Timing Lyrics in Selected Nigerian Hip Hop Music and the Implication for Nigerian English Rhythm

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Abstract

This study examines the rhythmic structure of Nigerian hip-hop music and its implications for Nigerian English rhythm description. Focusing on selected lyrics by artists like Temilade Openiyi (TEMS) and Adedamola Adefolahan (Fireboy DML), the research avers whether these songs exhibit syllable-timed or stress-timed rhythm patterns. Using acoustic and statistical analyses through the Praat software, syllable durations were measured to determine the rhythmic patterns. Findings reveal a predominantly syllable-timed structure, characterised by relatively consistent syllable durations and minimal variability. The syllable durations range from 0.206ms, 0.2885 ms, 0.3027 ms, 0.3106 ms, 0.5272 ms, 0.3401 ms, 0.3754ms, 0.3456 ms, 0.3016 ms, 0.3596 ms, 0.2467 ms, 0.2968 ms, 0.2286 ms, 0.2684 ms, 0.2593 ms and 0.2980 ms. This consistency was evident across different pitch and intensity ranges, reinforcing the uniformity of the rhythm in the sampled songs. This rhythmic uniformity reflects how Nigerian hip-hop adapts the phonetic elements of English to create a unique musical experience, emphasising syllable consistency over traditional stress-timed patterns typical of native English varieties. This study provides insight into the intersection of music and linguistics in Nigerian culture, highlighting the role of Nigerian hip-hop music in shaping perceptions of Nigerian English rhythm and prosody.

Keywords: Nigerian hip-hop, syllable-timed, stress-timed, syllable durations and Nigerian English Rhythm

Introduction

Music has recently been defined as a universal language from various perspectives. Some of these perspectives shall be looked at to fully discuss what the term 'music' suggests in its entirety. Adeogun (2012) conceives "music to be the product of people and societies." Musical knowledge is a transmittable constellation of enduring socio-musical traits which codify, articulate, and validate the unique practice of the human group. Its organisation depends largely on the use of society widely recognised theories of tonality and/or modality, thematic structures, rhythmic patterns, tempo, timbres, and use of language and musical instruments in communicating ideas, thoughts, contents and meaning to society.

Rhythm, a core element of language and music has been studied extensively for its role in human communication and aesthetic expression. Musical rhythm refers to the pattern of sounds and silences within a piece of music, characterised by its temporal structure and organization (Patel, 2008). Similarly, English rhythm is an integral component of spoken language, marked by patterns of stress, timing, and intonation

that facilitate meaning and coherence in communication (Abercrombie, 1967). Hence, this study investigates the parallels and intersections between English rhythm and musical rhythm, shedding light on their shared cognitive underpinnings and their pedagogical implications, particularly in teaching English as Second in Nigeria.

Rhythm in English refers to the pattern of stressed and unstressed syllables in speech, creating a sense of musicality and flow. English, as a stress-timed language, exhibits a unique rhythm influenced by its syllable structure, intonation, and phonological patterns. According to Pike (1945), English rhythm is characterised by a stress-timed pattern where stressed syllables occur at regular intervals, producing a sense of pulsation. This stress timing is achieved through the alternation of stressed and unstressed syllables, with unstressed syllables often reduced to a schwa or other weak vowel sounds (Giegerich, 1992; Akindele & Fabunmi 2023).

However, English rhythm can be complex, and variations arise due to factors such as dialect, register, and individual speaking styles. Wells (1982) notes that different dialects of English, like Received Pronunciation (RP) and General American (GA), have distinct rhythmic patterns. For instance, RP tends to exhibit more pronounced stress timing, while GA often has a more relaxed, syllable-timed rhythm. Intonation also significantly shapes English rhythm. Halliday (1967) highlights that intonation is a crucial aspect of English phonology, as it conveys meaning and attitude. The rising and falling patterns of intonation can either reinforce or contradict the rhythmic pattern of stressed and unstressed syllables, creating a complex interplay between rhythm and intonation. The rhythm of English is influenced by its syllable structure. Selkirk (1984) categorises English syllables into different types, such as monosyllabic, disyllabic, and polysyllabic, each with its own rhythmic characteristics. Monosyllabic words, for example, tend to have more pronounced stress, while polysyllabic words often exhibit a more complex rhythmic pattern due to the presence of multiple syllables.

Furthermore, musical rhythm forms the backbone of any composition, structuring how sounds and silences are organised over time. It intersects with key elements like time signature, syncopation, accentuation and tempo, creating patterns that give music its dynamic character and emotive power (Temperley, 2001). These elements help establish facts that support the musical rhythm and relate appropriately to the phonological analysis used to establish the connection between the two fields of knowledge. It provides a framework for musical expression, offering predictability and variation that appeal to human auditory processing. Patel (2008) identifies the universality of rhythm across musical traditions, emphasizing its role in creating emotional resonance and fostering group cohesion during musical performances.

Rhythm in music has been shown to engage various neural networks, including those associated with motor planning, auditory processing, and memory (Grahn& Brett, 2007). Such engagement underscores rhythm's importance in cognitive processes, including speech perception and production. Studies suggest that rhythmic training in music can enhance phonological awareness, auditory discrimination, and temporal processing—skills that are critical for language acquisition (Tierney & Kraus, 2013).

Time signature specifies how many beats are in each measure and what note value constitutes one beat. For example, a 4/4 time signature, often called "common time," signifies four beats per measure, with the quarter note receiving one beat. Lerdahl and Jackendoff (1983), in their *Generative Theory of Tonal Music*, emphasise how time signatures influence rhythmic perception, shaping the listener's expectations of regularity and symmetry.

Syncopation, at its core, is a technique in music that alters the expected pattern of accents within a measure. Typically, accents fall on strong beats, which provide a sense of foundation to a rhythm. However, syncopation shifts the accent to weaker beats or off beats, challenging the listener's expectations. This means accenting notes that are usually unaccented, which adds an element of surprise and complexity to the rhythm.

In another terms, syncopation refers to the displacement of regular accents that correspond with specific metrical patterns. This disruption creates tension and anticipation in the listener, sparking a desire to return to the predictable regularity of the established meter. As a result, a syncopated rhythm incorporates various unexpected rhythmic elements that can make segments or entire pieces of music seem to stray from the expected pulse. In essence, syncopation acts as a general term encompassing disturbances or interruptions in the flow of rhythm, whereby rhythmic stresses or accents are placed in atypical positions. This can manifest in a number of ways, such as accenting normally weak beats, resting on beats that are usually emphasised, or prolonging a note into the next measure (Hoffman, 1997).

