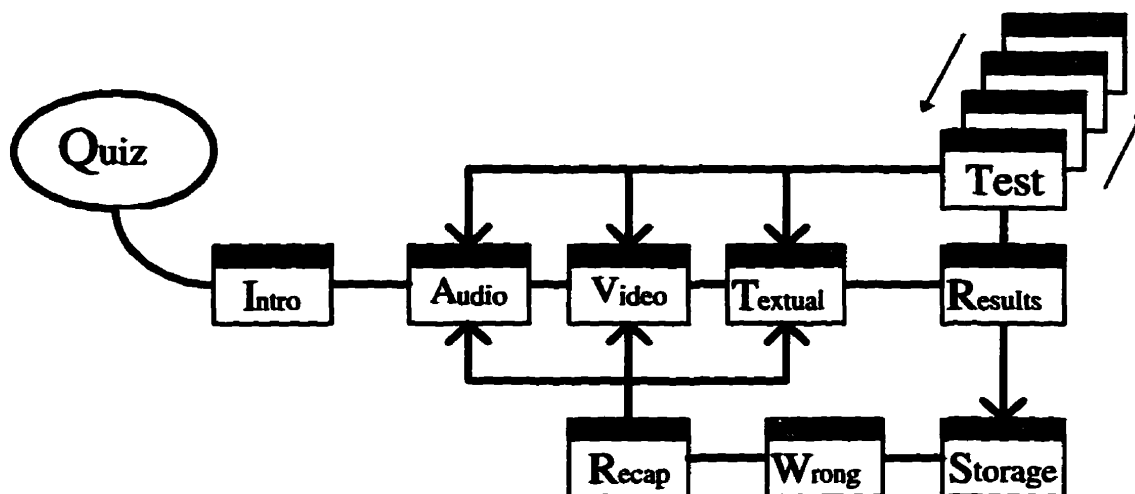


Figure 6.13. Fonetix quiz sequential cluster

Basically the quiz cluster is able to initially assist in determining a patient's problems, and provide information on the patient's treatment, progress, and recommendations for continuing treatment. Increased use of the Fonetix quiz program in treatment will also facilitate mechanical feedback. For example, mechanized logging may tell a stuttering person that his or her rate of dysfluency in the previous 5 texts was 15% compared to 17% in the previous session. A person in articulation treatment may learn that his or her correct production of /s/ has increased from 30 to 90%. Such information about the performance levels is feedback and when used systematically, it can increase the rate of responses.

6.7 - Experimental Research within Fonetix

As mentioned before Fonetix is an Internet research tool for use in clinical SLP. With Fonetix we are able to experiment and conduct research on audiography over the Internet. To a large degree we are trying to integrate the patient more directly into his or her therapy. One manner of accomplishing this is by remotely facilitating the patient hearing test. The audiogram is a plot of the faintest sound that can be heard (threshold) at various frequencies. The intensity of the sound is measured in decibels which are expressed in reference to normal Hearing Level (0 dB HL). The frequencies studied are usually 250, 500, 1000, 2000, 4000 and 8000 cycles per second or Hertz (Hz). Thresholds are first determined with earphones and this is called air conduction (AC) for sound going through the entire auditory system. Thresholds are then determined using a vibrator on the mastoid or forehead whereby the sound is stimulating the inner ear directly. This is called bone conduction (BC) (Newby and Popelka, 1985).

The normal range of hearing is represented by AC thresholds between 10 and 25 dB HL on an audiogram. The level of normal conversational speech is around 45 - 50 dB although some speech sounds such as the unvoiced consonants (s, p, t, k, th, f, sh) contain very little energy. Fonetix includes a function which allows the user to record his or her audiogram². In Figure 6.14 illustrates the frequency and intensity composition of certain environmental and familiar speech sounds in relation to the audiogram (Jacobson and Northern, 1991).

² Only a sample of tones is currently supported

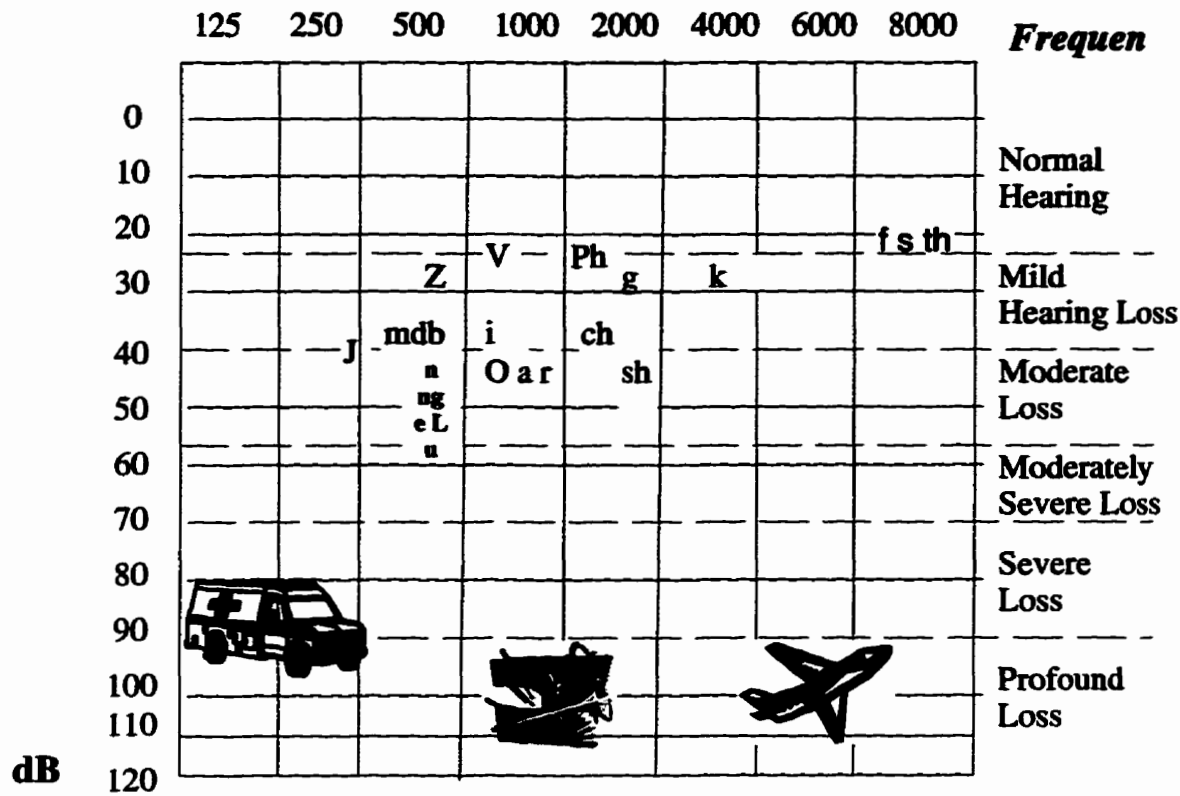


Figure 6.14. Experimental audiogram

Fonetix has another experimental and research potential as a synthesis program. This program is an implementation of the software described by (Klatt, 1980) for synthetic speech waveforms. The Klatt synthesis program (Klatlk) reads a file containing synthesis parameters (typically created by a program called gensyn) and writes a synthetic speech waveform file. Gensyn accepts input from a data file which you create with a text editor, gensyn creates as output, an unformatted binary file that is the input file to the Klatlk program.

6.8 - Monitors within Fonetix

In order to monitor patients over the Internet, Fonetix does Web document sharing with patients. This means that any time the patient and therapist are logged on to Fonetix, they are able to see and communicate with each other over the Internet using a video camera, audio equipment, and text in real-time. This depends on the type of platform they are using, for example, if they are using a PC platform then they are able to use qcam, and associated software such as cuseeme or look@me for video, cooltalk for audio, and javatalk for textual correspondence within Fonetix. Figure 6.15 illustrates the use of the Internet as the means of communication between patient and therapist.

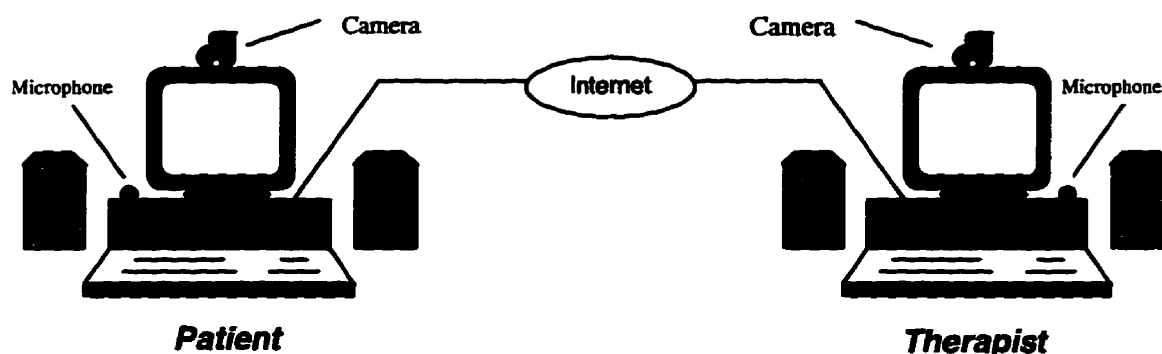


Figure 6.15. Fonetix Remote Consulting

6.9 - Glossary within Fonetix

Fonetix explains most of the technical vocabulary, used with the program in a glossary section. This provides general guides and description for the user to review during any logon session of Fonetix. The glossary is organized in alphabetical order for easy access with associated links when necessary.

6.10 - Summary of Fonetix Design and Implementation

Fonetix is being written to be as a platform independent application, using Java and JavaScript as the development language. This allows for easy access from any browser on the Internet facilitating remote speech language pathology. Extensions currently under development include facilities for improved remote monitoring of progress and remote interaction with a pathologist.

Chapter Seven

Conclusions and Future Work

Although the Internet has been around for over 20 years and has seen unprecedented growth over the past 3 years, it is still uncertain how to best utilize it. At present, it is a massive distributed database housing vast amounts of information accessible from Web based browsers. The real potential of the Internet will only be realized as applications are developed which are truly interactive and effective. At the forefront of interactivity, is distance learning and remote consultation. Although only in the early stages of development, these applications add value to the Internet. This thesis addresses a specific distance learning application, namely speech therapy for the Web. Fonetix is one of the first Web sites that addresses content development for a value added Internet application. Fonetix is a prototype Web site for self-paced training and remote interaction between a patient and a speech therapist. Fonetix makes extensive use of multimedia representations of speech through animation, video, and audio. Although Fonetix is an experimental Web site, it provides speech therapy professionals with a model of which aspects of speech therapy that can be developed over the Internet.

Although several of the features of Fonetix are inefficient, continued development of the Internet in terms of bandwidth and compute environments will make programs such as Fonetix useful for remote speech therapy.

At present, Fonetix consist of over 50 Web pages containings animation, scripts, interactive tests etc. This has been realized as 35% HTML, 50% JavaScript, and 15% CGI and Java applets. The total lines of code to date are approximately 18,000 lines.

The program is organized using object oriented methods and consists of reusable modules suitable for future extensions.

The current version of Fonetix can be found at the following URL: <http://www.ee.umanitoba.ca/~morawej/Speech> . This version includes repositories of audio, video, and animation as discussed in the thesis document. Capture of audio and video is currently only supported on Windows 95.

Future research will include more automated analysis of a patient's speech using audio or video. These techniques will exploit clustering methods such as self organizing maps to assist in diagnosis as well as provide guidelines during treatment.

Future versions should also include more accurate animation and synchronization. In addition, the integration of applications such as NetMeeting can be used to enhance patient therapist interaction. Other avenues to explore would be the use of Virtual Reality Modeling Language (VRML) to create three dimensional animation.

It is the author's opinion that Fonetix is one of the first Web based applications that is value added with the potential to address a real social need.

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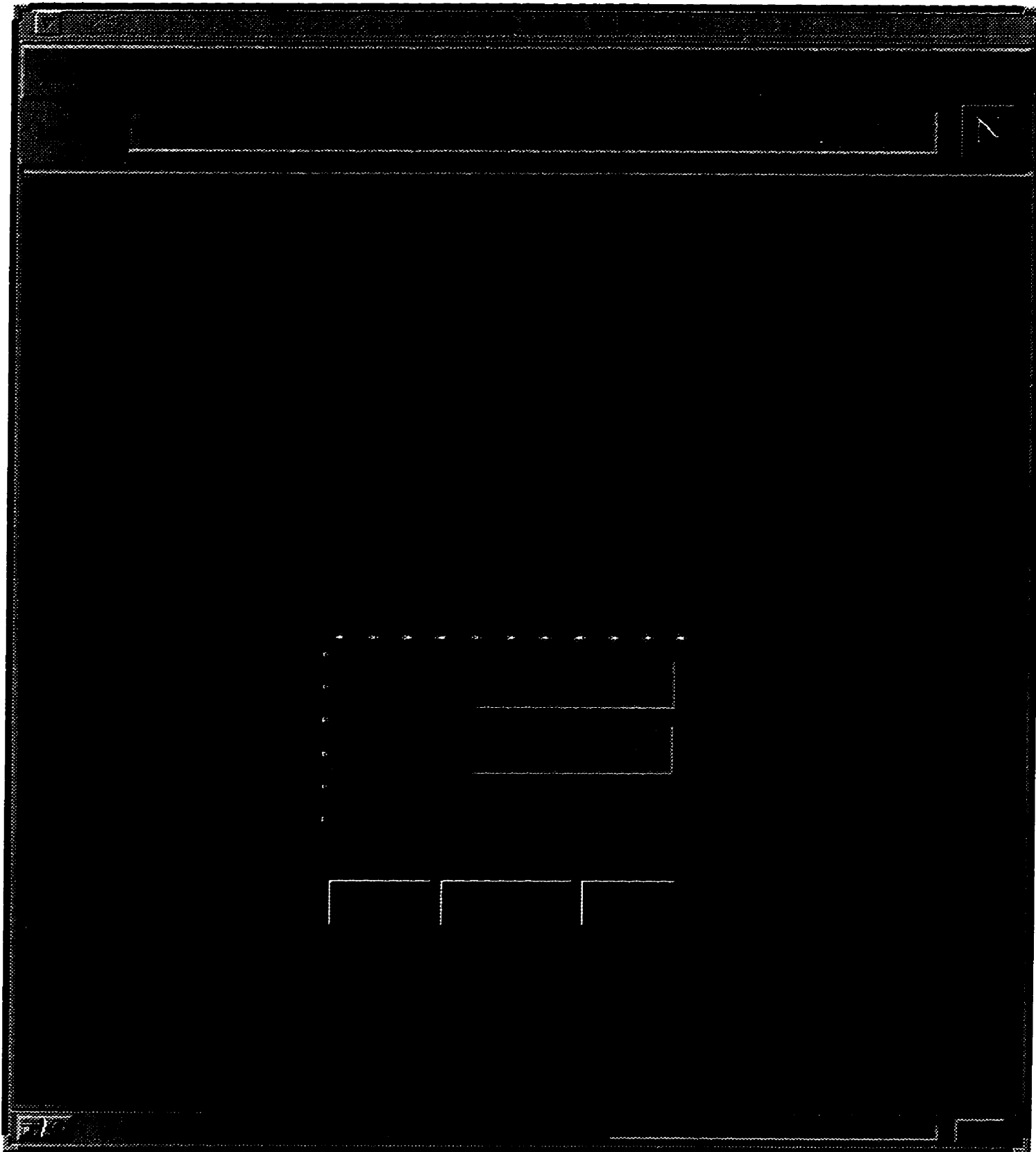
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Appendix A

Graphic User Interfaces



Forrest



Internet

Innovation Center

MAIN MENU

EXPERIMENT

FEEDBACK

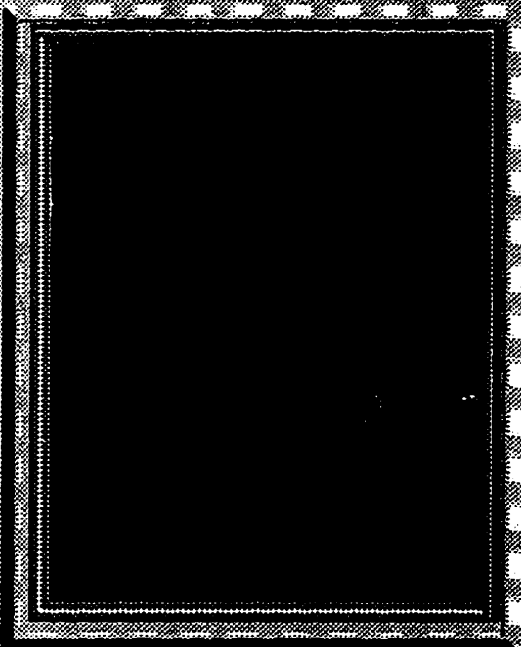
Created by

A. Marinelli

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Biomimicry in Speech Production

Speech production is based on the basic mechanisms of phonation, related to the vibration of the vocal cords, and of vocal articulation, which is in turn related to the time-varying geometry of the vocal tract responsible for the phonetic structure of speech. Therefore, the vocal organs play an indispensable role in producing speech.



The Vocal Tract



Articulations

Students can look at the description according to the place and manner of the construction. The place of articulation refers to where obstruction is made and the manner describes the nature of the obstruction.

Bilabial

Dental

Labiodental

Alveolar

Velar

Palatoalveolar

Palatal

Retroflex

Foretix



Interact

Interactive Centre

MAIN MENU

EXPERIMENT

FEEDBACK

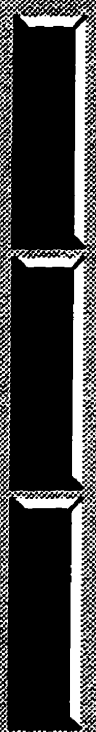
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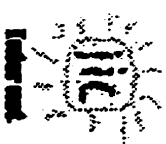
Articulations

The dental sounds of English are the **th** sounds, made when the tip of the tongue is usually near or just barely touching the front surface of the upper teeth. Air passes out with a soft hissing noise. Some people use the blade instead of the tip of the tongue, and some people put their tongue between the upper and lower teeth.

