SIGNIFICANCE OF PRATT SOFTWARE: UNDERSTANDING ITS PHONOLOGICAL CHARACTERISTICS AND PROSODIC FEATURES

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ABSTRACT

Pratt is computer software that helps phoneticians synthesize, edit, and analyse speech. Phoneticians, sociolinguists, as well as phonologists all utilize this software. With the aid of this software, one can perform spectral, pitch, formant, and intensity evaluations as well as detect jitters, shimmers, and voice breaks. It can change the form of files and enhance some of their existing qualities. A track's frequencies can be changed and it can be made stereo or mono with this Pratt software. With the help of this feature, one can produce high-quality illustrations for use in academic research articles. For speech analysts that favour in-depth research, it is a more effective instrument. The sound tracks are edited and can be changed to suit the preferences and needs. Accent mispronunciation is solely caused by incorrect pitch patterns. The varying intentions are indicated by the variation in pitch levels. Linguistic and phonetic elements combine to form intonation. Tonal patterns serve a variety of linguistic purposes. The computerized learning utilizes phonetic acoustic hardware and software, concentrating on speech assessment patterns. The improvements in speech technology showed even better ways to reveal the prosodic intonation qualities. Software for computer-assisted language learning (CALL) allows for the visual representation of speech graphically the sound waveform and pitch contours. Features like stress, duration tone and, intonation, are determined by suprasegmental acoustic qualities. Praat is practical software that enables the user to alter and achieve the required phonetic and sound engineering values and levels.

Introduction

For human communication and the exchange of ideas, language is very crucial. Learning how to pronounce a language is an important element of language learning. The speaker's pronunciation is the main criterion for determining whether that language is pronounced correctly and fluently because the sound is the perfect embodiment of that language. To accomplish the teaching actions and attain a satisfactory standard with the least amount of variance, a variety of teaching resources, including phonetic symbols, figures and pronunciation charts, were allocated. In 1970, communicative teaching had an impact on how English pronunciation was taught. Consonants and vowels, the traditional segments, have given way to suprasegmental elements like stress, rhythm and intonation. The study of these topics and more emphasize on pronunciation training are given increased importance in today's language education methods. Observations showed that using tools and equipment to teach suprasegmental concepts is an effective and efficient method. Stress, rhythm, and intonation, are the three qualities that are visualized. De Bot finished his discussion of the tone aspects, which include variations in pitch, range, speed, and position. Academicians who validated these groupings agreed that using visual tools to teach linguistic tasks was unquestionably advantageous. The students picked up on the variations in tone promptly and with good comprehension (Raju, 2021). The potential for using various forms of speech visualization software was investigated during the development of computer-assisted language education. (Polas et al., 2020) tested new learners' phonetic pronunciation in 2010 and investigated whether the learners could successfully complete independent software learning on speech visualization. This was accomplished by accurate word stress recognition, word intonation of syllables, and proper understanding (Law et al., 2020)

The speech analysis tool Pratt is very adaptable and flexible. It is a piece of computer software that can be downloaded for free and used to scientifically evaluate phonetics and conversations. Praat software was developed in 2008 by Paul Boersma and David Weenick (Department of Phonetics, University of Amsterdam, Netherlands) to help phoneticians

with speech analysis, synthesis, and manipulation of speeches. This tool can handle speech in many different ways and has a wealth of capabilities. It enables the development of a source signal from a previously recorded speech and the extraction of data from the existing source (Hmedan et al., 2018). The word Praat, which means "talk," originated from the Dutch language. It is a 64-bit application employed for scientific evaluation used in phonetics. Both mono and stereo signals are evaluated (Phung & Raju, 2019). Mono to stereo conversion is possible. Almost all linguists have probably used this Praat program at some point in the past because it is so common. Praat software is used by all phoneticians, sociolinguists, and phonologists for their needs (Wang et al., 2016). It is a meticulously crafted software that can be used to alter or synthesise speeches. Phoneticians, sociolinguists, and phonologists all employ it. With the aid of this software, one can perform spectral, pitch, formant, and intensity analyses as well as spot jitters (irregular durations), shimmers and voice breaks. It can transform the appearance of files and enhance some of their existing qualities (Mikalef et al., 2021). With the help of this feature, one can produce high-quality pictures for use in academic research articles.

For speech analysts who favour in-depth research, it is a more effective instrument. It is intended for those who are familiar with sound waves and the possible processing methods. To increase a few functions, it may convert files into different formats. Audio files that have already been imported can be exported in the AIFF, NIST, WAV, NIST, and FLAC formants. It is a better effective tool for speech analysts and sound technologists.