The use of syncopation is particularly prominent in folk-dance music, especially within Eastern Europe, where its lively and unpredictable nature enhances the dance experience. The historical significance of syncopation within Western music can be traced back to the 14th century, marking its presence as a vital component in musical composition. In the 20th century, syncopation became a defining characteristic of jazz music, where it is employed to create intricate rhythms. Renowned composers such as Igor Stravinsky integrated syncopation into their works, utilizing it as a means to break from conventional rhythmic constraints (Stravinsky & Craft, 1959, p. 91). Music producer Snoman (2004) emphasises the crucial role of syncopation in dance music, stating, "All dance music makes use of syncopation, and it's often a vital element that helps tie the whole track together."

Furthermore, syncopation manifests in contemporary popular music in various forms, most notably through the backbeat, which is a compelling rhythmic feature employed across genres. Another instance of syncopation occurs when a strong harmonic element coincides with a weak beat. For example, playing a 7th chord on the second beat of a measure or positioning a dominant chord on the fourth beat demonstrates how syncopation can create a rich harmonic texture. This practice is quite prevalent in tonal cadences found in 18th- and early-19th-century music, where it often serves as a conventional way to conclude musical sections. Through these various

expressions, syncopation enriches the musical landscape, inviting listeners to engage with rhythm in more dynamic and compelling ways.

While accentualisation/ setting word rhythms to music refers to specific emphasis on particular beats within speech and music. As previously noted, English functions as a non-tonal language; thus, the rise and fall of a speaker's pitch do not alter the meaning of a word when it is considered outside of its contextual usage. Nonetheless, variations in pitch can carry implications, such as the rise in pitch typically observed at the end of interrogative statements (Saunders, 2008).

In verbal communication, two primary factors can influence the interpretation of a word or group of words: the pitch of the voice—whether it ascends, descends, or remains level—and the emphasis placed on individual notes. Composers may indicate that a specific note should be louder than others or may desire that the initial sound of a note be the most prominent. Accents serve as notational indicators for these notably strong notes. The execution of a particular accent is influenced by the instrument being utilised, as well as by the musical style and historical context. Furthermore, some accents may be expressed by adjusting the duration of a note, either elongating or shortening it, in addition to, or instead of, increasing its intensity.

In the context of questioning, the pitch conventionally rises towards the conclusion of the query. For instance, consider the distinction between the statements "Are you coming today?" and "You must return today." Additionally, the manner in which syllables are accented plays a critical role in the process of meaning-making. For example, the term "refuse" can convey two distinctly different meanings based on which syllable receives emphasis: RE-fuse denotes "rubbish or litter," while re-FUSE signifies "to reject or not accept."

The accentuation of different words within a sentence can substantially alter its overall meaning, even when the lexical content remains unchanged. The phrase "I will succeed" can convey various connotations depending on which word is emphasised:

- I (highlighting 'me') will succeed.
- I will succeed (indicating that nothing will impede my success).
- I will succeed (serving as a definitive assertion regarding my achievement).

Moreover, when words are set to music, the syllables that are accented typically align with strong beats, while unaccented syllables correspond with weaker beats. Consequently, the phrase "I will succeed" may differ rhythmically based on its intended interpretation. Verbal accents serve a role analogous to musical accents, as different rhythmic patterns may share a common time signature and tempo while remaining distinct through the emphasis of various notes and beats.

Also, tempo is another fundamental aspect of music that refers to the speed at which a particular piece is performed. It can be classified into various categories, such as fast, moderate, or slow, and significantly influences the overall mood and character of the music. Musicians commonly use three primary methods to convey tempo: beats

per minute (BPM), Italian terminology, and modern language descriptors. Beats per minute (BPM) is a precise measurement that indicates the number of beats in one minute of music. For example, a tempo marked at 60 BPM signifies that there is one beat every second, while a tempo of 120 BPM means there are two beats each second. This quantifiable metric helps musicians understand the intended speed of a piece.

Italian terms play a crucial role in communicating tempo as well. These terms are rich in musical tradition and provide descriptive labels for different speeds. For instance, "largo" indicates a very slow tempo, while "andante" suggests a moderately slow pace. "Allegro" denotes a lively, brisk tempo, and "presto" refers to an extremely fast pace. These terms not only indicate speed but also convey the style and emotion the composer intends to evoke.

In addition to speed, tempo contributes to the emphasis placed on different sections of a musical composition. A piece may start with a slow tempo, creating a calm and reflective atmosphere. As the music progresses, it might transition into a moderate and then a fast tempo, adding energy and excitement. Finally, many compositions conclude with a return to a slower pace, creating a sense of resolution and closure. This dynamic range of tempo is a standard approach in various genres and styles of music. To help musicians accurately maintain the desired tempo while practicing and performing, a metronome is often used. This device produces a steady pulse or click that serves as a timing guide, enabling musicians to play rhythms with precision. With a metronome, players can gradually increase their speed or ensure that they remain consistent throughout the piece, which is particularly beneficial when tackling complex rhythms or challenging passages in music (Sachs, 1953). In essence, an understanding of tempo, how to communicate it effectively and the ability to maintain it through tools like a metronome are essential skills for any musician, influencing both technical execution and artistic expression.

Therefore, the rise of Nigerian hip-hop as a distinct genre within the global music scene has drawn significant interest, yet there is limited research on how its linguistic and rhythmic structures influence the perception and evolution of Nigerian English (NigE) prosody. In particular, while English rhythm is traditionally categorised as stress-timed, the application of this rhythm in Nigerian English and Nigerian hip-hop remains complex and understudied. This study seeks to address this gap by examining whether Nigerian hip-hop exhibits a syllable-timed or stress-timed rhythm pattern in the delivery of lyrics and how these rhythmic choices influence listeners' perception of Nigerian English prosody and also contribute to the understanding of Nigerian hip-hop's rhythmic structure and its implications for the prosodic features of Nigerian English. This research aims to bridge the gap between music and linguistics by exploring how rhythmic choices in popular music influence language perception and usage in a multilingual society. Therefore, the study seeks to achieve the following objectives: to investigate the timing rhythm of selected Nigerian Hip-hop music using statistical and acoustic tools (Praat); and determine whether selected Nigerian Hip-Hop music exhibits

syllable-timed or stress-timed rhythm patterns in the alternation of strong and weak syllables or not.

Hip-Hop Music in the United States and Nigeria and Its Influence on Nigerian Youths

Hip-hop emerged as a response to socio-economic challenges faced by African Americans and Latinos in the Bronx during the 1970s (Chang, 2005). Rooted in elements such as DJing, MCing, breakdancing and graffiti, hip-hop provided a voice for marginalised communities, offering a platform for self-expression and resistance against systemic injustices (Rose, 1994). Early pioneers like DJ Kool Herc, Grandmaster Flash, and Afrika Bambaataa laid the foundation for a genre that combined rhythmic beats with poignant lyrics addressing social realities. By the 1980s, hip-hop began to diversify, with subgenres such as gangsta rap emerging, which brought attention to urban struggles, crime, and police brutality. Artists like N.W.A., Public Enemy, and Tupac Shakur became cultural icons, using their music to spotlight systemic inequality and the African American experience (Dyson, 2007). The global appeal of hip-hop grew exponentially, with its influence spreading to continents like Africa by the late 20th century.