<input type="checkbox"/>	thin	tʰ - θ - ð
<input type="checkbox"/>	other	h - ʒ - ʒ
<input type="checkbox"/>	both	h - θ - θ - ʒ - ʒ
<input type="checkbox"/>	other	θ - ʒ - θ
<input type="checkbox"/>	both	θ - ʒ - θ - ʒ

Dental





Interact

Interactive Centre

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EXPERIMENT

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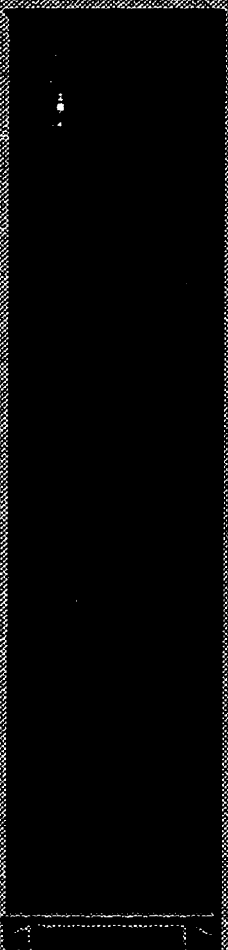
Reading Skill

Reading skills are useful for treating disorders of fluency in speech, we control the pitch of an utterance by changing the vibration rate of the vocal cords. The faster they vibrate, the higher the pitch. English also distinguishes different phrases and with different intonation contours. Intonation is the use of pitch in a phonetic phrase.

Phonetic exercises a number of typical contours, using English tongue twisters, each sentence of twisters, illustrates different intonation contours:

Twisters are useful for learning fluency in speech, controlling the speed of speech, managing airflow, controlling the precise onset of phonation, and also reducing the rate of speech through syllable prolongation or to a level where speech is free from stuttering.

English Tongue Twisters



Back

Next

Pause

Reset

Continue

Help

Joentia



University of Cambridge

MAIN MENU

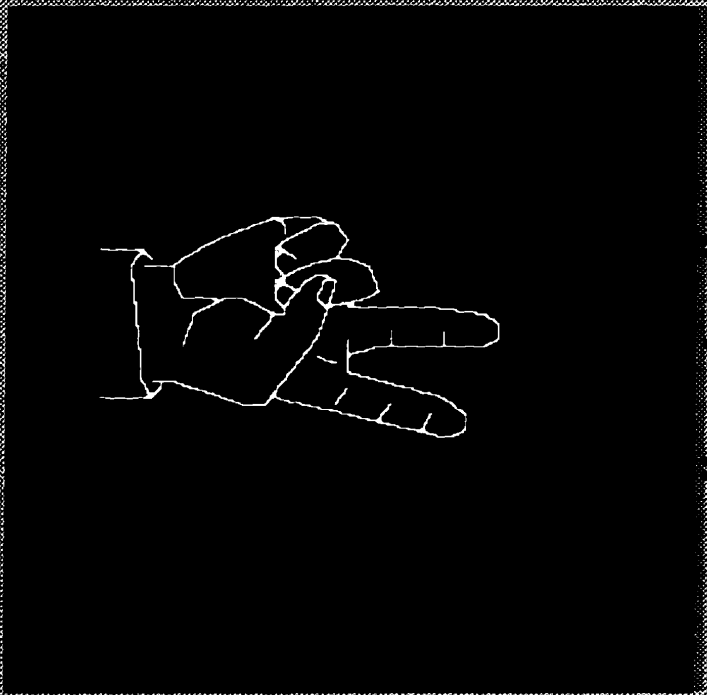
EXPERIMENT

FEEDBACK

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Finger spelling



A/B/C/D/E/F/G/H/I/J/K/L/M/N/O/P/Q/R/S/T/U/V/W/X/Y/Z
0/1/2/3/4/5/6/7/8/9/ Done

Keyboard to Sign,
Please enter a character from the keyboard below.



Phonetic



Interact

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EXPERIMENT

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Phonetic Alphabet

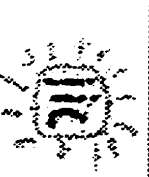
Phonetic Alphabet is 36 phonemes, which are specified as one or two character codes, as follows:

Phonetic Alphabet					
A	I	H	E		
M	G	OH	N		
OH	H	OO	WH		
EV	I	P	V		
B	LB	T	W		
CH	J	S	WH		
D	K	OH	J		
OO	L	T	Z		
OH	M	OH	SH		

- Phonemes may be given in either upper case or lower case.
 - Phonemes are separated with a dash.
 - Words are separated with a space.
- For example, to say "this is a test",
you would type:

say: (tz-ih-s ih-z ah t-eh-s-t)

Forrest



Interact

Language Center

MAIN MENU

EXPERIMENT

FEEDBACK

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Quizzes

- Push the audio button to hear the voice and choose the right word.
- This test useful for your hearing evaluation.
- Forrest have five test, and at fifth test press the result button to see your results.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">◊ rest◊ first	<ul style="list-style-type: none">◊ good◊ roof	<ul style="list-style-type: none">◊ pool◊ boat
<< Back		
Next >>		

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none">◊ put◊ put	<ul style="list-style-type: none">◊ off◊ oak	<ul style="list-style-type: none">◊ cut◊ caught
<< Back		
Next >>		

Results

Clear all

Journal



Literacy Center

MAIN MENU

EXPERIMENT

FEEDBACK

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Quiz

- Push the audio button to hear the voice and choose the right word.
- This test useful for your hearing evaluation.
- Finally have five test, and at fifth test press the result button to see your results.

Results:

(Wrong)

1. good	miss	6. please	write	11. good	good
2. bad	not	7. dream	don't	12. foot	foot
3. name	name	8. thought	boat	13. put	put
4. good	pull	9. me	not	14. at	at
5. baby	pay	10. true	put	15. enough	enough

Digitalis

International Centre

Created by
A. Morneau
Copyright © 1997

cat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
insect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
reptile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
insect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
reptile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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mammal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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reptile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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mammal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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mammal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
bird	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<

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Learn to

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EXPERIMENT

FEEDBACK

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Login to Fontetica

We are still in demo mode

Please send me E-mail with any suggestion.

Connection To Your Speech Therapist Advisor.

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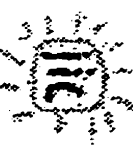
99

100

Username

Connect

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A. M. M. M. M.
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Login #1

Login #2

Login #3

Login #4

Login #5

Login #6

Login #7

Login #8

Login #9



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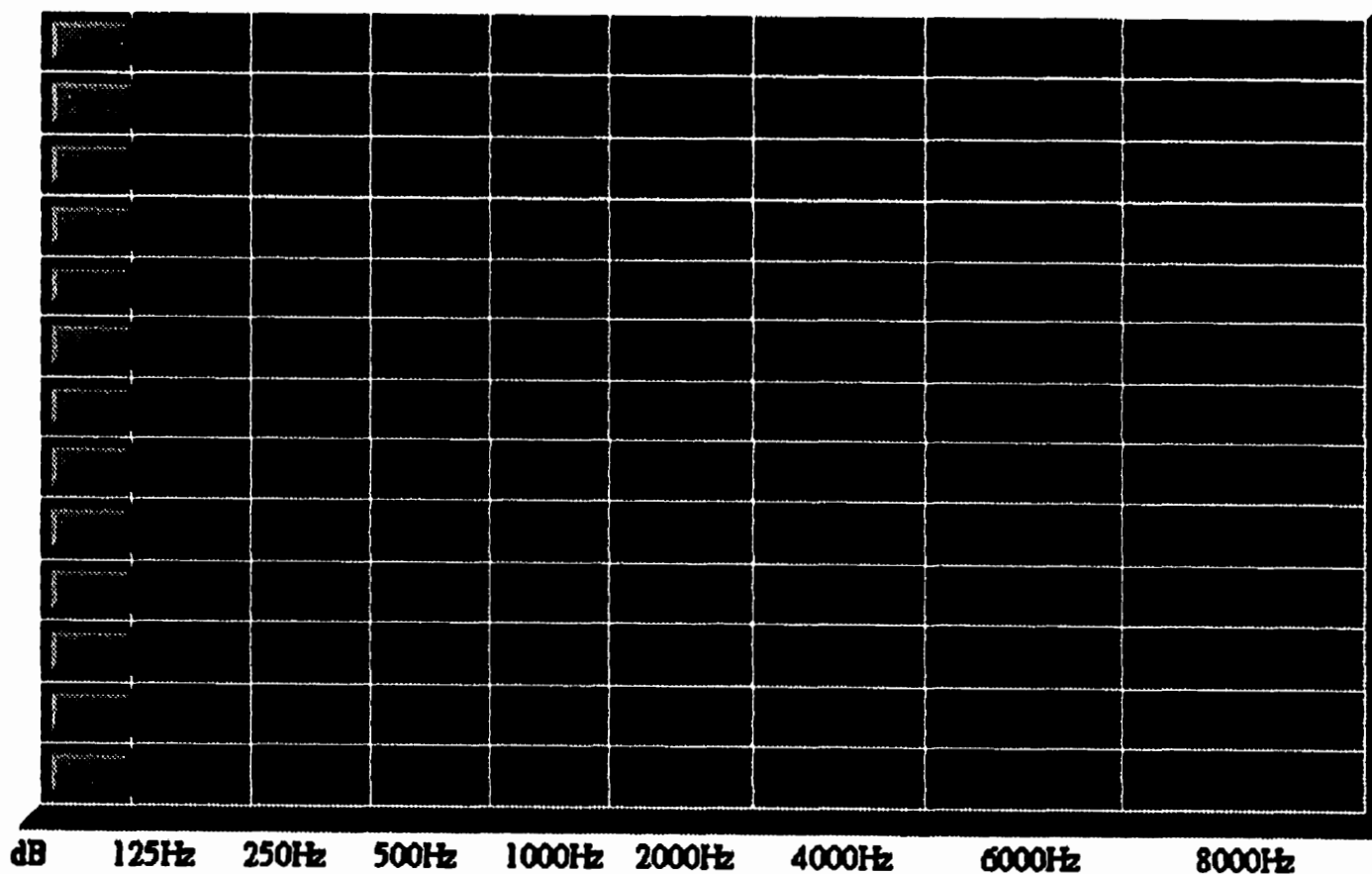
EXPERIMENT

FEEDBACK

Created by;
A. Morawej
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Experimental

Audiogram



Speech Audiometry

SRT: Speech Reception Threshold.

MCL: Most Comfortable Level.

UCL: Uncomfortable Level.

SDS: Score Discrimination Level.

Ears	SRT	MCL	UCL	SDS/Level
RIGHT:	<input type="text"/> dB	<input type="text"/> dB	<input type="text"/> dB	<input type="text"/> % <input type="text"/> dB
LEFT :	<input type="text"/> dB	<input type="text"/> dB	<input type="text"/> dB	<input type="text"/> % <input type="text"/> dB

Appendix B

Source Codes


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<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis SideBar
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

</HEAD>
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<CENTER>

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<TABLE WIDTH=40% BORDER=1 ALIGN=center>
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<TH> C<TH> I<TH> SS<TH> GS<TH> O</TH>
</TR>
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2 VALUE=0 MAXLENGTH=3><TD><INPUT TYPE=text NAME=" " SIZE=2 VALUE=0 MAXLENGTH=3><TD><INPUT TYP
E=text NAME=" " SIZE=2 VALUE=0 MAXLENGTH=3><TD><INPUT TYPE=text NAME=" " SIZE=2 VALUE=0 MAXLE
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<TH BGCOLOR="#CCCCAA" COLSPAN=5><FONT SIZE=-1><I>Score of Fricatives </TH>

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<TH BGCOLOR="#CCCCAA" COLSPAN=5><FONT SIZE=-1><I>Score of Affricatives </TH>

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<TH BGCOLOR="#CCCCAA" COLSPAN=5><FONT SIZE=-1><I>Score of Aspirates </TH>

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<TH BGCOLOR="#CCCCAA" COLSPAN=5><FONT SIZE=-1><I>Score of Nasals </TH>

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2 VALUE=0 MAXLENGTH=3><TD><INPUT TYPE=text NAME=" " SIZE=2 VALUE=0 MAXLENGTH=3><TD><INPUT TYP
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<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//              Diagnosis Fricatives
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
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<CENTER>
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[illegible]

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<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis Glides
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
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</HEAD>
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<CENTER>
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
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<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
</TR>
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<TD><FONT SIZE=+1> lion <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
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<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
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Jan 4 1999 10:00 AM [Page 1]

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<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis Introdution
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
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</CENTER>
</BODY>
</HTML>
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<HTML>
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<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//              Diagnosis menu (title1)
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
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</BODY>
</HTML>

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<HTML>
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<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//              Diagnosis Plosives
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
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Jan 4 1987

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<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> TRock <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> sWORD <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> coRK <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> aRM <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox N
AME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> siFT <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> haND <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
</FONT>
</TABLE>
</CENTER>
</FORM>
</BODY>
</HTML>
```



```

<HTML>
<HEAD>
<TITLE>Fonetix, Speech Therapy on the Web</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Fonetix Diagnostoc menu
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
<BASEFONT SIZE=+1>
<CENTER>

<FORM METHOD=post ACTION="">
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
<TH BGCOLOR="#CCCCAA"><FONT SIZE=+2> Plosives <TH> C<TH> I<TH> SS<TH> GS<TH> O<TH>
<TR>
<TD><FONT SIZE=+1> Pencil <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> Ball <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> Cable <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> dog <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> cat <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> apple <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> baby <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> mountain <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> candy <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> chicken <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> Vagon <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" ">
<TD><INPUT TYPE=checkbox NAME=" "></TD>

```

[illegible]


```

    }

    // Called by Reset button; resets variables.
    function resetContent()
    {
        if(timerRunning)
            clearTimeout(timerID);
        timerRunning = false;
        contentNum=0;
        contentSpeed=1800;
    }

    // Called by About button; displays Alert Box message.
    function about()
    {
        alert("\n Simply click on Start and away you go.\n\n   ___ speed control ___ \n\n By +
        Speed up & By - Speed down.");
    }

    // Displays different message depending on the value of contentNum.
    function updateContent()
    {
        var contentText="";
        contentNum++;
        if (contentNum==1)
            contentText=" King";
        if (contentNum==2)
            contentText=" Carl";
        if (contentNum==3)
            contentText=" quickly";
        if (contentNum==4)
            contentText=" kissed";
        if (contentNum==5)
            contentText=" the";
        if (contentNum==6)
            contentText=" Greek";
        if (contentNum==7)
            contentText=" queen.";
        if (contentNum==8)
            contentText="";

        document.forms[0].elements[2].value=contentText
        if (contentNum==8)
        {
            // Causes list to 'recycle'.
            contentNum=0;
            goContent();
        }
        else
            goContent();
    }

    // Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR><TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> King Carl quickly kissed the Greek queen.</I></FONT></TD></TR>
</table></I>
<BR>
<CENTER>
<FORM NAME="content">
<TABLE BORDER=5 WIDTH=300>
<TR><TD ALIGN="center"><INPUT TYPE="button" VALUE=" Start "   onClick="goContent()">   </TD>
<TD ALIGN="center"><INPUT TYPE="button" VALUE=" + "   onClick="fasterContent()"></TD>

```

Jan 1 1997 13:35:01

Page 6

```
<TD ALIGN="center"><I><INPUT TYPE="text" VALUE="SPEED UP YOUR READING" SIZE=21> </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - " onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop " onClick="stopContent()"> </TD>
</TABLE>

<TABLE BORDER=0 WIDTH=200>
<TD ALIGN="center"><I><INPUT TYPE="reset" VALUE=" Reset " onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" About " onClick="about()"> </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Close " onclick="Close()"> </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<FRAMESET ROWS="100," FRAMEBORDER=no BORDER=0>
  <FRAME NAME="Title" SRC="Nav3.htm" SCROLLING=NO MARGINHEIGHT=0 MARGINWIDTH=0>
  <FRAMESET COLS="250,">
    <FRAME NAME="Side" SRC="ErrSro.htm" SCROLLING=YES MARGINHEIGHT=0 MARGINWIDTH=0>
    <FRAME NAME="Test" SRC="Introdu.htm" SCROLLING=YES MARGINHEIGHT=0 MARGINWIDTH=0>
  </FRAMESET>
</FRAMESET>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis Affricatives
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
</HEAD>
<FORM METHOD=post ACTION="">
<CENTER>
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
<TH BGCOLOR="#CCCCAA"><FONT SIZE=+2> Affricatives <TH> C<TH> I<TH> SS<TH> GS<TH> O</TH>
<TR>
<TD><FONT SIZE=+1> chair <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> mice <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
<TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> matches <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
ox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> bridges <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
ox NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> watch <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> orange <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
x NAME=" "></TD>
</TR>
</FONT>
</TABLE>

</CENTER>
</FORM>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis Aspires
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
</HEAD>
<FORM METHOD=post ACTION="">
<CENTER>
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
<TH BGCOLOR="#CCCCAA"><FONT SIZE=+2> Aspires <TH> C<TH> I<TH> SS<TH> GS<TH> O</TH>
<TR>
<TD><FONT SIZE=+1> horse <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> grasshoper <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAM
E=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=che
ckbox NAME=" "></TD>
</TR>
</FONT>
</TABLE>
</CENTER>
</FORM>
</BODY>
</HTML>

```



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<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Diagnosis Nasals
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
</HEAD>
<FORM METHOD=post ACTION="">
<CENTER>
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
<TH BGCOLOR="#CCCCAA"><FONT SIZE=+2> Nasals <TH> C<TH> I<TH> SS<TH> GS<TH> O</TH>
<TR>
<TD><FONT SIZE=+1> man <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><
TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox N
AME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> nail <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> hammer <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> bannana <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> hanger <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> drum <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> train <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> swing <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "
><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox
NAME=" "></TD>
</TR>
</FONT>
</TABLE>

</CENTER>
</FORM>
</BODY>
</HTML>