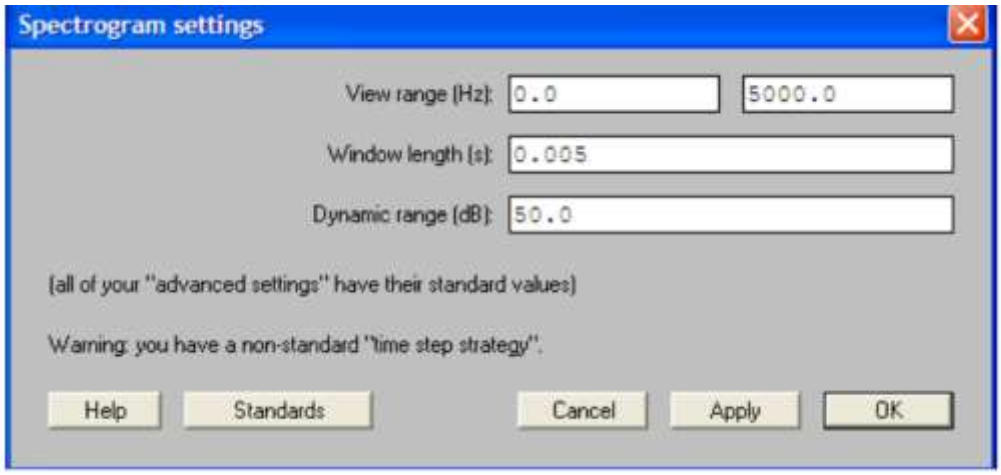

Fig-1.Default spectrogram settings

Research Background

Research in applied linguistics and language learning shows that pronunciation education has received less attention than syntax and morphology (Tatlow-Golden & Garde, 2020). It's because pronunciation is so important, researchers have used a variety of techniques including updating speech technologies (Carr et al., 2021). Computer-assisted pronunciation aids were incorporated into higher education to assess the prosaic characteristics of languages. A few issues with the difficulty of perceiving and comprehending speech visual displays led specialists to look for software that interfaces with pronunciation (Dawes, 2022).

(Antunes, Marina Godinho, Joaquín Texeira Quirós, 2017) found that Chinese students generally applied the Chinese rhythm to the English rhythm rather than the proper application of the English rhythm. According to numerous research comparing the true pronunciation of phonemes, suprasegmental shown to be more important in correctly interpreting speech. Currently, the teaching of language makes use of visual feedback technologies to carry out the teaching of suprasegmental due to the vast development and growth of computer technologies, hardware and software (Pham-

Truffert et al., 2020). The main instrument for teaching languages now is the speech visualization technique. (Drouin et al., 2021) investigated various teaching strategies using computer based technologies to train phonemes. Academic scholars were aware of the benefits of using visualization technology to help students to concentrate on the prosodic elements of the content. Without solid language skills and the capacity to listen, it is challenging for learners to comprehend the speech system (Shen et al., 2020). But such knowledge can be easily absorbed and learned if it is presented visually and successfully decoded.

Using phonetic acoustic hardware and software from 1970, the computerized learning-focused spoken analysis methods were developed. The improvements in speech technology showed even better ways to train the prosody and intonation qualities. Software for computer-assisted language learning (CALL) enables speech visualization and graphically depicts the waveform and pitch contours of the sound (Patzelt et al., 2021). In 1986, Kay Elemetrics invented the pioneering program known as "Visi-Pitch." It offered evaluations and visual displays of speeches (Cisneros-Montemayor et al., 2020). Many researches focused on intonation contours and prosodic elements, and visual tools produced results that were still superior to those obtained by solely relying only on aural output (Cetin & Kinik, 2015).

Once we become familiar with the Praat software, it is simple to control and change audio tracks according to our preference and wishes. Only in laboratories, intonation contours visual feedback was investigated (Ángeles López-Cabarcos et al., 2021). Spectral, tone, intensity, and formant analysis are the four fundamental tasks that may be carried out with the help of Praat software.

The interpretation of spectrograms at the appropriate level will not be possible for students who have little experience with signal analysis tools, in contrast to the visualization of a limited number of intonation contours (Banmairuroy et al., 2021). Researchers found that visual information was only truly helpful for assisting learners to understand pronunciation issues during their analysis of intonation contours perception using Praat software.

Literature Review

The dialectal background of a learner determines whether they are successful or unsuccessful in picking up new language segments and prosodic characteristics (Cartagena-Gutiérrez et al., 2021). There won't be many dissimilarities or similarities in a phonetic system (Raju & Phung, 2018). Languages' intonation varies depending on the pitch levels, which range from low to high. Sometimes, new students pronounce sounds incorrectly by utilizing improper or wrong pitch patterns. The Hz disparities among the adjacent harmonics are used to establish pitch (Gao, 2022). Different intentions can be predicted by the variations in pitch levels. For instance, a decreasing contour is used to indicate statements, orders, and queries (Drouin et al., 2021). The varying intentions are indicated by the change in pitch levels. Linguistic and phonetic elements combine to form intonation (Mention, 2021). Tonal patterns serve a variety of language purposes. In intonation, there are phonetic as well as linguistic features. Physiological, perceptual patterns and intonation acoustic are all covered by phonetic components. While phonological details and how listeners and speakers embrace international patterns throughout interaction are dealt with by linguistic components (Cetin & Kinik, 2015). Spectral, tone, intensity, and formant analysis are the four fundamental tasks that the Praat software is capable of performing.