Hip-hop arrived in Nigeria in the 1980s through African American music videos, radio broadcasts, and global media. However, its local adaptation gained momentum in the 1990s and early 2000s, with artists blending Western beats with indigenous rhythms, languages, and themes. The likes of Mode 9, Ruggedman, and later M.I Abaga and Olamide played pivotal roles in localizing the genre, creating what is now known as 'Naija Hip-hop' (Adedeji, 2017). Unlike its American counterpart, which initially centered on systemic oppression, Nigerian hip-hop reflects a mix of global issues and local realities such as economic struggles, corruption, and cultural pride. Nigerian artists often incorporate elements of Afrobeat, highlife, and fuji music, using local languages like Yoruba, Pidgin English, and Igbo to reach a broader audience (Akindele & Fabunmi, 2023). This fusion not only creates a unique sound but also situates hip-hop within Nigeria's socio-cultural context.

Influence of Hip-Hop on Nigerian Youths

i. **Cultural Identity and Expression:** Nigerian hip-hop has become a vehicle for youths to explore and assert their cultural identity. By blending traditional and modern influences, artists like Burna Boy, Falz, and Phyno have inspired young Nigerians to embrace their heritage while engaging with global trends. This hybrid identity empowers youths to navigate the complexities of globalization without losing their cultural roots (Adedeji, 2017).

ii. **Language and Communication:** Hip-hop has significantly influenced the linguistic landscape in Nigeria. The widespread use of Pidgin English in hip-hop lyrics has popularised the language among Nigerian youths, promoting a sense of unity across ethnic divides (Akindele, 2020). Furthermore, the incorporation of

indigenous languages in hip-hop has encouraged the preservation and revitalization of Nigeria's linguistic diversity.

iii. **Social Awareness and Activism:** Similar to its American origins, Nigerian hip-hop serves as a platform for social commentary. Songs like Falz's 'This is Nigeria' and Eedris Abdulkareem's 'Jaga Jaga' critique corruption, inequality and poor governance, resonating deeply with politically conscious youths. This has inspired activism among young Nigerians, exemplified during the #EndSARS protests in 2020, where hip-hop artists lent their voices to the movement.

iv. **Fashion and Lifestyle:** The influence of hip-hop extends beyond music to fashion and lifestyle. Nigerian youths often emulate the dress styles of hip-hop artists, such as baggy clothing, sneakers, and caps. This adoption of hip-hop aesthetics reflects the aspirational nature of the genre, symbolizing confidence, freedom, and rebellion against societal norms (Osisanwo, 2012).

v. **Entrepreneurship and Innovation:** Hip-hop's entrepreneurial spirit has inspired many Nigerian youths to pursue careers in music, entertainment, and related industries. Platforms like YouTube, SoundCloud, and social media have enabled independent artists to showcase their talents, creating new pathways for economic empowerment. The rise of labels like Chocolate City and YBNL exemplifies how hip-hop has fostered a thriving music industry in Nigeria.

Literature Review

In phonology, rhythm refers to the pattern of stresses and timing within spoken language, which mirrors musical rhythm's structured timing and emphasis. Research in cognitive science and linguistics highlights the shared neural and cognitive mechanisms underpinning music and language. Patel (2008) in his "Music, Language, and the Brain," posits that while music and language are distinct systems, they share overlapping resources, particularly in rhythm processing. Both domains rely on temporal structuring, suggesting that rhythmic training in music could enhance the perception and production of rhythm in language.

English rhythm is traditionally described as stress-timed, where stressed syllables occur at regular intervals, regardless of the number of intervening unstressed syllables (Abercrombie, 1967). This is contrasted with syllable-timed languages, where syllables are of relatively equal duration. The prominence of stress and its rhythmic regularity play a significant role in the intelligibility and naturalness of spoken English (Crystal, 2003). The rhythmic nature of English often poses challenges for speakers of syllable-timed languages, as they may struggle with the reduced vowels in unstressed syllables and the appropriate timing of stressed syllables.

Studies have shown that musical training can positively impact phonological skills. Studies by Tierney and Kraus (2013) established that musicians have heightened sensitivity to the timing of auditory stimuli, which translates to improved rhythm perception in speech. This enhanced rhythmic sensitivity can facilitate better stress-timing perception in English. Similarly, Gordon et al. (2015) found that rhythmic

training through music improves temporal processing and prosodic features in language. Prosody, which includes rhythm, intonation and stress, is essential for effective communication in English. These findings suggest that incorporating rhythmic and musical elements into English language teaching can benefit learners, particularly in mastering English stress patterns. Using rhythmic exercises, such as clapping or tapping along with spoken phrases, can help learners to internalise the stress-timed rhythm of English (Murphey, 1992). Moreover, songs and chants are effective tools for teaching stress patterns and intonation. For instance, Lodge (2009) emphasises the role of rhythmic activities in improving learners' pronunciation and fluency. Activities like singing English songs not only enhance stress-timing awareness but also provide an enjoyable and engaging learning environment.

Despite the advantages, some researchers argue that the relationship between music and language rhythm is not straightforward. For instance, Pinker (1997) describes music as "auditory cheesecake," suggesting that its relationship with language is more decorative than fundamental. Furthermore, cultural variations in musical rhythm and linguistic rhythm could complicate the transfer of rhythmic skills across domains (Temperley, 2001).

The growing interdisciplinary research between musicology and linguistics continues to emphasise the practical and theoretical intersections between these fields. Below are additional areas that further enrich our understanding of the connection between music, rhythm and English phonology. Advances in neuroimaging have provided evidence of shared brain regions involved in processing rhythm in both music and speech. Studies by Zatorre, Chen, and Penhune (2007) indicate that the auditory cortex and motor regions, such as the basal ganglia, play critical roles in rhythmic perception and production. These findings support the hypothesis that rhythmic training in music can transfer to speech processing, particularly in stress-timed languages like English. Moreover, Besson et al. (2011) found that musical expertise enhances the brain's ability to detect prosodic variations, suggesting a direct link between rhythm sensitivity and the subtleties of language rhythm. These neurocognitive findings underscore the importance of rhythm in both domains and its potential pedagogical applications.

Comparative studies have shown that the impact of music on rhythm varies across languages. For example, studies by Goswami et al. (2013) reveal that rhythmic sensitivity is crucial for distinguishing between stress-timed languages (like English) and syllable-timed languages (like Spanish or French). For English learners from syllable-timed language backgrounds, music-based training can act as a bridge to understanding English stress patterns. The use of rhythmic patterns that mimic English prosody can help learners internalise stress-timing principles more effectively.