```

JUN 4 1997

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//              Diagnosis Blends
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
</HEAD>
<FORM METHOD=post ACTION="">
<CENTER>
<TABLE WIDTH=40% BORDER=1 ALIGN=center>
<TH BGCOLOR="#CCCCAA"><FONT SIZE=+2> Blends <TH> C<TH> I<TH> SS<TH> GS<TH> O</TH>
<TR>
<TD><FONT SIZE=+1> SPider <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> STRawberries <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> SLide <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> PLiers <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> worLD <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> Present <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> DRess <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> CRy <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> FRog <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> droPPED <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
<TR>
<TD><FONT SIZE=+1> WHeel <TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME=" "><TD><INPUT TYPE=checkbox NAME="
"></TD>
</TR>
```

```

</TD>
<TD ALIGN=CENTER ColStart="2">so<B>ck</B></TD>
<TD ALIGN=CENTER ColStart="3">so-ck-e </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> G Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/gun.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>g</B>un</TD>
<TD ALIGN=CENTER ColStart="3">g-a-n </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/rugger.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">ru<B>gg</B>er</TD>
<TD ALIGN=CENTER ColStart="3">ru-gg-er</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/sag.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">sa<B>g</B></TD>
<TD ALIGN=CENTER ColStart="3">s-a-g</TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> ng Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/singer.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">si<B>ng</B>er</TD>
<TD ALIGN=CENTER ColStart="3"> si-ng-er </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/bang.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">ba<B>ng</B></TD>
<TD ALIGN=CENTER ColStart="3">ba-ng </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " onclick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" onclick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " onclick="PracticeSite()">
</FROM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Animation for Velar Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=1 WIDTH=100%>
<TR>
<TD><IMG SRC="../../../Icons/Velar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Velar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Velar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>

<TABLE BORDER=0 WIDTH=100%>
<TR>
<TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

Jan 1 1997 15:57

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Movie for Velar Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/Velar.mov"><IMG ALIGN=ABSMIDDLE SRC=../../../Icons/movie.xbm></A>(Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/Velar.mov"><IMG ALIGN=ABSMIDDLE SRC=../../../Icons/movie.xbm></A>(Face)</T
D>
</TR>
<TR>
<TD COLSPAN=3 ALIGN="center"><FONT SIZE=+3><I> King Carl quickly kissed the Greek queen.</I>
</FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../../Movie/Velar.mov" WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../../Movie/Velar.mov" WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//              Practice for Velar Articulation
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;         // Used for timing
var contentNum=0;                 // Used to keep track of which message to display
var contentSpeed=1500;            // Adjustable variable to control length of timeout
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
// speed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Retroflex Articulation
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('RetMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('RetAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('RetPract.htm','Practice','width=550,height=200')
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE>
<FONT SIZE=+7>R</FONT><B>etoflex</B> sounds are made by curling the tip of the tongue up and
back towards the rear edge of the alveolar ridge. The only retroflex sound in English is<B> /
r</B>.
</BLOCKQUOTE>

<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=%100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> R Sound </TH>
<TH ALIGN=CENTER ColStart="4">Under construction</TH>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/run.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><B>r</B>un</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3"> r-a-n </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Retroflex.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/airy.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> ai<B>r</B>y </TD>
<TD ALIGN=CENTER ColStart="3">a-r-e </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>

```

```

        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/war.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">wa<B>r</B></TD>
<TD ALIGN=CENTER ColStart="3">w-a-r </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
        <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/red.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>r</B>ed</TD>
<TD ALIGN=CENTER ColStart="3"> r-e-d </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
        <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/*.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> *** <B></B> </TD>
<TD ALIGN=CENTER ColStart="3"> *** </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
        <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <!-- param name=href value="http://www.ee.umanitoba.ca/~morawej">
        <param name=snd value="../../../Audio/*.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> *** <B></B> </TD>
<TD ALIGN=CENTER ColStart="3"> *** </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " OnClick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" OnClick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " OnClick="PracticeSite()">
</FROM></I></FONT>
</CENTER>
</BODY>
</HTML>

```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Animation for Retroflex Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="../../../Icons/Retroflex.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Retroflex.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Retroflex.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>

<TABLE BORDER=0 width=100%>
<TR><TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                Movie for Retroflex Articulation
//                Developed by
//                Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/Retroflex.mov"><IMG ALIGN=ABSMIDDLE SRC="../../../Icons/movie.xbm"></A>(Mout
h)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/Retroflex.mov"><IMG ALIGN=ABSMIDDLE SRC="../../../Icons/movie.xbm"></A>(Face
)</TD>
</TR>
<TR>
<TD COLSPAN=3 ALIGN="center"><FONT SIZE=+3><I> -----.</I></FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../../Movie/Retroflex.mov" WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../../Movie/Retroflex.mov" WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " onclick="Close()">
</FORM>
</TD>
</I>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//              Practice for Retroflex Articulation
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;          // Used for timing
var contentNum=0;                  // Used to keep track of which message to display
var contentSpeed=1500;             // Adjustable variable to control length of timeout
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
// speed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```

    }

    // Called by Reset button; resets variables.
    function resetContent()
    {
        if(timerRunning)
            clearTimeout(timerID);
        timerRunning = false;
        contentNum=0;
        contentSpeed=1800;
    }

    // Called by About button; displays Alert Box message.
    function about()
    {
        alert("\n Simply click on Start and away you go.\n\n   ____ speed control ____ \n\n By +
        Speed up & By - Speed down.");
    }

    // Displays different message depending on the value of contentNum.
    function updateContent()
    {
        var contentText="";
        contentNum++;
        if (contentNum==1)
            contentText=" ";
        if (contentNum==2)
            contentText=" ";
        if (contentNum==3)
            contentText=" ";
        if (contentNum==4)
            contentText=" ";
        if (contentNum==5)
            contentText=" ";
        if (contentNum==6)
            contentText=" ";
        if (contentNum==7)
            contentText=" .";
        if (contentNum==8)
            contentText="";

        document.forms[0].elements[2].value=contentText
        if (contentNum==8)
        {
            // Causes list to 'recycle'.
            contentNum=0;
            goContent();
        }
        else
            goContent();
    }

    // Deactivate Cloaking -->
    </SCRIPT>

</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR><TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I>-----</I></FONT></TD></TR>
</TABLE></I>
<BR>
<CENTER>
<FORM NAME="content">

<TABLE BORDER=5 WIDTH=300>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start " onClick="goContent()"> </TD>

```

Jan 1 1997 18:13

Page 3

```
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "      onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"   VALUE="SPEED UP YOUR READING" SIZE=21>      </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "      onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "   onClick="stopContent()"> </TD>
</TABLE>
```

```
<TABLE BORDER=0 WIDTH=200>
```

```
<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "   onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" About "   onClick="about()">      </TD>
<TD ALIGN="center"><I><input  TYPE="button"  VALUE=" Close "   onclick="Close()">      </TD>
```

```
</TR>
```

```
</TABLE>
```

```
</FORM>
```

```
</CENTER>
```

```
</BODY>
```

```
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Velar Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('VelMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('VelAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('VelPract.htm','Practice','width=550,height=200')
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE>
<FONT SIZE=+7>V</FONT><B>elar</B> sounds in English are <B>/k g ng</B>, with the back of th
e tongue articulating against the velum.
</BLOCKQUOTE>
<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=8100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> K Sound </TH>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/kiss.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><B>k</B>iss</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3">k-i-ss </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Velar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/locker.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">lo<B>ck</B>er</TD>
<TD ALIGN=CENTER ColStart="3">la-k-er </TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/sock.au">
        </APPLET>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Animation for Palatal_Alveolar Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="../../../Icons/Palveo.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="PalAnim.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Palveo.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>

<TABLE BORDER=0 width=100%>
<TR><TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE="  Close  " OnClick="Close()">
</FORM>
</TD></TR></TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Movie for Palatal_Alveolar Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/plv.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/Palveo.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Face)</
TD></TR>
<TR>
<TD COLSPAN=3 ALIGN="center"><FONT SIZE=+3><I>-----</I></FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../Movie/plv.mov"    WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../Movie/Palveo.mov" WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE="  Close  " OnClick="Close()">
</FORM>
</TD></I>
</TR>
</TABLE>
</BODY>
</HTML>

```



```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                Practice for Palatal Alveolar Articulation
//                Developed by
//                Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;          // Used for timing
var contentNum=0;                  // Used to keep track of which message to display
var contentSpeed=1500;             // Adjustable variable to control length of timeout
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
// speed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```

    }

// Called by Reset button; resets variables.
function resetContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    contentNum=0;
    contentSpeed=1800;
}

// Called by About button; displays Alert Box message.
function about()
{
    alert("\n Simply click on Start and away you go.\n\n   ____ speed control ____ \n\n By +
    Speed up & By - Speed down.");
}

// Displays different message depending on the value of contentNum.
function updateContent()
{
    var contentText="";
    contentNum++;
    if (contentNum==1)
        contentText=" ";
    if (contentNum==2)
        contentText=" ";
    if (contentNum==3)
        contentText=" ";
    if (contentNum==4)
        contentText=" ";
    if (contentNum==5)
        contentText=" ";
    if (contentNum==6)
        contentText=" ";
    if (contentNum==7)
        contentText=" .";
    if (contentNum==8)
        contentText="";

    document.forms[0].elements[2].value=contentText
    if (contentNum==8)
    {
        // Causes list to 'recycle'.
        contentNum=0;
        goContent();
    }
    else
        goContent();
}

// Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR><TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I>-----</I></FONT></TD></TR>
</table></I>
<BR>
<CENTER>
<FORM NAME="content">
<TABLE BORDER=5 WIDTH=300>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start "   onClick="goContent()">   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "       onClick="fasterContent()"></TD>

```

```

<TD ALIGN="center"><I><INPUT TYPE="text" VALUE="SPEED UP YOUR READING" SIZE=21> </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - " onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop " onClick="stopContent()"> </TD>
</TABLE>

<TABLE BORDER=0 WIDTH=200>
<TD ALIGN="center"><I><INPUT TYPE="reset" VALUE=" Reset " onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" About " onClick="about()"> </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Close " onclick="Close()"> </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>

```

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<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Animation for Palatal Articulation
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=1 WIDTH=100%>
<TR>
<TD><IMG SRC="../../../Icons/Palatal.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Palatal.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Palatal.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>

<TABLE BORDER=0 width=100%>
<TR><TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

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<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Movie for Palatal Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
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    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/pal.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/Palatal.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Face)<
/td>
</TR>
<TR><TD COLSPAN=3 ALIGN="center"><FONT SIZE=+3><I>-----</I></FONT></TD></TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../Movie/pal.mov"      WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../Movie/Palatal.mov"  WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE="  Close  "  OnClick="Close()">
</FORM>
</TD></I>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//              Practice for Palatal Articulation
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;         // Used for timing
var contentNum=0;                 // Used to keep track of which message to display
var contentSpeed=1500;            // Adjustable variable to control length of timeou
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
peed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;

```

```

    }

    // Called by Reset button; resets variables.
    function resetContent()
    {
        if(timerRunning)
            clearTimeout(timerID);
        timerRunning = false;
        contentNum=0;
        contentSpeed=1800;
    }

    // Called by About button; displays Alert Box message.
    function about()
    {
        alert("\n Simply click on Start and away you go.\n\n   ____ speed control ____ \n\n By +
        Speed up & By - Speed down.");
    }

    // Displays different message depending on the value of contentNum.
    function updateContent()
    {
        var contentText="";
        contentNum++;
        if (contentNum==1)
            contentText=" ";
        if (contentNum==2)
            contentText=" ";
        if (contentNum==3)
            contentText=" ";
        if (contentNum==4)
            contentText=" ";
        if (contentNum==5)
            contentText=" ";
        if (contentNum==6)
            contentText=" ";
        if (contentNum==7)
            contentText=" .";
        if (contentNum==8)
            contentText="";

        document.forms[0].elements[2].value=contentText
        if (contentNum==8)
        {
            // Causes list to 'recycle'.
            contentNum=0;
            goContent();
        }
        else
            goContent();
    }

    // Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR><TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I>-----</I></FONT></TD></TR>
</TABLE></I>
<BR>
<CENTER>
<FORM NAME="content">

<TABLE BORDER=5 WIDTH=300>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start " onClick="goContent()"> </TD>

```

```
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "      onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"  VALUE="SPEED UP YOUR READING" SIZE=21>      </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "      onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "   onClick="stopContent()"> </TD>
</TABLE>
```

```
<TABLE BORDER=0 WIDTH=200>
<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "   onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" About "   onClick="about()">      </TD>
<TD ALIGN="center"><I><input TYPE="button" VALUE=" Close "   onclick="Close()">      </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Palatal_Alveolar Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('PlvMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('PlvAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('PlvPract.htm','Practice','width=550,height=200')
}

//-->
</script>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE>
<FONT SIZE=+7><P><FONT><B>alato-alveolar</B> refers to the area between the alveolar ridge and
palate. The tongue is arched with the blade near the palato-alveolar area. English has fo
ur sounds in this area; <B>/sh g ch j</B>. </BLOCKQUOTE>

<BR>
<CENTER>
<TABLE BORDER=3 CELLSPACING=2 WIDTH=100>
<TR>
<TH COLSPAN=3 BGCOLOR="#CCCCAA"> SH Sound </TH>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=midd
le>
        <param name=lbl value="  &#164; ">
        <param name=snd value="../../../Audio/shelf.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><B>sh</B>elf</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3"> sh-el-f </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Palveo.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=midd
le>
        <param name=lbl value="  &#164; ">
        <param name=snd value="../../../Audio/tissue.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">tissue</TD>
<TD ALIGN=CENTER ColStart="3"> ti-ss-ue </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=midd
le>
        <param name=lbl value="  &#164; ">
        <param name=snd value="../../../Audio/mesh.au">
    </APPLET>
</TD>

```

```

<TD ALIGN=CENTER ColStart="2">me<B>sh</B></TD>
<TD ALIGN=CENTER ColStart="3"> me-sh </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> G Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/treasure.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">treasure</TD>
<TD ALIGN=CENTER ColStart="3"> t-rea-sh-re </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/garage.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">gara<B>g</B>e</TD>
<TD ALIGN=CENTER ColStart="3">ga-ra-ge </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/rouge.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">rou<B>g</B>e</TD>
<TD ALIGN=CENTER ColStart="3"> ro-ge </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> CH Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/chin.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>ch</B>in</TD>
<TD ALIGN=CENTER ColStart="3"> ch-in </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/etching.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">e<B>tch</B>ing</TD>
<TD ALIGN=CENTER ColStart="3"> e-t-ch-ing </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164;">
  <param name=snd value="../../../Audio/roach.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">roa<B>ch</B></TD>
<TD ALIGN=CENTER ColStart="3"> ro-a-ch </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> J Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">

```

```

Jan 11 1997 7:41:11 PM Page 3

le> <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=mid
le> <param name=lbl value=" &#164;">
    <param name=snd value="../../Audio/jam.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>j</B>am</TD>
<TD ALIGN=CENTER ColStart="3"> j-a-m </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=mid
le> <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/edgy.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">e<B>dg</B>y</TD>
<TD ALIGN=CENTER ColStart="3"> ee-j-e </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HIEIGHT=20 ALIGN=mid
le> <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/ridge.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">ri<B>dg</B>e</TD>
<TD ALIGN=CENTER ColStart="3"> ri-j-e </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " OnClick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" OnClick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " OnClick="PracticeSite()">
</FROM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Animation for Labiodental Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="../../../Icons/Labiodental.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="LabAnim.gif" WIDTH=160 HEIGHT=160 ALIGN=middle> </TD>
<TD><IMG SRC="../../../Icons/Labiodental.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>
<TABLE BORDER=0 WIDTH=100%>
<TR>
<TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                Movie for Labiodental Articulation
//                Developed by
//                Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR><TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/lab.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/Labiodental.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm"></A>(Fa
ce)</TD></TR>
<TR>
<TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> Verna found five very fine vines. </I></FONT></TD></TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../Movie/lab.mov"          WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../Movie/Labiodental.mov"  WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE=" Close "  OnClick="Close()">
</FORM>
</TD></I>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

JAN 1 1997 10:00 AM
Page 1

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                Practice for Labiodental Articulation
//                Developed by
//                Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;         // Used for timing
var contentNum=0;                 // Used to keep track of which message to display
var contentSpeed=1500;            // Adjustable variable to control length of timeout
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
// speed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```
// Called by Reset button; resets variables.
```

```
function resetContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    contentNum=0;
    contentSpeed=1800;
}
```

```
// Called by About button; displays Alert Box message.
```

```
function about()
{
    alert("\n Simply click on Start and away you go.\n\n ____ speed control ____ \n\n By +
Speed up & By - Speed down.");
}
```

```
// Displays different message depending on the value of contentNum.
```

```
function updateContent()
{
    var contentText="";
    contentNum++;
    if (contentNum==1)
        contentText=" Verna";
    if (contentNum==2)
        contentText=" found";
    if (contentNum==3)
        contentText=" five";
    if (contentNum==4)
        contentText=" very";
    if (contentNum==5)
        contentText=" of";
    if (contentNum==6)
        contentText=" fine";
    if (contentNum==7)
        contentText=" vines.";
    if (contentNum==8)
        contentText="";
}
```

```
document.forms[0].elements[2].value=contentText
if (contentNum==8)
{
```

```
// Causes list to 'recycle'.
```

```
    contentNum=0;
    goContent();
}
else
    goContent();
}
```

```
// Deactivate Cloaking -->
</SCRIPT>
```

```
</HEAD>
```

```
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">
```

```
<TABLE BORDER=0 WIDTH=100%>
```

```
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
```

```
<TR><TD COLSPAN=3 ALIGN="center">
```

```
<FONT SIZE=+3><I>Verna found five very fine vines.</I></FONT></TD>
```

```
</TR>
```

```
</TABLE></I>
```

```
<BR>
```

```
<CENTER>
```

```
<FORM NAME="content">
```

```
<TABLE BORDER=5 WIDTH=300>
```

```
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start " onClick="goContent()"> </TD>
```