Once accustomed and familiar to the Praat software, manipulating and changing audio tracks as per the choice is simple for the learners. Only laboratory research has been done on the use of visual feedback for intonation contours (Islam et al., 2021). Such input was used by international students in phonetics-focused courses (Pring et al., 2021). For language learners who are honing their communication abilities, there have been significant worries about using a visual feedback paradigm in the classroom (Murinde et al., 2022). Only a few researchers believed that well-trained instructors typically used speech analysis tools. They believed that these technological tools would not help their needs because they are at an advanced level for learners (Sharko et al., 2021).The interpretation of spectrograms at the

appropriate level will not be possible for students who have little experience with signal analysis tools, in contrast to the visualisation of a limited number of intonation contours (Alshater et al., 2022). Researchers that used Praat software to evaluate how intonation contours were perceived came to the conclusion that visual feedback helped learners understand pronunciation-related concepts solely (Zarifis & Cheng, 2022).

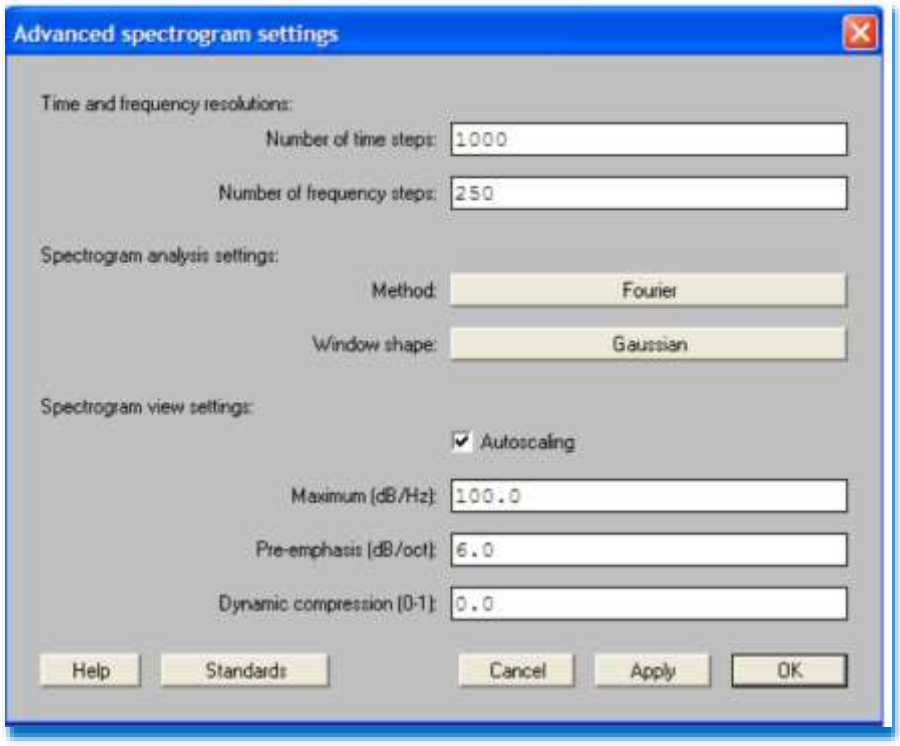

Fig. 2. Default advanced spectrogram settings

Features of Praat Software

Praat software can process speech in a variety of ways and includes a number of features. This is free software that can be used to rebuild and evaluate spoken acoustic waves. Praat is a versatile programme that is useful for performing speech analysis. It provides a wide range of conventional and unconventional techniques, such as articulatory synthesis, neutral networks, and spectrographic analysis. When compared to similar software, it offers various benefits such as free downloading, consuming less space, being user-friendly, and having consistent updated versions. It was previously used by a large number of researchers to analyse voice signals, evaluate the spectrum, classify speech signals, and produce assessments on texts. However, it is currently used in pronunciation instruction for new learners. This essay focuses on the application of Praat as acoustic evaluation of speech and voice samples.

Conclusion

The software programme Pratt, which is used to analyse and reconstruct acoustic speech patterns, is available for free download and works with a number of different operating systems (Raju & Phung, 2018). It includes a range of methodologies, including spectrographic analysis, and articulatory synthesis, and neutral networks. It has several uses in the phoneticians' domains of phonology and speech evaluation and has grown to be an essential instrument due to its usability. For sound technologists and speech analysts, it is a more useful tool. Praat software is primarily used by phoneticians, sociolinguists, and phonologists. The Praat software has probably been used by almost all linguists, being user friendly, a freeware and easy applications.

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