Babalola and Akande (2019), in their study on Linguistic creativity in Nigerian Hip-Hop lyrics investigate the creative use of language in Nigerian hip-hop. The study focus on how artists mix English, Nigerian Pidgin and indigenous languages like Yoruba and Igbo in their lyrics. This blending reflects the diversity of Nigerian society and helps artists connect with local and international audiences. Also, the study shows how

Nigerian hip-hop serves as a voice for the youth and how artists uses their lyrics to highlight societal problems such as corruption, inequality and unemployment, through storytelling and metaphor, they express the struggles and dreams of Nigerian youth, making hip-hop a tool for advocacy and change. In addition, Babalola and Akande examine the rhythm of Nigerian hip-hop. This study shows that lyrics often follow a syllable-timed rhythm, where syllables are given equal time, rather than the stress-timed rhythm typical of native English. This pattern reflects the influence of Nigerian English on the genre, showing how language and music interact.

While, Onanuga (2020) study on Globlisation and cultural hybridisation in Nigerian Hip-Hop explains how Nigerian hip-hop combines global hip-hop styles with local traditions. While influenced by American hip-hop, Nigerian artists add elements like Afrobeat rhythms, indigenous storytelling and local instruments to create a distinct sound. This mix of global and local styles makes Nigerian hip-hop unique and relatable to its audience. Also the study highlights the rhythmic structure of Nigerian hip-hop. Like Babalola and Akande, Onanuga finds that the lyrics often reflect the syllable-timed rhythm of Nigerian English. This connection between musical rhythm and language shows how Nigerian hip-hop shapes and reflects the way English is spoken in Nigeria. The study also discusses how Nigerian hip-hop empowers the youth.

Methodology

This study adopts a qualitative research design supported by acoustic and statistical analyses. The qualitative approach allows an in-depth exploration of the rhythmic patterns in selected Nigerian hip-hop lyrics, while the acoustic analysis, conducted using Praat software, provides empirical evidence of syllable durations, pitch, and intensity. This mixed-method approach ensures a comprehensive understanding of the timing and rhythm patterns in the sampled lyrics. The study purposively sampled and analysed the song-lyrics of Temilade Openiyi popularly referred to as TEMS and Adedamola Adefolahan known as Fireboy DML. Four (4) musical-lyrics selected from the album of each of the artists were collated and transcribed for analysis in this study. The sampled songs are; Champion, Remember Me, Dreamer, God Only Knows, Free Mind, Found, Essence, and Damages. The study purposively selected Temilade Openiyi (TEMS) and Adedamola Adefolahan (Fireboy DML) based on their significant contributions to contemporary Nigerian hip-hop and their representation of the genre's global and local dimensions. TEMS, with her unique vocal style and international recognition, exemplifies the blend of Afrobeat and hip-hop elements that define modern Nigerian music. Fireboy DML, known for his innovative use of lyrics and rhythms, provides a contrasting yet complementary perspective, showcasing how Nigerian hip-hop adapts to both traditional and modern influences.

Both artists have gained widespread acclaim and have a strong influence on Nigerian and international audiences, making their works ideal for studying the rhythmic features of Nigerian hip-hop and their implications for Nigerian English rhythm. By analysing their lyrics, the study aims to provide a representative

understanding of the genre's role in shaping linguistic and cultural expressions in Nigeria. The songs were played and transcribed while the milliseconds of each of the lyrics were adequately tracked and cropped for analysis. Boersman, Praat was used to complement the acoustic measures of the timing of each of the syllable beats in each lyric cropped.

Data collection and Analysis

This study focused on analysing the rhythmic patterns in selected Nigerian hip-hop songs to understand their timing and how they influence the understanding of Nigerian English rhythm. The data collection involved selecting four popular songs each from Temilade Openiyi (TEMS) and Adedamola Adefolahan (Fireboy DML). These artists and songs were selected because of their wide recognition and ability to represent the mix of local and global influences in Nigerian hip-hop. The lyrics of the chosen songs were transcribed and broken down into syllables for detailed analysis. Praat software was used to measure important features such as the length of syllables, changes in pitch and levels of intensity. This helped determine whether the songs follow a syllable-timed or stress-timed rhythm.

Isochronic Representation of data

Table 1: Distribution of Isochrony pattern in the sampled lyrics of Adedamola Adefolahan

S/N	Sampled lyrics from Adedamola Adefolahan's songs	Expected Output	Realised Output
1.	I be King	/aɪ bi kɪŋ/	/aɪ/ /bi/ /kɪŋ/
2.	I'm the best my generation ever seen	/aɪm ðə bɛst maɪˌdʒɛnəˈreɪʃən ˈɛvərsiːn/	/aɪm/ /ðə/ /bɛst/ /maɪ/ /ˌdʒɛnəˈreɪʃən/ /ˈɛvərsiːn/
3.	I came suddenly	/aɪ keɪm ˈsʌdənli/	/aɪ/ /keɪm/ /ˈsʌdənli/
4.	Of the mountains I have climbed	/əv ðə ˈmaʊntənz aɪ hæv klaɪmd/	/ɔv/ /ðə/ /ˈmaʊntənz/ /aɪ/ /hæv/ /klaɪmd/
5.	Tell them my story my struggles and my glory	/tɛl ðəm maɪ ˈstɔːri maɪ ˈstrʌgəlz ənd maɪ ˈglɔːri/	/tɛl/ /ðəm/ /maɪ/ /ˈstɔːri/ /maɪ/ /ˈstrʌgəlz/ /ənd/ /maɪ/ /ˈglɔːri/
6.	For you see, life is like a song	/fər ju siː laɪf ɪz laɪk ə sɔŋ/	/fər/ /ju/ /siː/ /laɪf/ /ɪz/ /laɪk/ /ə/ /sɔŋ/

7.	Am I only a dreamer	/æm aɪ ˈoʊnli ə ˈdriːmər/	/æm/ /aɪ/ /ˈoʊnli/ /ə/ /ˈdriːmər/
8.	You left so many words unsaid, have I been lying to myself	/ju lɛft soʊ ˈmɛni wɜrdz ʌnˈsɛd hæv aɪ bɪn ˈlaɪɪŋ tə maɪˈsɛlf/	/ju/ /lɛft/ /soʊ/ /ˈmɛni/ /wɜrdz/ /ɔnˈsɛd/ /hæv/ /aɪ/ /bɪn/ /ˈlaɪɪŋ/ /tə/ /maɪˈsɛlf/
9.	God only knows	/gɑd ˈoʊnli nəʊz/	/gɑd/ /ˈoʊnli/ /noʊz/
10.	If I'll ever see you again	/ɪf aɪl ˈɛvər siː ju əˈgɛn/	/ɪf/ /aɪl/ /ˈɛvər/ /sɪ/ /juː/ /əˈgɛn/