```
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "      onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"    VALUE="SPEED UP YOUR READING" SIZE=21>      </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "      onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "   onClick="stopContent()"> </TD>
</TABLE>

<TABLE BORDER=0 WIDTH=200>
<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "  onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" About "  onClick="about()">      </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Close "  onclick="Close()">      </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
// Palatal Articulation
// Developed by
// Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('PalMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('PalAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('PalPract.htm','Practice','width=550,height=200')
}

//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE>
<FONT SIZE=+7>P</FONT><B>alatal</B> sounds are made with the front of the tongue articulating
against the palata. In practising palatal sounds, you will find it helpful to anchor the tip
of your tongue against the lower teeth.<BR>
The only palatal in English is the sound<B> /y/</B>.
</BLOCKQUOTE>
<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> Y Sound </TH>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/yell.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 colstart="2"><B>y</B>ell</TD>
<TD ALIGN=CENTER WIDTH=100 colstart="3">y-a-ll </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Palatal.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/onion.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER colstart="2">on<B>i</B>on</TD>
<TD ALIGN=CENTER colstart="3"> on-e-y-on </TD>
</TR>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/fuse.au">

```

```

        </APPLET>
</TD>
<TD ALIGN=CENTER colstart="2">f<B>u</B>se</TD>
<TD ALIGN=CENTER colstart="3">fe-u-z </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/use.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER colstart="2"><B>u</B>se</TD>
<TD ALIGN=CENTER colstart="3">u-z </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/few.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER colstart="2">fe<B>w</B></TD>
<TD ALIGN=CENTER colstart="3"> fe-u </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/ewe.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER colstart="2">e<B>w</B>e</TD>
<TD ALIGN=CENTER colstart="3"> **** </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " OnClick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" OnClick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " OnClick="PracticeSite()">
</FORM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//              Practice for Dental Articulation
//              Developed by
//              Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;         // Used for timing
var contentNum=0;                 // Used to keep track of which message to display
var contentSpeed=1500;            // Adjustable variable to control length of timeout
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
peed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```

    }

// Called by Reset button; resets variables.
function resetContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    contentNum=0;
    contentSpeed=1800;
}

// Called by About button; displays Alert Box message.
function about()
{
    alert("\n Simply click on Start and away you go.\n\n   ___ speed control ___ \n\n By +
Speed up & By - Speed down.");
}

// Displays different message depending on the value of contentNum.
function updateContent()
{
    var contentText="";
    contentNum++;
    if (contentNum==1)
        contentText=" Ethel";
    if (contentNum==2)
        contentText=" thinks";
    if (contentNum==3)
        contentText=" that";
    if (contentNum==4)
        contentText=" this";
    if (contentNum==5)
        contentText=" other";
    if (contentNum==6)
        contentText=" thin";
    if (contentNum==7)
        contentText=" thing";
    if (contentNum==8)
        contentText=" is";
    if (contentNum==9)
        contentText=" their";
    if (contentNum==10)
        contentText=" thread.";
    if (contentNum==11)
        contentText="";

    document.forms[0].elements[2].value=contentText
    if (contentNum==11)
    {
        // Causes list to 'recycle'.
        contentNum=0;
        goContent();
    }
    else
        goContent();
}

// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR>
<TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> Ethel thinks that this other thin thing is their thread.</I></FONT></TD>
</TR>
</TABLE></I>

```

```
<BR>
<CENTER>
<FORM NAME="content">

<TABLE BORDER=5 WIDTH=300>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start "   onClick="goContent()">   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "       onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"   VALUE="SPEED UP YOUR READING" SIZE=21>   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "       onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "    onClick="stopContent()">   </TD>
</TABLE>

<TABLE BORDER=0 WIDTH=200>
<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "   onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" About "   onClick="about()">       </TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" Close "   onClick="Close()">      </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Labiodental Articulation
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('LabMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('LabAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('LabPract.htm','Practice','width=550,height=200')
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE><FONT SIZE=+7>T</FONT>wo<B> labiodental</B> sounds in English are:<B> /f v/</B>
When you make these sound you will notice that your lower lip articulates against your upper
front teeth;<B> /f/</B> is <FONT COLOR="#FFAA00" SIZE=+1><I>Voiceless</I></FONT>, and<B> /v/</B>
/B> is <FONT COLOR="#FFAA00" SIZE=+1><I>Voiced.</I></FONT>
</BLOCKQUOTE>
<BR>
<CENTER>
<TABLE BORDER=3 CELLSPACING=2 WIDTH=100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> V Sound </TH>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value="#164; ">
    <param name=snd value="../../Audio/veal.au">
    </APPLet>
</TD>
<TD ALIGN=CENTER WIDTH=100 colstart="2"> <B>v</B>eal </TD>
<TD ALIGN=CENTER WIDTH=100 colstart="3"> w-ee-l </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../Icons/Labiodental.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value="#164; ">
    <param name=snd value="../../Audio/movie.au">
    </APPLet>
</TD>
<TD ALIGN=CENTER colstart="2"> mo<B>v</B>ie </TD>
<TD ALIGN=CENTER colstart="3"> mo-v-ee </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
    <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value="#164; ">
    <param name=snd value="../../Audio/glove.au">
    </APPLet>
</TD>
<TD ALIGN=CENTER colstart="2"> glo<B>v</B>e </TD>

```

```

<TD ALIGN=CENTER colstart="3"> g-lo-v-e </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccc" F Sound </TH>
<TR>
<TD ALIGN=CENTER colstart="1">
  <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value="#164;">
    <param name=snd value="../../Audio/fun.au">
  </APPLet>
</TD>
<TD ALIGN=CENTER colstart="2"> <B>f</B>un </TD>
<TD ALIGN=CENTER colstart="3"> fa-an </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
  <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value="#164;">
    <param name=snd value="../../Audio/daffy.au">
  </APPLet>
</TD>
<TD ALIGN=CENTER colstart="2"> da<B>ff</B>y </TD>
<TD ALIGN=CENTER colstart="3"> da-ff-y </TD>
<TR>
<TD ALIGN=CENTER colstart="1">
  <APPLet CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value="#164;">
    <param name=snd value="../../Audio/laugh.au">
  </APPLet>
</TD>
<TD ALIGN=CENTER colstart="2"> lau<B>gh</B> </TD>
<TD ALIGN=CENTER colstart="3"> l-a-ff </TD>
</table>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " OnClick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" OnClick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " OnClick="PracticeSite()">
</FROM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//          Practice for Bilabial Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;                // Used for timing
var timerRunning = false;          // Used for timing
var contentNum=0;                  // Used to keep track of which message to display
var contentSpeed=1500;             // Adjustable variable to control length of timeou
ts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contents
peed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;

```



```

    }

    // Called by Reset button; resets variables.
    function resetContent()
    {
        if(timerRunning)
            clearTimeout(timerID);
        timerRunning = false;
        contentNum=0;
        contentSpeed=1800;
    }

    // Called by About button; displays Alert Box message.
    function about()
    {
        alert("\n Simply click on Start and away you go.\n\n ____ speed control ____ \n\n By +
Speed up & By - Speed down.");
    }

    // Displays different message depending on the value of contentNum.
    function updateContent()
    {
        var contentText="";
        contentNum++;
        if (contentNum==1)
            contentText=" Peter";
        if (contentNum==2)
            contentText=" Brown";
        if (contentNum==3)
            contentText=" Picked";
        if (contentNum==4)
            contentText=" a";
        if (contentNum==5)
            contentText=" Bushel";
        if (contentNum==6)
            contentText=" of";
        if (contentNum==7)
            contentText=" Burpee's";
        if (contentNum==8)
            contentText=" Peppers.";
        if (contentNum==9)
            contentText="";

        document.forms[0].elements[2].value=contentText
        if (contentNum==9)
        {
            // Causes list to 'recycle'.
            contentNum=0;
            goContent();
        }
        else
            goContent();
    }

    // Deactivate Cloaking -->
    </SCRIPT>

    </HEAD>
    <BODY BGCOLOR="#FFFFFF" TEXT="#000000">

    <TABLE BORDER=0 WIDTH=100%>
    <TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
    <TR><TD COLSPAN=3 ALIGN="center">
    <FONT SIZE=+3><I>Peter Brown Picked a Bushel of Burpee's Peppers.</I></FONT></TD></TR>
    </TABLE></I>
    <BR>
    <CENTER>
    <FORM NAME="content">

    <TABLE BORDER=5 WIDTH=300>

```

```
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start "   onClick="goContent()">   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "       onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"   VALUE="SPEED UP YOUR READING" SIZE=21>   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "       onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "    onClick="stopContent()">   </TD>
</TABLE>
```

```
<TABLE BORDER=0 WIDTH=200>
```

```
<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "   onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" About "   onClick="about()">      </TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" Close "   onclick="Close()">     </TD>
```

```
</TR>
```

```
</TABLE>
```

```
</FORM>
```

```
</CENTER>
```

```
</BODY>
```

```
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//          Dental Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('DenMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('DenAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('DenPract.htm','Practice','width=550,height=200')
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<BLOCKQUOTE>
<FONT SIZE=+7>T</FONT>wo<B> dental </B>sound occur in English; both are normally written wi
th the letters <B>th</B>. The tip of the tongue is usually near or just barely touching the r
ear surface of the upper teeth. Air passes out with a soft hissing noise. Some people use th
e blade instead of the tip of the tongue, and some people put their tongue between the upper
and lower teeth.
</BLOCKQUOTE>
<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=%100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> TH Sound </TH>
<TR>
<TD ALIGN=Center ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=midl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/thin.au">
    </APPLET>
</TD>
<TD ALIGN=Center WIDTH=100 ColStart="2"> <B>th</B>in </TD>
<TD ALIGN=Center WIDTH=100 ColStart="3"> tz-ee-n </TD>

<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Dental.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=Center ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=midl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/ether.au">
    </APPLET>
</TD>
<TD ALIGN=Center ColStart="2"> e<B>th</B>er </TD>
<TD ALIGN=Center ColStart="3"> a-tz-er </TD>
</TR>
<TR>
<TD ALIGN=Center ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=midl
e>
        <param name=lbl value=" &#164; ">

```

```

        <param name=snd value="../../Audio/health.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> heal<B>th</B> </TD>
<TD ALIGN=CENTER ColStart="3"> h-e-a-e-l-t </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../Audio/then.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> <B>th</B>en </TD>
<TD ALIGN=CENTER ColStart="3"> tz-e-n </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../Audio/either.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> ei<B>th</B>er </TD>
<TD ALIGN=CENTER ColStart="3"> ee-tz-er </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../Audio/loathe.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> loa<B>th</B>e </TD>
<TD ALIGN=CENTER ColStart="3"> l-u-t-e </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" OnClick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " OnClick="PracticeSite()">
</FROM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Animation for dental Articulation
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="Dental.gif"   WIDTH=160 HEIGHT=160 ALIGN=middle>
<TD><IMG SRC="DenAnim2.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
<TD><IMG SRC="DenAnim3.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
</TABLE>

<TABLE BORDER=0 width=100%>
<TR><TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" value="  Close  " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//          Movie for Dental Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function close(){
    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/den.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm></A> (Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/Dental.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm></A> (Face)</
TD>
</TR>
<TR>
<TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> Ethel thinks that this other thin thing is their thread.</I></FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../Movie/den.mov"    WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../Movie/Dental.mov" WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE="  Close  "  OnClick="Close()">
</FORM>
</TD></I>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> loo<B>p</B> </TD>
<TD ALIGN=CENTER ColStart="3">l-oo-p </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> B Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/bee.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>b</B>ee </TD>
<TD ALIGN=CENTER ColStart="3">b-ee</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/lobby.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">lo<B>bb</B>y </TD>
<TD ALIGN=CENTER ColStart="3">la-be</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/rub.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">ru<B>b</B> </TD>
<TD ALIGN=CENTER ColStart="3">r-o-b </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> M Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/moo.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>m</B>oo </TD>
<TD ALIGN=CENTER ColStart="3">m-oo </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/summer.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">su<B>mm</B>er </TD>
<TD ALIGN=CENTER ColStart="3">sa-mm-er </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
e>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../Audio/loam.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> loa<B>m</B> </TD>
<TD ALIGN=CENTER ColStart="3"> l-o-e-m </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>

```

Jan 1 1997 15:00:00 1997 15:00:00 1997 15:00:00 1997 15:00:00 1997 15:00:00

```
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE=" Movie " onclick="MovieSite()">
<INPUT TYPE="button" NAME="Button2" VALUE=" Animation" onclick="AnimationSite()">
<INPUT TYPE="button" NAME="Button3" VALUE=" Practice " onclick="PracticeSite()">
</FORM></I></FONT>
</CENTER>
</BODY>
</HTML>
```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//           Animation for Bilabial Articulation
//           Developed by
//           Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>

</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="../../../Icons/Bilabial.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Bilabial.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
<TD><IMG SRC="../../../Icons/Bilabial.gif" WIDTH=160 HEIGHT=160 ALIGN=middle></TD>
</TR>
</TABLE>

<TABLE BORDER=0 width=100%>
<TR>
<TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head><TITLE> </TITLE>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Movie for Bilabial Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/bil.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm></A> (Mouth)
<TD ALIGN="left" VALIGN="center">
<A HREF="../../Movie/Bilabial.mov"><IMG ALIGN=ABSMIDDLE SRC="../../Icons/movie.xbm></A> (Face)
</TD>
</TR>
<TR>
<TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> Peter Brown Picked a Bushel of Burpee's Peppers.</I></FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="center">
<EMBED SRC="../../Movie/bil.mov"          WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../Movie/Bilabial.mov"      WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom"><I>
<FORM>
<INPUT TYPE="button" VALUE=" Close "  OnClick="Close()">
</FORM>
</TD></I>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> </TITLE>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Movie for Alveolar Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}
//-->
</script>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=80%>
<TR>
<TD ALIGN="left"><I> Click here to see a native speaker saying the sentence.</I>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/alv.mov"><IMG ALIGN=ABSMIDDLE SRC=../../../Icons/movie.xbm></A>(Mouth)</TD>
>
<TD ALIGN="left" VALIGN="center">
<A HREF="../../../Movie/Alveolar.mov"><IMG ALIGN=ABSMIDDLE SRC=../../../Icons/movie.xbm></A>(Face)
</TD>
</TR>
<TR>
<TD COLSPAN=3 ALIGN="CENTER"><FONT SIZE=+3><I>Ed edited it, didn't he -- or did Ted do it?</I>
</FONT></TD>
</TR>
<TR>
<TD COLSPAN=2 ALIGN="right">
<EMBED SRC="../../../Movie/alv.mov"          WIDTH=160 HEIGHT=136 Controller=true>
<EMBED SRC="../../../Movie/Alveolar.mov" WIDTH=160 HEIGHT=136 Controller=true>
</TD>
<TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" VALUE=" Close " OnClick="Close()">
</FORM>
</I>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<Head>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                Practice for Alveolar Articulation
//                Developed by
//                Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>

<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
<SCRIPT>
<!-- Activate Cloaking Device

// Global variables used through-out
var timerID = null;           // Used for timing
var timerRunning = false;    // Used for timing
var contentNum=0;            // Used to keep track of which message to display
var contentSpeed=1500;       // Adjustable variable to control length of timeouts (speed of display)

// Called by clicking Start button; in turn calls updateContent() after time set by contentSpeed variable.
function goContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    timerID = setTimeout("updateContent()",contentSpeed);
    timerRunning = true;
}

// Called by '+' button; decreases timeout by 150 (if possible), thus increasing speed.
function fasterContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed>=600)
        contentSpeed-=150;
    else
        alert("\nYou're already maxed-out!");
    goContent();
}

// Called by '-' button; increases timeout by 150 (if possible), thus decreasing speed.
function slowerContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    if (contentSpeed<=5000)
        contentSpeed+=150;
    else
        alert("\nThis is as slow as we go!");
    goContent();
}

// Called by Stop button; clears timerID.
function stopContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
}

```

```

}

// Called by Reset button; resets variables.
function resetContent()
{
    if(timerRunning)
        clearTimeout(timerID);
    timerRunning = false;
    contentNum=0;
    contentSpeed=1800;
}

// Called by About button; displays Alert Box message.
function about()
{
    alert("\n Simply click on Start and away you go.\n\n ____ speed control ____ \n\n By +
Speed up & By - Speed down.");
}

// Displays different message depending on the value of contentNum.
function updateContent()
{
    var contentText="";
    contentNum++;
    if (contentNum==1)
        contentText=" Ed";
    if (contentNum==2)
        contentText=" edited";
    if (contentNum==3)
        contentText=" it,";
    if (contentNum==4)
        contentText=" didn't";
    if (contentNum==5)
        contentText=" he";
    if (contentNum==6)
        contentText=" or";
    if (contentNum==7)
        contentText=" did";
    if (contentNum==8)
        contentText=" Ted";
    if (contentNum==9)
        contentText=" do";
    if (contentNum==10)
        contentText=" it?";
    if (contentNum==11)
        contentText="";

    document.forms[0].elements[2].value=contentText
    if (contentNum==11)
    {
        // Causes list to 'recycle'.
        contentNum=0;
        goContent();
    }
    else
        goContent();
}

// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=0 WIDTH=100%>
<TR><TD COLSPAN=3 ALIGN="left">Please try to say;</TD></TR>
<TR><TD COLSPAN=3 ALIGN="center">
<FONT SIZE=+3><I> Ed edited it, didn't he -- or did Ted do it?</I></FONT></TD></TR>
</table></I>
<BR>
<CENTER>

```

Jan 1 1997 15:18

```
<FORM NAME="content">
<TABLE BORDER=5 WIDTH=300>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Start "   onClick="goContent()">   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" + "       onClick="fasterContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="text"   VALUE=" SPEED UP YOUR READING " SIZE=21>   </TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" - "       onClick="slowerContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Stop "    onClick="stopContent()">   </TD>
</TABLE>
<TABLE BORDER=0 WIDTH=200>

<TD ALIGN="center"><I><INPUT TYPE="reset"  VALUE=" Reset "   onClick="resetContent()"></TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" About "   onClick="about()">       </TD>
<TD ALIGN="center"><I><INPUT TYPE="button"  VALUE=" Close "  onclick="Close()">      </TD>
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Bilabial Articulation
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('BilMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes')
}
function AnimationSite(){
    window.open('BilAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('BilPract.htm','Practice','width=550,height=200')
}

//-->
</script>
</HEAD>

<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE><FONT SIZE=+7>T</FONT>he <B>bilabial</B> sounds of English include <B>/p b m/</B>
>, When you make these, you will notice that the lower lip articulates against the upper lip,
and made by completely closing the lips.<BR>
The sound<B> /p/ </B>is <FONT COLOR="#FFAA00" SIZE=+1><I>Voiceless</I></FONT> and<B> /b m/<
/B> are <FONT COLOR="#FFAA00" SIZE=+1><I>Voiced</I></FONT>.
</BLOCKQUOTE>
<CENTER>
<BR>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=%100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> P Sound </TH>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/pea.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><B>p</B>ea </TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3">p-ee </TD>
<TD ROWSPAN=6 ALIGN=middle>
    <IMG SRC="../../../Icons/Bilabial.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/creepy.au">
    </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">cree<B>p</B>y </TD>
<TD ALIGN=CENTER ColStart="3">k-r-ee-p </TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/loop.au">

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Articulation menu (title1)
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#FF00AA" ALINK="#0000AA">
<CENTER>
<FONT SIZE=+3><I><STRONG><U> Articulations</U> </STRONG></I></FONT>

<TABLE BORDER=1 CELLSPACING=8 WIDTH=100% BGCOLOR="#CCCCAA">
<TD ALIGN=CENTER WIDTH=100 ColStart="1"><A HREF="Bilabial/bila.htm"           TARGET="articu
"><B><I>Bilabial           </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><A HREF="Dental/dental.htm"           TARGET="articu
"><B><I>Dental           </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3"><A HREF="Labiodental/labiodental.htm" TARGET="articu
"><B><I>Labiodental       </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="4"><A HREF="Alveolar/alveolar.htm"       TARGET="articu
"><B><I>Alveolar           </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="5"><A HREF="Velar/velar.htm"             TARGET="articu
"><B><I>Velar             </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="6"><A HREF="Palatal/palat.htm"           TARGET="articu
"><B><I>Palatal           </B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="7"><A HREF="Palveo/palveo.htm"           TARGET="articu
"><B><I>Palato-alveolar</B></A></TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="8"><A HREF="Retroflex/retro.htm"         TARGET="articu
"><B><I>Retroflex         </B></A></TD>
</TABLE>
</CENTER>
<HR NOSHADE>
</BODY>
</HTML>

```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Alveolar Articulation
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide

function MovieSite(){
    window.open('AlvMovie.htm','Movie','width=600,height=300,status=yes,resizable=yes' )
}
function AnimationSite(){
    window.open('AlvAnim.htm','Animation','width=550,height=280')
}
function PracticeSite(){
    window.open('AlvPract.htm','Practice','width=550,height=200')
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF0000" VLINK="#003399" ALINK="#000099">

<BLOCKQUOTE>
<FONT SIZE=+7>A</FONT><B> alveolars </B> include more consonance in English than any other p
lace of articulation:<B> /t d s z n l/</B>. When you make these sounds, you will notice that
the tip of your tongue repeatedly hitting the alveolar ridge.
</BLOCKQUOTE>

<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=2 WIDTH=%100>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> T Sound </TH>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/top.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="2"><B>t</B>op </TD>
<TD ALIGN=CENTER WIDTH=100 ColStart="3">t-o-p </TD>
<TD ROWSPAN=6 ALIGN=TOP>
    <IMG SRC="../../../Icons/Alveolar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle>
</TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/return.au">
        </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> re<B>t</B>urn </TD>
<TD ALIGN=CENTER ColStart="3">re-tu-rn </TD>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
    <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middl
e>
        <param name=lbl value=" &#164; ">
        <param name=snd value="../../../Audio/missed.au">
        </APPLET>

```

```

</TD>
<TD ALIGN=CENTER ColStart="2"> misse<B>d</B> </TD>
<TD ALIGN=CENTER ColStart="3">me-ss-te </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> D Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/done.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>d</B>one </TD>
<TD ALIGN=CENTER ColStart="3">d-on-e </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/sudden.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"> su<B>dd</B>en </TD>
<TD ALIGN=CENTER ColStart="3">sa-dd-en</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/mad.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">ma<B>d</B> </TD>
<TD ALIGN=CENTER ColStart="3">m-a-d </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> S Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/see.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>s</B>ee </TD>
<TD ALIGN=CENTER ColStart="3"> s-ee </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/messy.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">me<B>ss</B>y </TD>
<TD ALIGN=CENTER ColStart="3">ma-ss-y </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
    <param name=lbl value=" &#164; ">
    <param name=snd value="../../../Audio/police.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">poli<B>c</B>e </TD>
<TD ALIGN=CENTER ColStart="3">po-li-ce</TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> Z Sound </TH>
</TR>

```

```

<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/zap.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2"><B>z</B>ap</TD>
<TD ALIGN=CENTER ColStart="3">z-a-p </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/lousy.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">lou<B>s</B>y </TD>
<TD ALIGN=CENTER ColStart="3">lo-z-ee</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/please.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">plea<B>s</B>e</TD>
<TD ALIGN=CENTER ColStart="3">p-le-z-e </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> N Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/gnaw.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">g<B>n</B>aw</TD>
<TD ALIGN=CENTER ColStart="3">n-a-w </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/any.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">a<B>n</B>y</TD>
<TD ALIGN=CENTER ColStart="3">a-n-e</TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/gone.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">go<B>n</B>e </TD>
<TD ALIGN=CENTER ColStart="3">go-n-e </TD>
<TR>
<TH COLSPAN=3 bgcolor="#ccccaa"> L Sound </TH>
</TR>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../../Audio/loaf.au">
  </APPLET>

```

```

</TD>
<TD ALIGN=CENTER ColStart="2"><B>l</B>oaf</TD>
<TD ALIGN=CENTER ColStart="3"> lo-a-f </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/relief.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">re<B>l</B>ief</TD>
<TD ALIGN=CENTER ColStart="3">re-lee-f </TD>
<TR>
<TD ALIGN=CENTER ColStart="1">
  <APPLET CodeBase="../../Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="../../Audio/dull.au">
  </APPLET>
</TD>
<TD ALIGN=CENTER ColStart="2">du<B>ll</B></TD>
<TD ALIGN=CENTER ColStart="3">d-o-ll </TD>
</TR>
</TABLE>
<FONT SIZE=+1><I>
<FORM>
<input type="button" name="Button1" value=" Movie " onclick="MovieSite()">
<input type="button" name="Button2" value=" Animation" onclick="AnimationSite()">
<input type="button" name="Button3" value=" Practice " onclick="PracticeSite()">
</FORM></I></FONT>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//          Animation for Alveolar Articulation
//          Developed by
//          Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<script language="LiveScript">
<!-- Hide
function Close(){
    top.close()
}

//-->
</script>
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">

<TABLE BORDER=1 width=100%>
<TR>
<TD><IMG SRC="../../../Icons/Alveolar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle MARGINHEIGHT=0 MARG
GINWIDTH=0></TD>
<TD><IMG SRC="../../../Icons/Alveolar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle MARGINHEIGHT=0 MARG
GINWIDTH=0></TD>
<TD><IMG SRC="../../../Icons/Alveolar.gif" WIDTH=160 HEIGHT=160 ALIGN=middle MARGINHEIGHT=0 MARG
GINWIDTH=0></TD>
</TR>
</TABLE>
<TABLE BORDER=0 WIDTH=100%>
<TR>
<TD ALIGN="right" VALIGN="bottom">
<I>
<FORM>
<INPUT TYPE="button" NAME="Button1" VALUE="  Close  "  OnClick="Close()">
</FORM>
</I>
</TD>
</TR>
</TABLE>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      GuestBook
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE">
<FORM ACTION="http://www.ee.umanitoba.ca/cgi-bin/GuestBook.cgi" METHOD="POST">
<CENTER>
<BR>
<BR>
<BR>
<BR>
<FONT SIZE=+3 COLOR="#0000FF"><I><B><U> Welcome to Fonetix GuestBook </U></B></I></FONT>
<BR>
<BR>
<BR>
<BR>
<TABLE BORDER=1>
<TR>
<TH>FULL NAME:      <TD><INPUT TYPE="TEXT" NAME="name" SIZE=40></TR><TR>
<TH>Email Address:<TD><INPUT TYPE="TEXT" NAME="from" SIZE=40></TR><TR>
<TH>WWW Server:    <TD><INPUT TYPE="TEXT" NAME="www" VALUE="http://" SIZE=40></TR>
</TABLE>
<BR>
<FONT SIZE=+1> Please enter the information that you'd like to add:</B></FONT>
<TEXTAREA ROWS=4 COLS=50 NAME="comment"></TEXTAREA>
<BR>
<I>
<INPUT TYPE="submit" VALUE="Add to Guestbook">
<INPUT TYPE="reset" VALUE="Clear Infomation">
</I>
</CENTER>
</FORM>
</BODY>
</HTML>

```

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Comments
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY bgcolor="#EEEEEE" TEXT="#000000">
<CENTER>
<FONT SIZE=+3 COLOR="#0000FF"><I><U><B> Fonetix GuestBook Comments. </U></I></B></FONT>
</CENTER>
<BR>
<BR>
<!-- INSERT -->
<p>
<HR NOSHADE>
<HR NOSHADE>
</BODY>
</HTML>
```

```

#!/usr/local/bin/perl -- -*- C -*-

require "cgi-lib.pl";

MAIN:
{
    &ReadParse(*input);

    print &PrintHeader;

    print    <<output;
    <HTML>
    <BODY bdcOLOR="#EEEEEE" text="ff0000">
    <BR><BR><BR><center>
    <H1> Thanks for filling out Fonetix GuestBook.</H1>
    </center>
    </BODY>
    </HTML>

    output

    ($text = $input{'text'}) =~ s/\n/\n<BR>/g;

    open (COMMENTS, "/home/ee/u34/morawej/public_html/Speech/comments.html");
    @old_comments=<COMMENTS>;
    close(COMMENTS);

    open (COMMENTS, ">/home/ee/u34/morawej/public_html/Speech/comments.html");
    for ($i=0;$i<=@old_comments;$i++)
    {
        if ($old_comments[$i] eq "<!--INSERT-->\n")
        {
            print COMMENTS "<!--INSERT-->\n";
            print COMMENTS "<H2><I>Name:</I> $input{'name'}</H2><p>
    <H4><I>Email:</I> $input{'from'}</H4><p>
    <H4><I> WWW :</I> $input{'www'} </H4><p>
    <BR>
    <h3> Says....\n</h3><p>";
            if ($input{'comment'})
            {
                print COMMENTS "<p> $input{'comment'}<p><hr noshade>";
            }
            else{
                print COMMENTS "ummmm.. no comment just want my name on here\n<p><hr
    noshade>";
            }
            }
            }
            }
            print COMMENTS $old_comments[$i];
        }
    }

    }

    close (COMMENTS);
}

```



```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//           Articulation menu
//           Developed by
//           Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<FRAMESET ROWS= "90," FRAMEBORDER="no" BORDER="0" >
    <FRAME NAME= "title1" SRC= "title1.htm" NORESIZE SCROLLING= "no">
    <FRAME NAME= "articu" SRC= "Articulation.htm" NORESIZE SCROLLING= "auto">
</FRAMESET>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//           Articulation menu (body)
//           Developed by
//           Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">

<BLOCKQUOTE>
<I><FONT SIZE=+6>A</FONT><B>rticulation</B> is the description of where the obstruction occurs in the vocal tract.<BR>
In order to form consonants, the airstream through the vocal tract must be obstructed in some way.<BR>
Consonants can therefore be classified according to the place and manner of this obstruction
.</I>
</BLOCKQUOTE>
<BR>
<CENTER>
<TABLE BORDER=5 CELLSPACING=3 WIDTH=%100>
<TR>
<TH COLSPAN=3 BGCOLOR="#CCCCAA"><I> ALL KIND OF ARTICULATIONS </I></TH>
<TR>
<TD ALIGN=CENTER COLSTART="1"><IMG ALIGN=MIDDLE SRC=../Icons/Bilabial.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="2"><IMG ALIGN=MIDDLE SRC=../Icons/Dental.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="3"><IMG ALIGN=MIDDLE SRC=../Icons/Labiodental.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
</TR>
<TR>
<TD ALIGN=CENTER COLSTART="1"><IMG ALIGN=MIDDLE SRC=../Icons/Alveolar.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="2"><IMG ALIGN=MIDDLE SRC=../Icons/Velar.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="3"><IMG ALIGN=MIDDLE SRC=../Icons/Uvular.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
</TR>
<TR>
<TD ALIGN=CENTER COLSTART="1"><IMG ALIGN=MIDDLE SRC=../Icons/Palveo.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="2"><IMG ALIGN=MIDDLE SRC=../Icons/Palatal.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
<TD ALIGN=CENTER COLSTART="3"><IMG ALIGN=MIDDLE SRC=../Icons/Retroflex.gif MARGINHEIGHT=0 MARGINWIDTH=0></TD>
</TR>
</TABLE>
<BR>
<FONT SIZE=+2><I>(Movie of most kind of Articulations)</I></FONT>
<A HREF= "../Movie/alpa.mov"><IMG ALIGN=ABSMIDDLE SRC=../Icons/movie.xbm></A>
</CENTER>
</BODY>
</HTML>

```

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                               Twisters
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****

// used to track position in message
var i = 0;
// used to cycle thru messages
var TextNumber = -1;
// array of messages
var TextInput = new Object();
// used to load manipulate message
var HelpText="";
// used to load message
var Text = "";
// length of timeout (smaller is faster)
var Speed=50;
// used to display message number
var message=0;
// used to position text in ver 2.0
var addPadding="\r\n";

// tracks if message was paused.
var wasPaused=false;

// Each element of TextInput represents a single message.
TextInput[0] = "She sells sea shells by the sea shore.";
TextInput[1] = "Miss Smith's fish-sauce shop seldom sells shellfish.";
TextInput[2] = "How much wood could a woodchuck chuck if a woodchuck could chuck wood? A wo
odchuck could chuck as much wood as a woodchuck would chuck if a woodchuck could chuck wood."
;
TextInput[3] = "Betty bought some butter, but the butter Betty bought was bitter, so Betty b
ought some better butter, and the better butter Betty bought was better than the bitter butte
r Betty bought before!";
TextInput[4] = "Can you imagine an imaginary menagerie manager imagining managing an imagina
ry menagerie?";
TextInput[5] = "One smart man, he felt smart. Two smart men, they both felt smart. Three sma
rt men, they all felt smart.";
TextInput[6] = "If you stick a stock of liquor in your locker it is slick to stick a lock up
on your stock or some joker who is slicker is going to trick you of your liquor if you fail t
o lock your liquor with a lock.";
TextInput[7] = "A box of biscuits, a box of mixed biscuits, and a biscuit mixer.";
TextInput[8] = "A Tudor who tooted the flute tried to tutor two tooters to toot. Said the tw
o to the tutor, Is it harder to toot or to tutor two tooters to toot?";
TextInput[9] = "A twister of twists once twisted a twist. And the twist that he twisted was
a three twisted twist. Now in twisting this twist, if a twist should untwist, would the twist
that untwisted untwist the twists.";
TextInput[10] = "Picky people pick Peter Pan Peanut Butter. Peter Pan Peanut is the peanut p
icky people pick.";
TextInput[11] = "A skunk sat on a stump and thunk the stump thunk, but the stump thunk the s
kunk stunk.";
TextInput[12] = "When a doctor doctors a doctor, does the doctor doing the doctoring doctor
as the doctor being doctored wants to be doctored or does the doctor doing the doctoring doct
or as he wants to doctor?";
```

```

TextInput[13] = "I am not the pheasant plucker, I'm the pheasant plucker's mate. I am only p
lucking pheasants cause the pheasant plucker's running late.";

TextInput[14] = "Mrs Puggy Wuggy has a square cut punt. Not a punt cut square, Just a square
cut punt. It's round in the stern and blunt in the front. Mrs Puggy Wuggy has a square cut p
unt.";

TextInput[15] = "Mrs Hunt had a country cut front in the front of her country cut pettycoat.
";

TextInput[16] = "Meter maid Mary married manly Matthew Marcus Mayo, a moody male mailman mov
ing mostly metered mail.";

TotalTextInput = 16; // (0, 1, 2, 3, 4, 5, 6, 7, 8, ...)