The isochronic distribution of stress across syllables is illustrated in the sampledlyrical lines of Adedamola Adefolahan's sampled above. The table shows the presentation of the segmentation of the selected lines of lyrics in the sampled songs and this was done to provide scientific platform for studying rhythm and related patterns in Nigerian Hip-hop and establishing the isochronic pattern in Nigerian Hip-hop. Cases of clashes in the distribution of stress were seen in the analysed data. Instances include: /aɪ/ /bi/ /kɪŋ/, /aɪm/ /ðə/ /bɛst/ /maɪ/ /ˌdʒɛnəˈreɪʃən/ /ˈɛvərsiːn/, /aɪ/ /keɪm/ /ˈsʌdənli/, /əv/ /ðə/ /ˈmaʊntənz/ /aɪ/ /hæv/ /klaɪmd/, /tɛl/ /ðəm/ /maɪ/ /ˈstɔːri/ /maɪ/ /ˈstrʌgəlz/ /ənd/ /maɪ/ /ˈglɔːri/, /fər/ /ju/ /siː/ /laɪf/ /ɪz/ /laɪk/ /ə/ /sɔŋ/, /æm/ /aɪ/ /ˈoʊnli/ /ə/ /ˈdriːmər/, /ju/ /lɛft/ /soʊ/ /ˈmɛni/ /wɜrdz/ /ʌnˈsɛd/ /hæv/ /aɪ/ /bɪn/ /ˈlaɪɪŋ/ /tə/ /maɪˈsɛlf/, /gɑd/ /ˈoʊnli/ /noʊz/ and /ɪf/ /aɪl/ /ˈɛvər/ /siː/ /ju/ /əˈgɛn/.

The realised outputs present variations that artists introduce for stylistic effects. This shows that the artist made every syllable in his utterance prominent and realised at relatively equal timing. This makes the isochronic pattern to be syllable-timed. The distinct modification in realised outputs reveals how phonetic adjustment serves as a tool for artistic expression where adherence to isochrony enhances musical cohesiveness without strict adherence to formal pronunciation rules.

Table 2: Distribution of Isochrony patterns in the sampled lyrics of Temilade Openiyi

S/N	Sampled lyrics from Temilade Openiyi's songs	Expected Output	Realised Output
1.	All you do is lie and lie and lie	/ɔl ju du ɪz laɪ ənd laɪ ənd laɪ/	/ɔl/ /ju/ /du/ /ɪz/ /laɪ/ /ənd/ /laɪ/ /ənd/ /laɪ/
2.	And I know you're not the one for me	/ænd aɪ noʊ jʊr nɑt ðə wʌn fər miː/	/ænd/ /aɪ/ /noʊ/ /jʊr/ /nɑt/ /ðə/ /wʌn/ /fər/ /miː/

3.	People always try to get involved	/ˈpiːpəl ˈɔlweɪz traɪ tə gɛt ɪnˈvalvd/	/ˈpiːpəl/ /ˈɔlweɪz/ /traɪ/ /tə/ /gɛt/ /ɪnˈvalvd/
4.	Tell me why you can't be found?	/tɛl mi waɪ ju kænt bi faʊnd/	/tɛl/ /mi/ /waɪ/ /ju/ /kænt/ /bi/ /faʊnd/
5.	Love is a difficult life	/lʌv ɪz ə ˈdɪfɪkəlt laɪf/	/lʌv/ /ɪz/ /ə/ /ˈdɪfɪkəlt/ /laɪf/
6.	Trust I can manage that	/trʌst aɪ kæn ˈmænɪʤ ðæt/	/trʌst/ /aɪ/ /kæn/ /ˈmænɪʤ/ /ðæt/
7.	Since day one you running right back	/sɪns deɪ wʌn ju ˈrʌnɪŋ raɪt bæk/	/sɪns/ /deɪ/ /wʌn/ /ju/ /ˈrʌnɪŋ/ /raɪt/ /bæk/
8.	One time you tell me one chance	/wʌn taɪm ju tɛl mi wʌn ʧæns/	/wʌn/ /taɪm/ /ju/ /tɛl/ /mi/ /wʌn/ /ʧæns/
9.	Turn me out of my mind	/tɜrn mi aʊt əv maɪ maɪnd/	/tɜrn/ /mi/ /aʊt/ /ɔv/ /maɪ/ /maɪnd/
10.	Yeah our love no be lie	/jɛa ʊər lʌv noʊ bi laɪ/	/jɛ/ /aʊər/ /lʌv/ /noʊ/ /bi/ /laɪ/

The table above shows the isochronic representation of the placement of stress across syllables in the sampled lines of the Temilade Openiyi's song-lyrics. The table presents the analysis of the segmentation of the selected lines of lyrics in the sampled songs and this was done to provide scientific platform for studying rhythm and peculiar patterns in Nigerian Hip-hop and establishing the isochronic pattern in Nigerian Hip-hop. Cases of clashes in the distribution of stress were seen in the analysed data. Instances include: /ɔl/ /ju/ /du/ /ɪz/ /laɪ/ /ənd/ /laɪ/ /ənd/ /laɪ/, /ɔl/ /ju/ /du/ /ɪz/ /laɪ/ /ənd/ /laɪ/ /ənd/ /laɪ/, /ˈpiːpəl/ /ˈɔlweɪz/ /traɪ/ /tə/ /gɛt/ /ɪnˈvalvd/, /tɛl/ /mi/ /waɪ/ /ju/ /kænt/ /bi/ /faʊnd/, /lʌv/ /ɪz/ /ə/ /ˈdɪfɪkəlt/ /laɪf/, /trʌst/ /aɪ/ /kæn/ /ˈmænɪʤ/ /ðæt/, /sɪns/ /deɪ/ /wʌn/ /ju/ /ˈrʌnɪŋ/ /raɪt/ /bæk/, /wʌn/ /taɪm/ /ju/ /tɛl/ /mi/ /wʌn/ /ʧæns/, /tɜrn/ /mi/ /aʊt/ /əv/ /maɪ/ /maɪnd/, /jɛ/ /aʊər/ /lʌv/ /noʊ/ /bi/ /laɪ/. The realised outputs highlight variations that artists introduce for stylistic effects. This shows that the sampled artist made every syllable in her utterance prominent and realised at equal timing. This makes the isochronic pattern to be syllable-timed. The distinct modification in realised outputs reveals how phonetic adjustment serves as a tool for artistic expression where adherence to isochrony enhances musical cohesiveness without strict adherence to formal pronunciation rules.