// Positioning and speed vary between versions.
var Version = navigator.appVersion;
if (Version.substring(0, 1)==3)
{
    Speed=200;
    addPadding="";
}

for (var addPause = 0; addPause <= TotalTextInput; addPause++)
    (TextInput[addPause]=addPadding+TextInput[addPause];)

var TimerId
var TimerSet=false;

// Called by Next button (display next message) .
function nextMessage()
{
    if (!TimerSet)
    {
        if (wasPaused==true)
        {
            wasPaused=false
            i=0;
        }

        TimerSet=true;
        clearTimeout (TimerId);
        if (TextNumber>=TotalTextInput)
        {
            alert("This is the end of the list!");
            TimerSet=false;
        }
        else
        {
            TextNumber+=1;
            message=TextNumber+1;
            document.forms[0].elements[2].value= message;
            Text = TextInput[TextNumber];
            HelpText = Text;
        }
        teletype();
    }
}

// Gets and displays character from rollMessage() .
// Variable Speed controls length of timeout and thus the speed of typing.
function teletype()
{
    if (TimerSet)
    {
        Text=rollMessage();
        TimerId = setTimeout("teletype()", Speed);
        document.forms[0].elements[0].value=Text;
    }
}

```

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```
// Pulls one character at a time from string and returns (as Text) to function teletype() for displaying.
function rollMessage ()
{
    i++;
    var CheckSpace = HelpText.substring(i-1, i);
    CheckSpace = "" + CheckSpace;
    if (CheckSpace == " ")
    {
        i++;
    }
    if (i >= HelpText.length+1)
    {
        TimerSet=false;
        Text = HelpText.substring(0, i);
        i=0;
        return (Text);
    }
    Text = HelpText.substring(0, i);
    return (Text);
}

// Initially called by onLoad in BODY tag to load title.
function initTeletype()
{
    Text="\r\n\n Practics on English tongue twisters";
    document.forms[0].elements[0].value=Text;
}

// Called by Back button (get previous message).
function lastMessage()
{
    if (!TimerSet && TextNumber!=-1)
    {
        if (wasPaused==true)
        {
            wasPaused=false;
            i=0;
        }
        TimerSet=true;
        clearTimeout (TimerId);
        if (TextNumber<=0)
        {
            alert("This is the beginning of the list!");
            TimerSet=false;
        }
        else
        {
            TextNumber-=1;
            message=TextNumber+1;
            document.forms[0].elements[2].value= message;
            Text = TextInput[TextNumber];
            HelpText = Text;
        }
        teletype();
    }
}

// Called by the Start button.
function startMessage()
{
    if (!TimerSet && message!=0 && i!=0)
    {
        TimerSet=true;
        teletype();
    }
}

// Called by Stop button.
function stopMessage()
{
    TimerSet=false;
    wasPaused=true;
    clearTimeout (TimerId);
}
```

// Called by Reset button.

```
function resetDisplay()
{
    TimerSet=false;
    clearTimeout (TimerId);
    TextNumber=-1;
    i=0;
    message=0;
    document.forms[0].elements[2].value="";
    initTeleType()
}
```

// Called by Help button; displays Alert Box message.

```
function help()
{
    alert("\n Click on Next button and away you go.\n\n Click on Back button you get last mas
sage \n\n Use other button to control  the text area.");
}
```

// Deactivate Cloaking -->

</SCRIPT>

</HEAD>

<BODY Bgcolor="#EEEEEE" TEXT="#000000" onLoad="initTeleType()">

<CENTER>

<U>

English

Tongue

Twisters

</U>

<FORM>

<TEXTAREA NAME="twisters" ROWS=5 COLS=42 Wrap=yes></TEXTAREA>

<TABLE BORDER=0 WIDTH=100>

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE="Back" onClick="lastMessage()">

<TD ALIGN="center"><I><INPUT TYPE="text" SIZE=3>

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE="Next" onClick="nextMessage()">

</TABLE>

<TABLE BORDER=0 WIDTH=300>

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Pause " onClick="stopMessage()">

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Reset " onClick="resetDisplay()">

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Continue " onClick="startMessage()">

<TD ALIGN="center"><I><INPUT TYPE="button" VALUE=" Help " onClick="help()">

</TABLE>

</FORM>

</CENTER>

</BODY>

</HTML>

<DT> O

<LI TYPE=CIRCLE>Oral Cavity

<LI TYPE=CIRCLE>

<DT> P

<LI TYPE=CIRCLE>Palatal sounds are made with the front of the tongue articulating against the palata. In practising palatal sounds, you will find it helpful to anchor the lip of your tongue against the lower teeth.

The only palatal in English is the sound /y/.

<LI TYPE=CIRCLE>Palato-alveolar refers to the area between the alveolar ridge and palate. The tongue is arched with the blade near the palato-alveolar area.

English has four sounds in this area; /sh g ch j/.

<DT> Q

<LI TYPE=CIRCLE>

<LI TYPE=CIRCLE>

<DT> R

<LI TYPE=CIRCLE>Retoflex sounds are made by curling the tip of the tongue up and back towards the rear edge of the alveolar ridge. The only retroflex sound in English is /r/.

<LI TYPE=CIRCLE>

<DT> S

<LI TYPE=CIRCLE>

<LI TYPE=CIRCLE>

<DT> T

<LI TYPE=CIRCLE>

<LI TYPE=CIRCLE>

<DT> U

<LI TYPE=CIRCLE>Uvula

<LI TYPE=CIRCLE>

<DT> V

<LI TYPE=CIRCLE>Velar sounds in English are /k g ng/, with the back of the tongue articulating against the velum.

<LI TYPE=CIRCLE>Voiceless

<LI TYPE=CIRCLE>Voiced

<DT> W

<LI TYPE=CIRCLE>Wernicke's aphasia

<LI TYPE=CIRCLE>

<DT> X

<LI TYPE=CIRCLE>

<LI TYPE=CIRCLE>

<DT> Y

<LI TYPE=CIRCLE>Yoruba

<LI TYPE=CIRCLE>

<DT> Z

<LI TYPE=CIRCLE>

<LI TYPE=CIRCLE>

</BODY>

</HTML>


```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
// *****
// Ali Morawej <morawej@ee.umanitoba.ca>
// Deactivate Cloaking -->
</SCRIPT>

</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
<CENTER>

<FORM Method="POST" Action="http://www.ee.umanitoba.ca/cgi-bin/test.cgi" Target="win1" >
<FONT SIZE=+2><I> Quiz Number One </I></FONT>
<A NAME="1">
<TABLE BORDER=2 WIDTH=600>
<TR>
<TH COLSPAN=6 bgcolor="#0090ff"><I> TEST ONE </TH>
<TR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
<param name=lbl value=" &#164; ">
<param name=snd value="Audio/mitl.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI> <INPUT Type="radio" Name="word1" Value=" meet "> meet
<LI> <INPUT Type="radio" Name="word1" Value=" mitl "> mitl
</LO>
<BR>
<BR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
<param name=lbl value=" &#164; ">
<param name=snd value="Audio/not.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI> <INPUT Type="radio" Name="word2" Value=" nut "> nut
<LI> <INPUT Type="radio" Name="word2" Value=" not "> not
</LO>
<BR>
<BR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
<param name=lbl value=" &#164; ">
<param name=snd value="Audio/mate.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI> <INPUT Type="radio" Name="word3" Value=" mate "> mate
<LI> <INPUT Type="radio" Name="word3" Value=" mat "> mat
</LO>
<BR>
<BR>
</TD>
</TR>
<TR>
<TD COLSPAN=2 WIDTH=200>
<TR><TD ALIGN="left" COLSPAN=3><I> << Back <TD ALIGN="right" COLSPAN=3><A HREF="#2"><I> Next
</TR>
</A></TD>
</TR>
</TABLE>
<BR>
<BR>
```

```

<A NAME="2">
<BR>
<BR>
<BR>
<BR>
<TABLE BORDER=2 WIDTH=600>
<TR>
<TH COLSPAN=6 bgcolor="#0090ff"><I> TEST TWO </TH>
<TR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/pull.au">
</APPLET>

<BR>
<BR>
<LO><I>
<LI>    <INPUT Type="radio" Name="word4" Value=" pool "> pool
<LI>    <INPUT Type="radio" Name="word4" Value=" pull "> pull
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/pity.au">
</APPLET>

<BR>
<BR>
<LO><I>
<LI>    <INPUT Type="radio" Name="word5" Value=" petty "> petty
<LI>    <INPUT Type="radio" Name="word5" Value=" pity "> pity
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/plate.au">
</APPLET>

<BR>
<BR>
<LO><I>
<LI>    <INPUT Type="radio" Name="word6" Value=" pleat "> pleat
<LI>    <INPUT Type="radio" Name="word6" Value=" plate "> plate
</LO>
<BR>
<BR>
</TD>
<TR><TD ALIGN="left" COLSPAN=3><A HREF="#1"><I> << Back </A><TD ALIGN="right" COLSPAN=3><A H
REF="#3"><I> Next >> </A></TD>
</TR>
</TABLE>
<BR>
<BR>
<A NAME="3">
<BR>
<BR>
<BR>
<BR>
<BR>
<TABLE BORDER=2 WIDTH=600>
<TR>
<TH COLSPAN=6 bgcolor="#0090ff"><I> TEST THREE </TH>
<TR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/den.au">
</APPLET>

<BR>
<BR>

```

```

<LO><I>
<LI>   <INPUT Type="radio" Name="word7" Value=" deam "> deam
<LI>   <INPUT Type="radio" Name="word7" Value=" den  "> den
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/boat.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>   <INPUT Type="radio" Name="word8" Value=" boat "> boat
<LI>   <INPUT Type="radio" Name="word8" Value=" bought "> bought
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/rot.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>   <INPUT Type="radio" Name="word9" Value=" rut "> rut
<LI>   <INPUT Type="radio" Name="word9" Value=" rot  "> rot
</LO>
<BR>
<BR>
</TD>
<TR><TD ALIGN="left" COLSPAN=3><A HREF="#2"><I> << Back </A><TD ALIGN="right" COLSPAN=3><A H
REF="#4"><I> Next >> </A></TD>
</TR>
</TABLE>
<BR>
<BR>
<A NAME="4">
<BR>
<BR>
<BR>
<BR>
<BR>
<TABLE BORDER=2 WIDTH=600>
<TR>
<TH COLSPAN=6 bgcolor="#0090ff"><I> TEST FOUR </TH>
<TR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/rust.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>   <INPUT Type="radio" Name="word10" Value=" rust "> rust
<LI>   <INPUT Type="radio" Name="word10" Value=" trust"> trust
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/goof.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>   <INPUT Type="radio" Name="word11" Value=" good "> good

```

```

<LI>      <INPUT Type="radio" Name="word11" Value=" goof "> goof
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/foot.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>      <INPUT Type="radio" Name="word12" Value=" food "> food
<LI>      <INPUT Type="radio" Name="word12" Value=" foot"> foot
</LO>
<BR>
<BR>
</TD>
<TR><TD ALIGN="left" COLSPAN=3><A HREF="#3"><I> << Back </A><TD ALIGN="right" COLSPAN=3><A H
REF="#5"><I> Next >> </A></TD>
</TR>
</TABLE>
<BR>
<BR>
<A NAME="5">
<BR>
<BR>
<BR>
<BR>
<BR>
<TABLE BORDER=2 WIDTH=600>
<TR>
<TH COLSPAN=6 bgcolor="#0090ff"><I> TEST FIVE </TH>
<TR>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/put.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>      <INPUT Type="radio" Name="word13" Value=" put "> put
<LI>      <INPUT Type="radio" Name="word13" Value=" putt"> putt
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/off.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>      <INPUT Type="radio" Name="word14" Value=" off "> off
<LI>      <INPUT Type="radio" Name="word14" Value=" oaf"> oaf
</LO>
<BR>
<BR>
</TD>
<TD COLSPAN=2 WIDTH=200>
<APPLET CodeBase="Classes" CODE=LinkButton.java WIDTH=20 HEIGHT=20 ALIGN=middle>
  <param name=lbl value=" &#164; ">
  <param name=snd value="Audio/cut.au">
</APPLET>
<BR>
<BR>
<LO><I>
<LI>      <INPUT Type="radio" Name="word15" Value=" cut "> cut
<LI>      <INPUT Type="radio" Name="word15" Value=" caught"> caught
</LO>

```

```
<BR>
<BR>
</TD>
<TR><TD ALIGN="left" COLSPAN=2><A HREF="#4"><I> << Back </A>
<TD ALIGN="center" COLSPAN=2><I> Advance <TD ALIGN="right" COLSPAN=2><I> Next >> </TD>
</TR>
</TABLE>

<INPUT TYPE="hidden" Name="answer1" value="mitt">
<INPUT TYPE="hidden" Name="answer2" value="not">
<INPUT TYPE="hidden" Name="answer3" value="mate">
<INPUT TYPE="hidden" Name="answer4" value="pull">
<INPUT TYPE="hidden" Name="answer5" value="pity">
<INPUT TYPE="hidden" Name="answer6" value="plate">
<INPUT TYPE="hidden" Name="answer7" value="den">
<INPUT TYPE="hidden" Name="answer8" value="boat">
<INPUT TYPE="hidden" Name="answer9" value="rot">
<INPUT TYPE="hidden" Name="answer10" value="rust">
<INPUT TYPE="hidden" Name="answer11" value="goof">
<INPUT TYPE="hidden" Name="answer12" value="foot">
<INPUT TYPE="hidden" Name="answer13" value="put">
<INPUT TYPE="hidden" Name="answer14" value="off">
<INPUT TYPE="hidden" Name="answer15" value="cut">

<I>
<INPUT TYPE="submit" Value=" Result " Target="win1">
<INPUT TYPE="reset" Value=" Clear ">
</I>
</FORM>
</center>
</BODY>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      Glossary
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<FRAMESET ROWS= "50,">
    <FRAME NAME= "top" SRC= "Top.htm" NORESIZE SCROLLING= "no">
    <FRAME NAME= "body" SRC= "App.htm" NORESIZE SCROLLING= "auto">
</FRAMESET>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      Glossary (top)
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#000000" TEXT="#FFFFFF" LINK="#00FF00" VLINK="#00FF00" ALINK="#ff0077">

<CENTER>
<FONT SIZE=+2>
<I>
<A HREF=" App.htm #A" Target="body"> A </A>|
<A HREF=" App.htm #B" Target="body"> B </A>|
<A HREF=" App.htm #C" Target="body"> C </A>|
<A HREF=" App.htm #D" Target="body"> D </A>|
<A HREF=" App.htm #E" Target="body"> E </A>|
<A HREF=" App.htm #F" Target="body"> F </A>|
<A HREF=" App.htm #G" Target="body"> G </A>|
<A HREF=" App.htm #H" Target="body"> H </A>|
<A HREF=" App.htm #I" Target="body"> I </A>|
<A HREF=" App.htm #J" Target="body"> J </A>|
<A HREF=" App.htm #K" Target="body"> K </A>|
<A HREF=" App.htm #L" Target="body"> L </A>|
<A HREF=" App.htm #M" Target="body"> M </A>|
<A HREF=" App.htm #N" Target="body"> N </A>|
<A HREF=" App.htm #O" Target="body"> O </A>|
<A HREF=" App.htm #P" Target="body"> P </A>|
<A HREF=" App.htm #Q" Target="body"> Q </A>|
<A HREF=" App.htm #R" Target="body"> R </A>|
<A HREF=" App.htm #S" Target="body"> S </A>|
<A HREF=" App.htm #T" Target="body"> T </A>|
<A HREF=" App.htm #U" Target="body"> U </A>|
<A HREF=" App.htm #V" Target="body"> V </A>|
<A HREF=" App.htm #W" Target="body"> W </A>|
<A HREF=" App.htm #X" Target="body"> X </A>|
<A HREF=" App.htm #Y" Target="body"> Y </A>|
<A HREF=" App.htm #Z" Target="body"> Z </A>
</I>
</FONT>
</CENTER>
</BODY>
</HTML>
```



```

<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="G"><DT><FONT SIZE=+7 color="#FF0000"> G </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="H"><DT><FONT SIZE=+7 color="#FF0000"> H </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="I"><DT><FONT SIZE=+7 color="#FF0000"> I </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="J"><DT><FONT SIZE=+7 color="#FF0000"> J </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="K"><DT><FONT SIZE=+7 color="#FF0000"> K </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="L"><DT><FONT SIZE=+7 color="#FF0000"> L </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE>
<FONT SIZE=+7>L</FONT><B> labiodental: T</B>wo sounds in English are:<B> /f v/</B> When you
make these sound you will notice that your lower lip articulates against your upper teeth;<B>
/f/</B> is <FONT COLOR="#FFAA00" SIZE=+1><I>Voiceless</I></FONT>, and<B> /v/</B> is <FONT CO
LOR="#FFAA00" SIZE=+1><I>Voiced.</font></I><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="M"><DT><FONT SIZE=+7 color="#FF0000"> M </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE><BR>
<LI TYPE=CIRCLE>
</UL>
<BR>
<BR>

<A NAME="N"><DT><FONT SIZE=+7 color="#FF0000"> N </FONT></A><BR>
<UL>
<LI TYPE=CIRCLE>Nasal Cavity<BR>
<LI TYPE=CIRCLE>
</UL>
<BR>

```



```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//               Practice
//               Developed by
//               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>

<FRAMESET ROWS = "130,**" FRAMEBORDER="no" BORDER=0>
    <FRAME NAME= "top" SRC= "Title2.htm" NORESIZE SCROLLING= "no">
    <FRAME NAME= "win1" SRC= "Quiz.htm" NORESIZE SCROLLING= "auto">
</FRAMESET>

</BODY>
</HTML>
```

Dec 10 14:24:14 [root@localhost:~]# cat /dev/urandom | tr -dc 'a-z0-9' | fold -n 64 | xargs -n 1 shuf -e