Analysis of Praat Graphs Using Durational Measures
The figures below provide acoustic analyses of song samples of Temilade Openiyi (TEMS) and Adedamola Adefolahan (Fireboy DML). Below, each Praat graph is

analysed using durational measures, specifically focusing on the syllable duration and rhythm ratio.
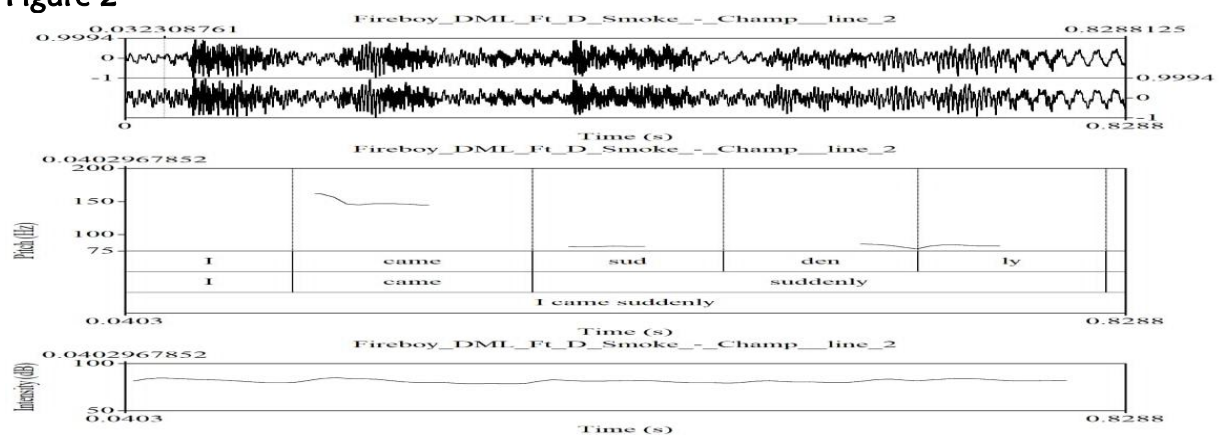
Figure 1: Champion
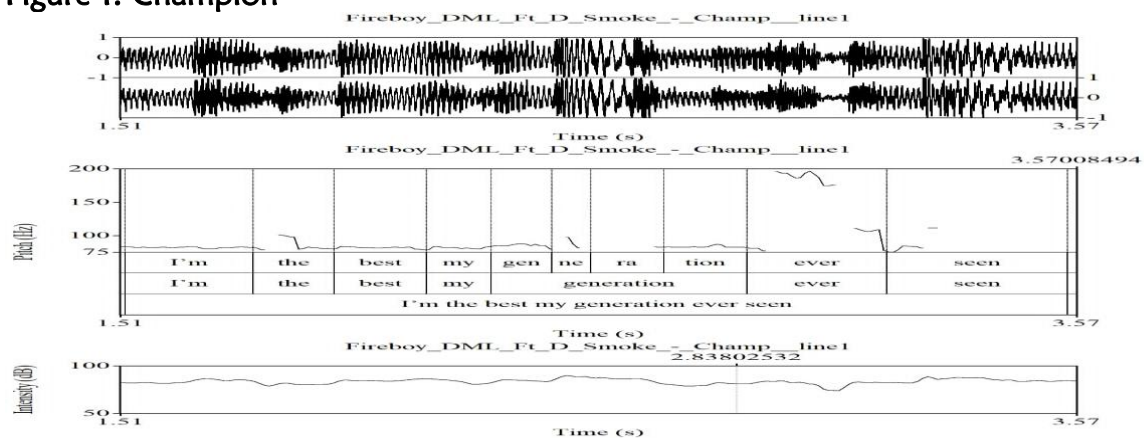
Pitch Range: 75 Hz to 200 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.206 milliseconds (ms) per syllable
Rhythm Analysis: The flat flow of rhythm indicates minimal variation in syllable duration, suggesting a relatively consistent rhythmic pattern. Given this uniformity, a high degree of equivalence between stressed and unstressed syllables is observed to be predominant.

Figure 2

Pitch Modulation Range: 75 Hz to 200 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.2885 ms per syllable

Rhythm Analysis: Similar to Figure 1, the flat flow of rhythm with slightly longer syllable duration suggests a consistent rhythm and uniform syllable duration, albeit with slightly more variation than Figure 1.

Figure 3: Remember Me
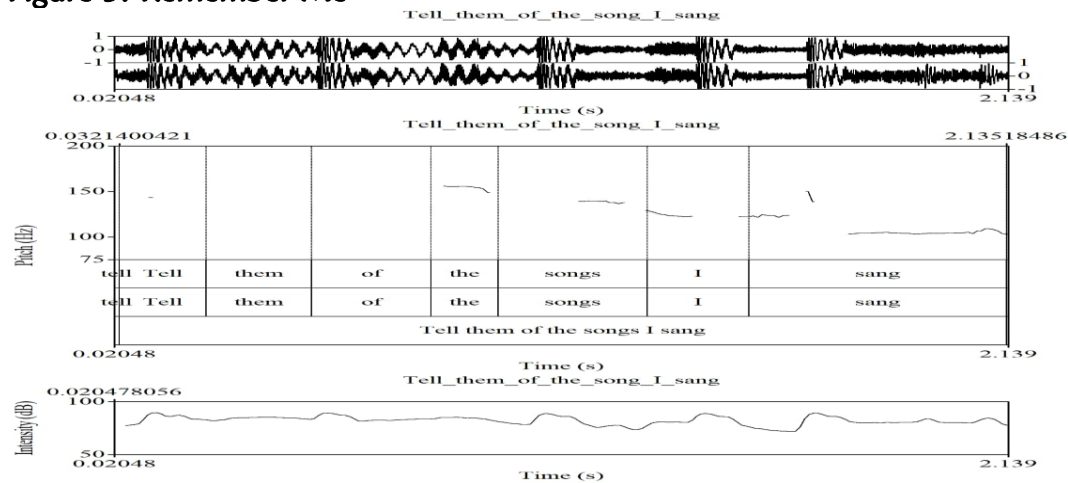
Pitch Modulation Range: 75 Hz Modulation to 200 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3027 ms per syllable
Rhythm Analysis: The increase in syllable duration indicates a slower tempo compared to the previous figures, with a similar flat rhythmic flow. The RR value is high due to increased duration differences. Consistent syllable duration indicates high rhythm equivalence.