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Title2
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000">
<CENTER>
<FONT SIZE=+3><STRONG><I><U> Practices </U></I></STRONG></FONT>
</CENTER>
<BR>
<FONT SIZE=+1><I> Push the bottom to hear the voice and choose the right word.</I></FONT>
</BODY>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE>Fonetix, Speech Therapy on the Web</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Fonetix Main menu
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<FRAMESET ROWS= "55," FRAMEBORDER="no" BORDER="0">
  <FRAME NAME= "title" SRC= "Title.htm" NORESIZE SCROLLING= "no">
  <FRAME NAME= "body" SRC= "Main.htm" NORESIZE SCROLLING= "auto">
</FRAMESET>
</HTML>
```

Dec 31 1997

Page 1

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                               Main menu (title)
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#00FF00" VLINK="#00FF00" ALINK="#009AFF">

<TABLE BORDER WIDTH=100% BGCOLOR="#3F9F9F">
<TD ALIGN=CENTER colstart="2"><A HREF="Articulations/index.html" target="body"><B><I><FONT s
ize=+1> Articulations </I></B></A></TD>
<TD ALIGN=CENTER colstart="3"><A HREF="Twister.htm" target="body"><B><I><FONT s
ize=+1> Reading Skill </I></B></A></TD>
<TD ALIGN=CENTER colstart="4"><A HREF="Signs/index.html" target="body"><B><I><FONT s
ize=+1> Sign Language </I></B></A></TD>
<TD ALIGN=CENTER colstart="5"><A HREF="Phonetics/index.html" target="body"><B><I><FONT s
ize=+1> Pronunciation </I></B></A></TD>
<TD ALIGN=CENTER colstart="6"><A HREF="practices.htm" target="body"><B><I><FONT s
ize=+1> Practices </I></B></A></TD>
</TABLE>
</BODY>
</HTML>
```

```

<BASE HREF="http://www.ee.umanitoba.ca/~morawej/Speech/">
<HTML>
<HEAD>
<TITLE>Application Form </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
// Patient application from
// Developed by
// Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Called by Cancel/Return button - auto position to top of application form.
function cancel()
{ window.location="Application.htm#applicant"; }

function confirmMessage()
{
window.open('first.htm','Start','resizable=yes,width=1024,height=768')
alert("\nSubmission is being made.\n\n      THANK YOU!!!\n\n      (Sent me mail)");
}

function submitForms()
{
timerID=setTimeout('confirmMessage()',0);
return true;
}

// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<SCRIPT>
<!-- Activate Cloaking Device

var doc=document;
document.open();
doc.write("<BODY BGCOLOR=FFFFFF LINK=FF0000 VLINK=FF0000 ALINK=FF0000>");
doc.write("<CENTER>");
doc.write("<FONT SIZE=+2 COLOR=800000><B>Click button below to make submission.</B></FONT>")
;
doc.write("<HR WIDTH=450 ALIGN=center SIZE=1><BR><TABLE>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "CONFIRM : " + "</B></FONT>" +parent.frame
el.document.forms[0].confirm.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "NAME : " + "</B></FONT>" +parent.frame1.
document.forms[0].yourname.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "EMAIL : " + "</B></FONT>" +parent.frame
1.document.forms[0].emailAddress.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "Mother Language : " + "</B></FONT>" +pa
rent.frame1.document.forms[0].momToung.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "WWW : " + "</B></FONT>" +parent.frame1.
document.forms[0].www.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "AGE : " + "</B></FONT>" +parent.frame1.
document.forms[0].age.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "SEX : " + "</B></FONT>" +parent.frame1.
document.forms[0].sex.value+"</TR>");
doc.write("<TR><TD align=left><FONT COLOR=0000FF><B>"+ "MESSAGE : " + "</B></FONT>" +parent.fra
mel.document.forms[0].message.value+"</TR>");
doc.write("</TABLE><BR>");

doc.write("<STRONG><FONT COLOR=FF0000 SIZE=+1>");
doc.write("***** Results will be emailed to Fonetix for record only *****");
doc.write("</FONT></STRONG>");
doc.write("<FORM ENCTYPE='text/plain' METHOD='get' ACTION='mailto:morawej@ee.umanitoba.ca?su
bject=Patient form application' onSubmit='return submitForms()'>");
doc.write("<INPUT TYPE='hidden' NAME='CONFIRM' VALUE='"+parent.frame1.document.forms[0].conf
irm.value+"'>");
doc.write("<INPUT TYPE='hidden' NAME='NAME' VALUE='"+parent.frame1.document.forms[0].yournam
e.value+"'>");
doc.write("<INPUT TYPE='hidden' NAME='E-MAIL' VALUE='"+parent.frame1.document.forms[0].email
Address.value+"'>");
doc.write("<INPUT TYPE='hidden' NAME='Mother Language' VALUE='"+parent.frame1.document.forms
[0].momToung.value+"'>");
doc.write("<INPUT TYPE='hidden' NAME='WWW' VALUE='"+parent.frame1.document.forms[0].www.valu
e+"'>");

```

```
doc.write("<INPUT TYPE='hidden' NAME='AGE' VALUE='"+parent.frame1.document.forms[0].age.value+">");
doc.write("<INPUT TYPE='hidden' NAME='SEX' VALUE='"+parent.frame1.document.forms[0].sex.value+">");
doc.write("<INPUT TYPE='hidden' NAME='MESSAGE' VALUE='"+parent.frame1.document.forms[0].message.value+">");
doc.write("<TABLE BORDER=0 WIDTH=400><TR>");
doc.write("<TD align='center'><INPUT TYPE='submit' VALUE=' Submit Form '>");
doc.write("<TD align='center'><INPUT TYPE='button' VALUE='Cancel/Return' onClick='cancel()'>");
doc.write("</TR></TABLE></FORM><BR>");
doc.write("</CENTER></BODY>");
//document.close();
// Deactivate Cloaking -->
</SCRIPT>
</HTML>
```



```
<HTML>
<HEAD>
<TITLE>Fonetix, Speech Therapy on the Web</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                      Fonetix program menu
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<FRAMESET COLS = "140,*">
  <FRAMESET ROWS="50,50,*">
    <FRAME NAME= "topside1" SRC= "Clock.htm"      NORESIZE SCROLLING= "no">
    <FRAME NAME= "topside2" SRC= "Icons/intro.gif" NORESIZE SCROLLING= "no" MARGINHEIGH
T=0 MARGINWIDTH=0>
    <FRAME NAME= "lowside" SRC= "SideBar.htm"      NORESIZE SCROLLING= "no">
  </FRAMESET>
  <FRAME NAME= "body" SRC= "Introduction.htm" NORESIZE SCROLLING= "auto">
</FRAMESET>
</HTML>
```

Dec 30 1998

```
<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      Clock
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#000000">
<APPLET CodeBase="Classes" Code=Dgclock.class WIDTH=89 HEIGHT=20>
</APPLET>
</BODY>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> Speech Therapy on Web </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                               Twisters
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>

<Script name="javascript">
<!--
Abouton=new Image();
Abouton.src="button/orig1.gif";
Aboutoff=new Image();
Aboutoff.src="button/mover1.gif";

Mainon=new Image();
Mainon.src="button/orig2.gif";
Mainoff=new Image();
Mainoff.src = "button/mover2.gif";

cuseeameon=new Image( );
cuseeameon.src="button/orig3.gif";
cuseeameoff=new Image( );
cuseeameoff.src = "button/mover3.gif";

Glossaryon=new Image( );
Glossaryon.src="button/orig4.gif";
Glossaryoff=new Image( );
Glossaryoff.src = "button/mover4.gif";

Quiton=new Image( );
Quiton.src="button/orig5.gif";
Quitoff=new Image( );
Quitoff.src = "button/mover5.gif";

Audiogramon=new Image( );
Audiogramon.src="button/orig6.gif";
Audiogramoff=new Image( );
Audiogramoff.src = "button/mover6.gif";

Synthesison=new Image( );
Synthesison.src="button/orig7.gif";
Synthesisoff=new Image( );
Synthesisoff.src = "button/mover7.gif";

Guestbookon=new Image( );
Guestbookon.src="button/orig8.gif";
Guestbookoff=new Image( );
Guestbookoff.src = "button/mover8.gif";

function imageon(imgname)
{
imgon= eval(imgname + "on.src");
document.images[imgname].src=imgon;
}

function imageoff(imgname)
{
imgoff= eval(imgname + "off.src");
document.images[imgname].src=imgoff;
}

function AboutSite(){
    window.open('about.htm','About','width=500,height=220,scrollbars=1')
}

```

```

function ConfirmClose(){
    if(confirm(" Are you sure want to quit this demo? ")){
        top.close()
    }.
}

// --->
</Script>

<LINK HREF="http://www.ee.umanitoba.ca/~morawej/Speech">
<BODY BGCOLOR="#FFFFFF" TEXT="#000000" LINK="#00ff00" VLINK="#00ff00" ALINK="#009aff">
<CENTER>
<TABLE CELLSPACING=0 CELLPADDING=0>
<TR><TD align=center>
<IMG SRC="Icons/iic.gif" ALIGN=Center Alt="Internet Innovation Centre" MARGINHEIGHT=0 MARGIN
WIDTH=0><BR>
<font size=-1><B>Internet<BR> Innovation Centre</font></B>
<HR>
</TR></TD>
</TABLE>
<TABLE CELLSPACING=0 CELLPADDING=0 border=0>
<TH><U>MAIN MENU</U></TH>
<TR><TD>
<A onmouseover="imageoff('About');return true;" onmouseout="imageon('About'); return true;"
onclick="AboutSite();return 0;" href="SideBar.htm">
<IMG border=0 name="About" src="button/orig1.gif" border=0 MARGINHEIGHT=0 MARGINWIDTH=></A><
/td>
<TR><TD>
<A onclick="imageoff('Main');return true;" onmouseover="imageoff('Main');return true;" onmo
useout="imageon('Main'); return true;" href="body.htm" target="body">
<IMG border=0 name="Main" SRC="button/orig2.gif" MARGINHEIGHT=0 MARGINWIDTH=></A></TD>
<TR><TD>
<A onclick="imageoff('cuseeme');return true;" onmouseover="imageoff('cuseeme');return true;
" onmouseout="imageon('cuseeme'); return true;" href="Login/index.html" target="body">
<IMG border=0 name="cuseeme" src="button/orig3.gif" border=0 MARGINHEIGHT=0 MARGINWIDTH=></
A></TD>
<TR><TD>
<A onclick="imageoff('Glossary');return true;" onmouseover="imageoff('Glossary');return tru
e;" onmouseout="imageon('Glossary'); return true;" href="Glossary/index.htm" target="body">
<IMG border=0 name="Glossary" src="button/orig4.gif" MARGINHEIGHT=0 MARGINWIDTH=></A></TD>
<TR><TD>
<A onclick="ConfirmClose();" onmouseover="imageoff('Quit');return true;" onmouseout="imageo
n('Quit'); return true;" href="SideBar.htm">
<IMG border=0 name="Quit"src="button/orig5.gif" MARGINHEIGHT=0 MARGINWIDTH=></A>
</TD></TR>
</TABLE>
<BR>
<TABLE CELLSPACING=0 CELLPADDING=0 border=0>
<TH><U>EXPERIMENT</U></TH>
<TR><TD>
<A onclick="imageoff('Audiogram');return true;" onmouseover="imageoff('Audiogram');return tr
ue;" onmouseout="imageon('Audiogram'); return true;" href="Experimental/Audiogram.htm" target
="body">
<IMG border=0 name="Audiogram" src="button/orig6.gif" MARGINHEIGHT=0 MARGINWIDTH=></A></TD>
<TR><TD>
<A onclick="imageoff('Synthesis');return true;" onmouseover="imageoff('Synthesis');return tr
ue;" onmouseout="imageon('Synthesis'); return true;" href="Experimental/Klatlk.htm" target="b
ody">
<IMG border=0 name="Synthesis" src="button/orig7.gif" MARGINHEIGHT=0 MARGINWIDTH=></A>
</TD></TR>
</TABLE>
<BR>
<TABLE CELLSPACING=0 CELLPADDING=0 border=0>
<TH><U>FEEDBACK</U></TH>
<TR><TD>
<A onclick="imageoff('Guestbook');return true;" onmouseover="imageoff('Guestbook');return
true;" onmouseout="imageon('Guestbook'); return true;" href="GuestBook.htm" target="body">
<IMG border=0 name="Guestbook" src="button/orig8.gif" MARGINHEIGHT=0 MARGINWIDTH=></A>
</TD></TR>
</TABLE>
<TABLE CELLSPACING=0 CELLPADDING=0>
<TR><TD align=center>
<HR NOSHDE>

```

```
<CENTER><ADDRESS><STRONG>
Created by;</STRONG><BR>
<A HREF="http://www.ee.umanitoba.ca/~morawej" Target="_new"><B> A. Morawej </B></A><BR>
<FONT SIZE=-1>Copyright &copy; 1997<FONT>
</ADDRESS>
<HR NOSHDE>
</TD></TR>
</TABLE>
</TABLE>
</BODY>
</HTML>
```

```

idation.
function submitForms()
{
    if ( (isName()) && (isEmail()) && (isLanguage()) && (isWWW()) )
        window.location="Form.htm";
}

// Loads information page about this work-around.
function leapto()
{ window.location="Form.htm"; }
// Deactivate -->
</SCRIPT>
</HEAD>
<BODY Bgcolor="#EEEEEE" onLoad="putFocus()" link=FF0000 Vlink=FF0000 Alink=FFFF00>
<CENTER><STRONG><EM><U>
<FONT COLOR=0000FF SIZE=+3>P</FONT><FONT COLOR=0000FF SIZE=+1>atient </FONT>
<FONT COLOR=0000FF SIZE=+3>A</FONT><FONT COLOR=0000FF SIZE=+1>pplication </FONT>
<FONT COLOR=0000FF SIZE=+3>F</FONT><FONT COLOR=0000FF SIZE=+1>orm </FONT>
</U></EM></STRONG></CENTER>
<BR>
<BR>
<CENTER>
<FORM>
<A NAME="applicant">
<TABLE BORDER=1 WIDTH=400>
<TH align="left"> Full name:
<TD align="center"><INPUT TYPE="text" NAME="YourName" SIZE=30 MAXLENGTH=40 >
</TR>
<TR>
<TH align="left"> E-mail:
<TD align="center"><INPUT TYPE="text" NAME="E-mail" SIZE=30 MAXLENGTH=40 >
</TR>
<TR>
<TH align="left"> Mother Language:
<TD align="center"><INPUT TYPE="text" NAME="momTunge" SIZE=30 MAXLENGTH=30 >
</TR>
<TR>
<TH align="left"> WWW Server:
<TD align="center"><INPUT TYPE="text" NAME="www" VALUE="http://" SIZE=30 MAXLENGTH=50 >
</TABLE>
<BR>
<INPUT TYPE="radio" NAME="age" CHECKED onClick="if (this.checked) {parent.frame1.document
.forms[0].age.value='No Reply';parent.age_index=0;}">
<FONT COLOR=800000 SIZE=+1><B>Your Age:</B></FONT><BR>
<TABLE BORDER=3 WIDTH=400>
<TR>
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='10-25';parent.age_index=1;}">10-25
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='25-40';parent.age_index=2;}">25-40
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='40-55';parent.age_index=3;}">40-55
</TR>
<TR>
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='55-70';parent.age_index=4;}">55-70
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='70-85';parent.age_index=5;}">70-85
<TD align="center"><INPUT TYPE="radio" NAME="age" onClick="if (this.checked) {parent.frame1.
document.forms[0].age.value='85-99';parent.age_index=6;}">85-99
</TR>
</TABLE>
<BR>
<INPUT TYPE="radio" NAME="sex" CHECKED onClick="if (this.checked) {parent.frame1.document
.forms[0].sex.value='No Reply';parent.sex_index=0;}">
<FONT COLOR=800000 SIZE=+1><B>SEX:</B></FONT><BR>
<TABLE BORDER=3 WIDTH=400>
<TR>
<TD align="center" WIDTH=200><I><INPUT TYPE="radio" NAME="sex" onClick="if (this.checked) {p
arent.frame1.document.forms[0].sex.value='Male';parent.sex_index=1;}"> Male
<TD align="center" WIDTH=200><I><INPUT TYPE="radio" NAME="sex" onClick="if (this.checked) {p
arent.frame1.document.forms[0].sex.value='Female';parent.sex_index=2;}"> Female
</TR>

```

```
</TABLE>
<BR>
<TABLE BORDER=0 WIDTH=300>
<TR>
<TD align="center"><I><INPUT TYPE="button"   VALUE=" CONTINUE " onClick="submitForms()">
<TD align="center"><I><INPUT TYPE="reset"   VALUE=" Reset Form " onClick="resetForm()">
<TD align="center"><I><INPUT TYPE="button"   VALUE=" Delete the Cookies " onClick="deleteCoo
kies()">
</TR>
</TABLE>
</FORM>
</CENTER>
</BODY>
</HTML>
```

```
<HTML>
<HEAD>
<TITLE>Application Form Hidden Page</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Patient application from
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY>
<BR><BR>
<FORM NAME="storage">
<INPUT TYPE="hidden" NAME="confirm" VALUE="Application form">
<INPUT TYPE="hidden" NAME="yourname" VALUE="">
<INPUT TYPE="hidden" NAME="emailAddress" VALUE="">
<INPUT TYPE="hidden" NAME="momToung" VALUE="">
<INPUT TYPE="hidden" NAME="www" VALUE="">
<INPUT TYPE="hidden" NAME="age" VALUE="No Reply">
<INPUT TYPE="hidden" NAME="sex" VALUE="No Reply">
<INPUT TYPE="hidden" NAME="message" VALUE="Thank you for fill up the application.">
</FORM>
</BODY>
</HTML>
```



```

        return false;
    }
    // Return false if characters are not a-z, A-Z, or a space.
    for (var i = 0; i < str.length; i++)
    {
        var ch = str.substring(i, i + 1);
        if (((ch < "a" || "z" < ch) && (ch < "A" || "Z" < ch)) && ch != ' ')
        {
            alert("\nThe NAME field only accepts letters & spaces.\n\nPlease re-enter your name
.");
            document.forms[0].elements[0].select();
            document.forms[0].elements[0].focus();
            return false;
        }
    }

    // Loads name to storage form on hidden page.
    parent.frame1.document.forms[0].yourname.value=document.forms[0].elements[0].value;

    // Sets cookie to retain name for next session.
    setName();
    return true;
}

// Checks the E-MAIL field.
function isEmail()
{
    // Return false if e-mail field is blank.
    if (document.forms[0].elements[1].value == "")
    {
        alert("\nThe E-MAIL field is blank.\n\nPlease enter your e-mail address.")
        document.forms[0].elements[1].focus();
        return false;
    }
    // Return false if e-mail field does not contain a '@' and '.' .
    if (document.forms[0].elements[1].value.indexOf('@',0) == -1 ||
        document.forms[0].elements[1].value.indexOf('.',0) == -1 )
    {
        alert("\nThe E-MAIL field requires a '@' and a '.' be used.\n\nPlease re-enter your
e-mail address.")
        document.forms[0].elements[1].select();
        document.forms[0].elements[1].focus();
        return false;
    }
    else
    {
        // Loads e-mail address to storage form on hidden page.
        parent.frame1.document.forms[0].emailAddress.value=document.forms[0].elements[1].value
        ;

        // Sets cookie to retain e-mail address for next session.
        setAddress();
        return true;
    }
}

// Checks the Mother Language field.
function isLanguage()
{
    var str = document.forms[0].elements[2].value;
    // Return false if momTounge field is blank.
    if (str == "")
    {
        alert("\nThe Mother Language field is blank.\n\nPlease enter yourmother language.")
        document.forms[0].elements[0].focus();
        return false;
    }
    // Return false if characters are not a-z, A-Z, or a space.
    for (var j = 0; j < str.length; j++)
    {
        var Ch = str.substring(j, j + 1);