Figure 4
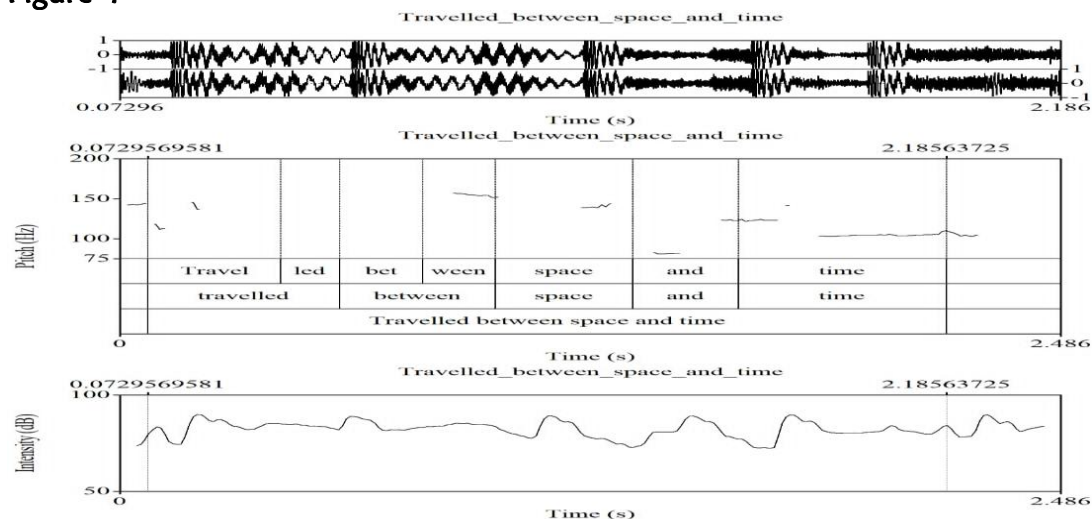
Pitch Range: 75 Hz to 200 Hz

Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3106 ms per syllable
Rhythm Analysis: The consistent pitch and intensity ranges, along with the observed flat rhythm, suggest uniform syllable durations similar to earlier figures. The description indicates a flat rhythm flow of syllable duration.
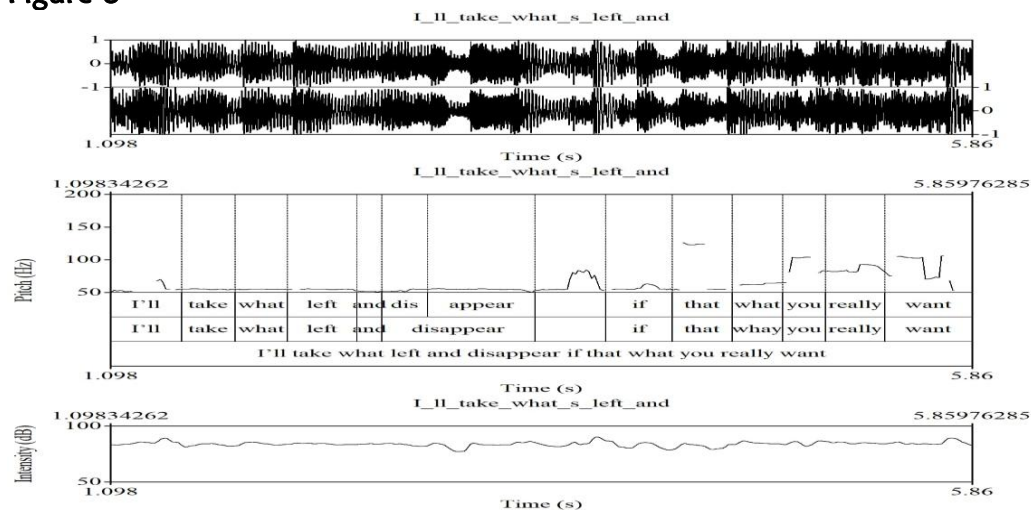
Figure 5: Dreamer
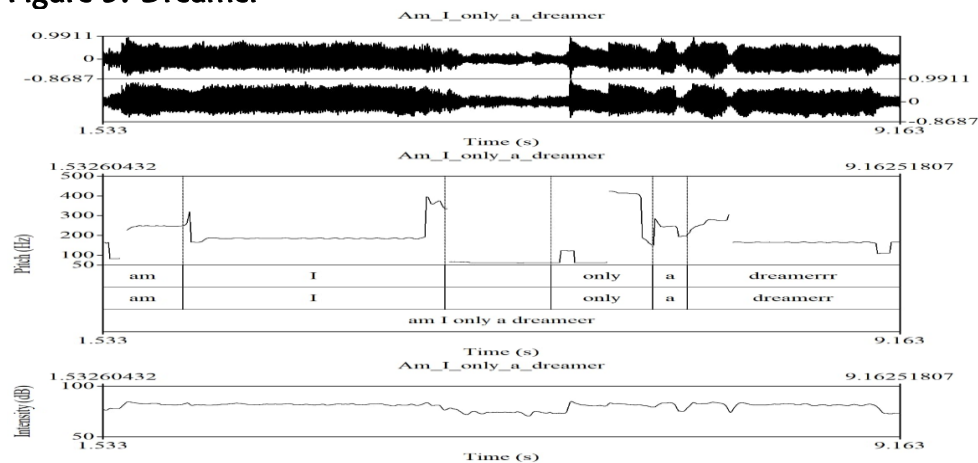
Pitch Modulation Range: 50 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 1.5272 ms per syllable
Rhythm Analysis: A broader pitch range might indicate more variability in the vocal delivery, but the flat rhythm flow indicates consistent syllable durations

Figure 6

Pitch   Modulation Range: 50 Hz to 200 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3401 ms per syllable