```

```

Nov 26 19:51:16

if (((Ch < "a" || "z" < Ch) && (Ch < "A" || "Z" < Ch)) && Ch != ' ')
{
    alert("\nThe Mother language field only accepts letters & spaces.\n\nPlease re-ent
r your mother language.");
    document.forms[0].elements[2].select();
    document.forms[0].elements[2].focus();
    return false;
}

// Loads mother language to storage form on hidden page.
parent.frame1.document.forms[0].momToung.value=document.forms[0].elements[2].value;

// Sets cookie to retain mother language for next session.
setLanguage();
return true;
}

// Checks the WWW Server field.
function isWWW()
{
    // Return false if WWW field is blank.
    if (document.forms[0].elements[3].value == "")
    {
        alert("\nThe WWW field is blank.\n\nPlease enter your Web Server address.")
        document.forms[0].elements[3].focus();
        return false;
    }

    // Return false if WWW field does not contain a '/' and '.' and '~'.
    if (document.forms[0].elements[3].value.indexOf ('/',0) == -1 ||
        document.forms[0].elements[3].value.indexOf ('.',0) == -1 )
    {
        alert("\nThe Web Server field requires a \"\/\" and a \".\" or a \"~\"be used.\n\nPleas
e re-enter your Web server address.")
        document.forms[0].elements[3].select();
        document.forms[0].elements[3].focus();
        return false;
    }
    else
    {

// Loads WWW Server to storage form on hidden page.
parent.frame1.document.forms[0].www.value=document.forms[0].elements[3].value;

// Sets cookie to retain WWW Server for next session.
setWWW();
return true;
}

// Called by Reset button.
function resetForm()
{
    // Resets storage form values and global variables to default values.
    parent.frame1.document.forms[0].yourname.value="";
    parent.frame1.document.forms[0].emailAddress.value="";
    parent.frame1.document.forms[0].momToung.value="";
    parent.frame1.document.forms[0].www.value="";
    parent.frame1.document.forms[0].age.value="No Reply";
    parent.frame1.document.forms[0].sex.value="No Reply";
    parent.age_index=0;
    parent.sex_index=0;

// Positions Netscape 3 to label above name element on application form.
if (navigator.appVersion.substring(0,1)!=2)
    { window.location="#applicant"; }

// Puts focus on name element of application form.
document.forms[0].elements[0].focus();
}

// Loads the confirmation page if name and e-mail and mother language and Web page pass val

```

```

<HTML>
<HEAD>
<TITLE> Welcome to Speech Therapy on Web</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      Fonetix
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
<META NAME="Author"      CONTENT="Ali Morawej">
<META NAME="Keywords"    CONTENT="Rehabilitation">
<META NAME="Description" CONTENT="Clinical practicum in speech language pathology">
<META HTTP-EQUIV="Refresh" CONTENT="5; URL=http://www.ee.umanitoba.ca/~morawej/Speech/messag
e.htm">
</HEAD>
<BODY BGCOLOR="#FFFFFF" TEXT="#000000">
<BASEFONT SIZE=+1>
<CENTER>
<BR>
<BR>
<BR>
<BR>
<BR>
<BR>
<IMG SRC="Icons/fonetix.gif" ALIGN=Center Alt="Please Wait ...">
<BR>
<BR>
<BR>
<BR>
<STRONG>
<FONT SIZE=+5>A</FONT>rticulating <FONT SIZE=+5>S</FONT>peech <FONT SIZE=+5>& H</FONT>earing
<FONT SIZE=+5>P</FONT>erception <FONT SIZE=+5>S</FONT>oftware
<BR>
<FONT SIZE=+3>S</FONT>peech <FONT SIZE=+3>T</FONT>herapy on <FONT SIZE=+3>W</FONT>eb
</STRONG>
</CENTER>
</BASEFONT>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> System Detectivate </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               message for visitors
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****

var browser=navigator.appName + " " + navigator.appVersion;
var getkey=browser.substring(0, 12);

// Load page according to browser
function loadPage()
{
  if (getkey=="Netscape 3.0")
    window.location="Config.htm";
  if (getkey=="Netscape 2.0")
    window.location="Download.htm";
}

// Detectivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#5F9F9F" TEXT="#000000">
<CENTER>
<BR>
<BR>
<BR>
<BR>
<FONT SIZE=+3 color="#0000FF"><STRONG><I><U> message for visitors</U></I></STRONG></FONT>
<BR>
<BR>
<BR>
<Script>
<!-- Activate Cloaking
document.open();
document.write("<BR><CENTER><B><EM>");
document.write("<FONT SIZE=+4>Welcome to Speech Therapey on Web</FONT><BR><BR>");
document.write("<FONT SIZE=+3>I detect that you are using</FONT></EM><BR><BR>");
document.write("<FONT COLOR=0000FF SIZE=+2>"+browser+"</FONT><BR><BR><BR><BR>");
document.write("<EM><FONT SIZE=+1>One moment please ...</FONT>");
document.write("</EM></B></CENTER>");

if (browser.substring(0, 8)=="Netscape")
  setTimeout("loadPage()",5000);

if (browser.substring(0, 9)=="Microsoft")
  window.location="Config.htm";

// Detectivate Cloaking -->
</Script>
</CENTER>
</BODY>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE>Login to Fonetix </TITLE>
<script language="LiveScript">
<!-- Activate Cloaking
//*****
//
//                      Login
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****

function WinOpen(url){
    msg=open(url,"displayWindows","resizable=yes,width=1024,height=768")
}
function Strat(){
    window.location="INDEX.htm";
}

// Get Cookie Value.

function getCookieVal (offset)
{
    var endstr = document.cookie.indexOf (";", offset);
    if (endstr == -1)
        endstr = document.cookie.length;
    return unescape(document.cookie.substring(offset, endstr));
}

// Get Cookie Name.

function GetCookie (NAME)
{
    var arg = NAME + "=";
    var alen = arg.length;
    var clen = document.cookie.length;
    var i = 0;
    while (i < clen)
    {
        var j = i + alen;
        if (document.cookie.substring(i, j) == arg)
            return getCookieVal (j);
        i = document.cookie.indexOf(" ", i) + 1;
        if (i == 0)
            break;
    }
    return null;
}

// Setup Cookie for Name and Value.

function SetCookie (NAME, VALUE)
{
    var argv = SetCookie.arguments;
    var argc = SetCookie.arguments.length;
    var expires = (2 < argc) ? argv[2] : null;
    var path = (3 < argc) ? argv[3] : null;
    var domain = (4 < argc) ? argv[4] : null;
    var secure = (5 < argc) ? argv[5] : false;
    document.cookie = NAME + "=" + escape (VALUE) +
        ((expires == null) ? "" : ("; expires=" + expires.toGMTString())) +
        ((path == null) ? "" : ("; path=" + path)) +
        ((domain == null) ? "" : ("; domain=" + domain)) +
        ((secure == true) ? "; secure" : "");
}

// Reset the Visitor Counter.

function ResetCounts(NAME)
{
    visits = 0;
    SetCookie("visits", visits, expdate , "/", null, false);
    leapto();
}

```

```
// De-activate Cloaking -->
</Script>
</HEAD>
<BODY BGCOLOR="#3F9F9F" TEXT="#000000" LINK="#ff4040">
<CENTER>
<SCRIPT>
<!-- Activate Cloaking

var expdate = new Date();
var visits;

// Set expiration date to a year from now.

expdate.setTime(expdate.getTime() + (24 * 60 * 60 * 1000 * 365));

if(!(visits = GetCookie("visits")))
visits = 0;
visits++;
SetCookie("visits", visits, expdate, "/", null, false);

document.write("<BR><BR><CENTER><FONT COLOR=0000FF SIZE=+3><I><U><STRONG> "+"Your browser has
s visited this program "+</FONT></I></U></STRONG></CENTER>"
+"<FONT COLOR=FF0000 SIZE=+4><CENTER><STRONG>"+visits+"</STRONG></CENTER></FONT>"
+"<CENTER><FONT SIZE=+1><STRONG>"+times+"</STRONG></FONT></CENTER>");
    if(visits == 1)
        document.write("<P><FONT SIZE=+2><EM><CENTER><STRONG><BLINK>"+ " Welcome to clinical pr
acticum in speech language pathology"+</BLINK></STRONG></CENTER></EM></FONT>");

// De-activate Cloaking -->
</SCRIPT>
<BR>
<BR>
<BR>
<FONT SIZE=+3 color="#0000FF"><STRONG><B><I><U>Login</U></I></B></STRONG></FONT>
<BR>
<BR>
<Table Border=8>
<TR ALIGN="CENTER" VALIGN="CENTER">
<TD VALIGN="CENTER">
<FORM Name="Login">
<FONT SIZE=+1><I>
Username: <INPUT TYPE="text" NAME="userNAME" SIZE=10 VALUE="Guest"><BR>
Password: <INPUT TYPE="password" NAME="password" SIZE=10 VALUE="guest"><BR>
</I></FONT>
</FORM>
</TR>
</Table>
<BR>
<BR>
<FORM>
<FONT SIZE=+1 color="#000000"><I>
<INPUT TYPE="button" NAME="Button1" VALUE=" Patient " onclick="alert(' You are not my pati
ent yet.\n Go to guest button and look at the Trial version\n We are still working on demo\n
Do not forget sign my GuestBook\n Thanks for visiting Fonetix\n')">
<INPUT TYPE="button" NAME="Button2" VALUE=" Therapist " onclick="WinOpen('Login/index.html')
">
<INPUT TYPE="button" NAME="Button3" VALUE=" Guest " onclick="Strat()">
</FONT></I>
</FORM>
<BR>
<BR>
<FONT SIZE=+2><I>You are visitor
<IMG ALIGN=ABSMIDDLE SRC="//www.ee.umanitoba.ca/cgi-bin/count/-morawej/counter.log" , Since F
eb 1,1996.</I></FONT>
</CENTER>
</BODY>
</HTML>
```

```

<HTML>
<HEAD>
<TITLE> FORM BODY </TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//                               Patient application from
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Global variable used to position application form on Cancel/Return [see putFocus() on App
location.htm].
    var first_load=true;
// Global variables that are set in form - used to retain Select & Radio index info on Cance
l/Return.
    var age_index=0;
    var sex_index=0;
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<FRAMESET ROWS="0,*" BORDER=0 FRAMEBORDER=no NORESIZE>
    <FRAME NAME="frame1" SRC=confirm.htm      NORESIZE SCROLLING="no">
    <FRAME NAME="frame2" SRC=Application.htm  NORESIZE MARGINHEIGHT=5>
</FRAMESET>
</HTML>

```

```

<HTML>
<HEAD>
<TITLE> Download Section</TITLE>
<SCRIPT>
<!-- Activate Cloaking Device
//*****
//
//                      Download
//                      Developed by
//                      Ali Morawej <morawej@ee.umanitoba.ca>
//*****
// Deactivate Cloaking -->
</SCRIPT>
</HEAD>
<BODY BGCOLOR="#EEEEEE" TEXT="#000000" LINK="#FF4040">
<BR>
<BR>
<BLOCKQUOTE>
<CENTER>
<FONT SIZE=+7>T</FONT><B>his</B> program has been written using JavaScript.<BR>
That means you can only view it using<A HREF="http://home.netscape.com/"><B> Netscape Naviga
tor 3.0</B></A> or better for<BR> UNIX, Mac or Windows 95/NT, Sorry !
<BR>
<BR>
<BR>
<A HREF="http://home.netscape.com/comprod/mirror/" TRAGET="_new">
<B> Download</B></A> it now <FONT SIZE=+3><BLINK><B>!!</B></BLINK></FONT>
</CENTER>
</BLOCKQUOTE>
<BR>
<BR>
<BR>
<CENTER>
<HR NOSHADE SIZE=2 WIDTH=250><I>
Fonetix Web master<BR>
Ali Morawej<BR>
University of Manitoba<BR>
Department of Electrical & Computer Engineering
<BR>
<BR>
<address>
<A HREF="mailto:morawej@ee.umanitoba.ca"> morawej @ ee.umanitoba.ca </A>
</address>
<IMG ALIGN="TOP" SRC="Icons/email3.gif" ALT="[email]">
<HR NOSHADE SIZE=2 WIDTH=250>
</CENTER>
</BODY>
</HTML>

```



```

<BASE HREF="http://www.ee.umanitoba.ca/~morawej/Speech/">
<HTML>
<HEAD>
<TITLE> Application </TITLE>
<SCRIPT>
<!-- Application Detection
//*****
//                               Patient application from
//                               Developed by
//                               Ali Morawej <morawej@ee.umanitoba.ca>
//*****
function getCookieVal (offset)
{
    var endstr = document.cookie.indexOf (";", offset);
    if (endstr == -1)
        endstr = document.cookie.length;
    return unescape(document.cookie.substring(offset, endstr));
}

function GetCookie (name)
{
    var arg = name + "=";
    var alen = arg.length;
    var clen = document.cookie.length;
    var i = 0;
    while (i < clen)
    {
        var j = i + alen;
        if (document.cookie.substring(i, j) == arg)
            return getCookieVal (j);
        i = document.cookie.indexOf(" ", i) + 1;
        if (i == 0) break;
    }
    return null;
}

function SetCookie (name, value)
{
    var argv = SetCookie.arguments;
    var argc = SetCookie.arguments.length;
    var expires = (argc > 2) ? argv[2] : null;
    var path = (argc > 3) ? argv[3] : null;
    var domain = (argc > 4) ? argv[4] : null;
    var secure = (argc > 5) ? argv[5] : false;
    document.cookie = name + "=" + escape (value) +
        ((expires == null) ? "" : ("; expires=" + expires.toGMTString())) +
        ((path == null) ? "" : ("; path=" + path)) +
        ((domain == null) ? "" : ("; domain=" + domain)) +
        ((secure == true) ? "; secure" : "");
}

// Called by isName() - sets cookie to retain your name.
function setName()
{
    var expdate = new Date();
    var App_Name=document.forms[0].elements[0].value;
    expdate.setTime(expdate.getTime() + (24 * 60 * 60 * 1000 * 365));
    SetCookie("Confirm_Name", App_Name, expdate, "/", null, false);
}

// Called by isEmail() - sets cookie to retain e-mail address.
function setAddress()
{
    var expdate = new Date();
    var App_Address=document.forms[0].elements[1].value;
    expdate.setTime(expdate.getTime() + (24 * 60 * 60 * 1000 * 365));
    SetCookie("Confirm_Address", App_Address, expdate, "/", null, false);
}

// Called by isLanguage() - sets cookie to retain mother Language.
function setLanguage()
{
    var expdate = new Date();

```

```

var App_Language=document.forms[0].elements[2].value;
expdate.setTime(expdate.getTime() + (24 * 60 * 60 * 1000 * 365));
SetCookie("Confirm_Language", App_Language, expdate, "/", null, false);
}

// Called by isWWW() - sets cookie to retain e-mail address.
function setWWW()
{
    var expdate = new Date();
    var App_WWW=document.forms[0].elements[3].value;
    expdate.setTime(expdate.getTime() + (24 * 60 * 60 * 1000 * 365));
    SetCookie("Confirm_WWW", App_WWW, expdate, "/", null, false);
}

// Called by Delete the Cookies button - deleted both cookies.
function deleteCookies()
{
    var expdate = new Date();
    var App_Name;
    var App_Address;
    var App_Language;
    var App_WWW;
    expdate.setTime(expdate.getTime() - 1000000000);
    SetCookie("Confirm_Name", App_Name, expdate, "/", null, false);
    SetCookie("Confirm_Address", App_Address, expdate, "/", null, false);
    SetCookie("Confirm_Language", App_Language, expdate, "/", null, false);
    SetCookie("Confirm_WWW", App_WWW, expdate, "/", null, false);
    alert("\nThe cookies have been deleted.\n\nAnother submission will reset them.");
}

// This function is called by an onLoad.
// Puts focus on the name text box and 'remebers' form values when Cancel/Return is clicked.
function putFocus()
{
    if(GetCookie("Confirm_Name") != null)
    { parent.frame1.document.forms[0].yourname.value=GetCookie("Confirm_Name"); }
    if(GetCookie("Confirm_Address") != null)
    { parent.frame1.document.forms[0].emailAddress.value=GetCookie("Confirm_Address"); }
    if(GetCookie("Confirm_Language") != null)
    { parent.frame1.document.forms[0].momToung.value=GetCookie("Confirm_Language"); }
    if(GetCookie("Confirm_WWW") != null)
    { parent.frame1.document.forms[0].www.value=GetCookie("Confirm_WWW"); }
    document.forms[0].elements[0].value=parent.frame1.document.forms[0].yourname.value;
    document.forms[0].elements[1].value=parent.frame1.document.forms[0].emailAddress.value;
    document.forms[0].elements[2].value=parent.frame1.document.forms[0].momToung.value;
    document.forms[0].elements[3].value=parent.frame1.document.forms[0].www.value;
    document.forms[0].age[parent.age_index].checked=true;
    document.forms[0].sex[parent.sex_index].checked=true;

    // Puts focus on first element on the first time page is loaded if cookie doesn't exist.
    if ( parent.first_load==true && GetCookie("Confirm_Name") == null )
    {
        document.forms[0].elements[0].focus();
        parent.first_load=false;
    }

    // Puts focus on first element on return from Read Me file if name field is blank.
    if (parent.readme_return==true && document.forms[0].elements[0].value=="")
    {
        document.forms[0].elements[0].focus();
        parent.readme_return=false;
    }
}

// Checks the NAME field.
function isName()
{
    var str = document.forms[0].elements[0].value;
    // Return false if name field is blank.
    if (str == "")
    {
        alert("\nThe NAME field is blank.\n\nPlease enter your name.")
        document.forms[0].elements[0].focus();
    }
}

```