Rhythm Analysis: Longer syllable durations with flat rhythmic flow suggest a slower tempo, contributing to a potentially higher variability.
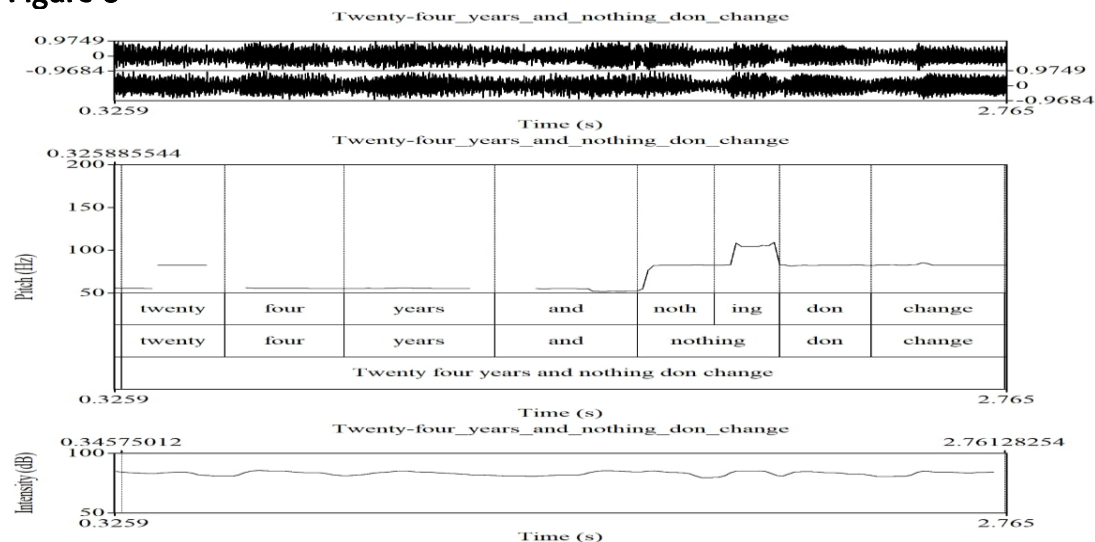
Figure 7: Interlude
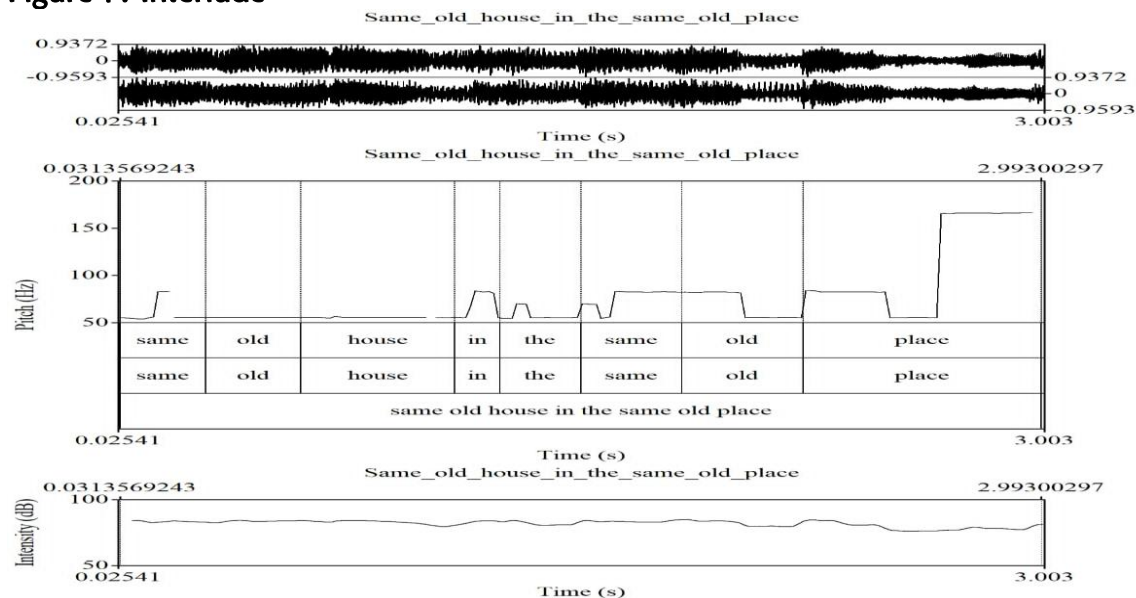
Pitch Modulation Range: 50 Hz to 200 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3754 ms per syllable
Rhythm Analysis: The flat rhythm flow and consistent pitch/intensity ranges suggest uniform syllable durations, typical of a spoken interlude. Flat rhythm flow implies an RR near 100.
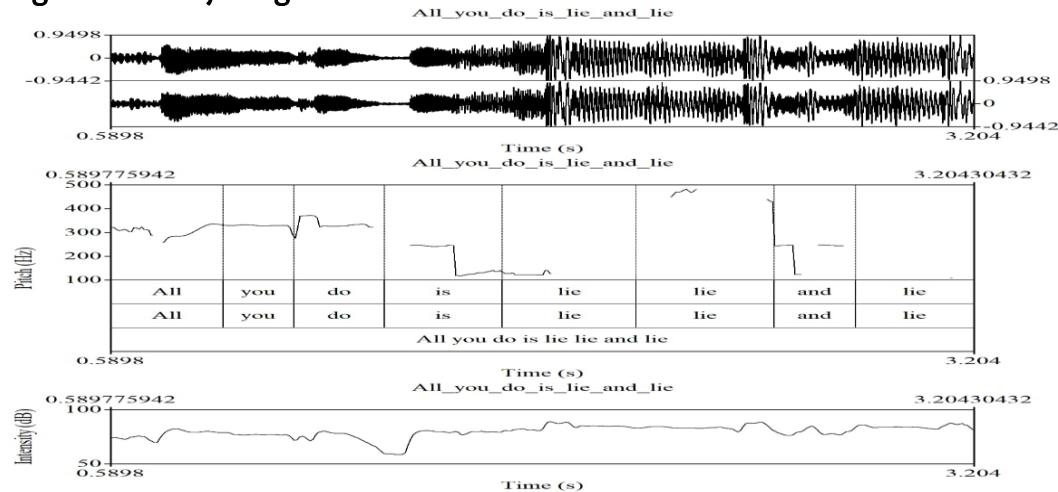
Figure 8

Pitch Modulation Range: 50 Hz to 200 Hz

Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3456 ms per syllable
Rhythm Analysis: Similar to Figure 7, the flat rhythm indicates consistent syllable durations.
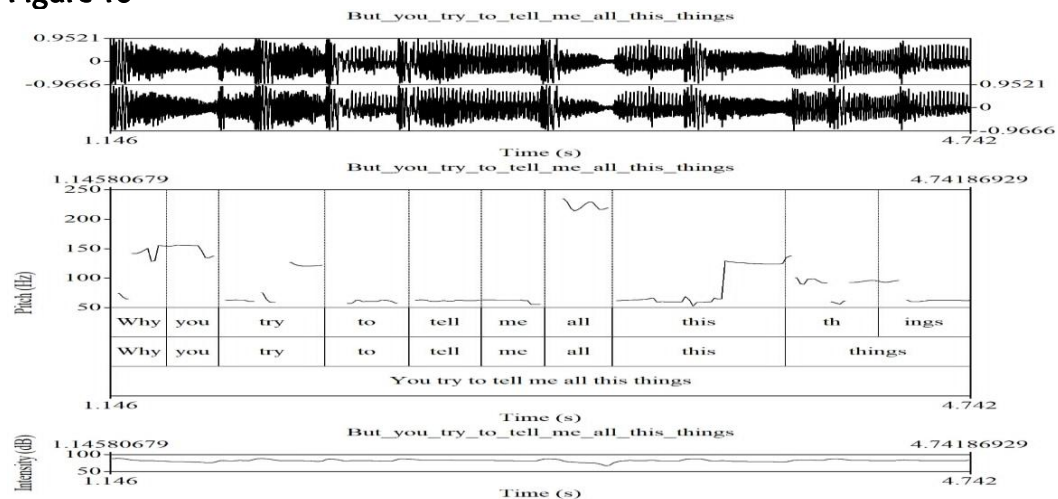
Figure 9: Crazy Tings

All_you_do_is_lie_and_lie

Pitch Modulation Range: 100 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3016 ms per syllable
Rhythm Analysis: The broader pitch range might suggest more variability in delivery, while the flat rhythm flow indicates uniform syllable durations.
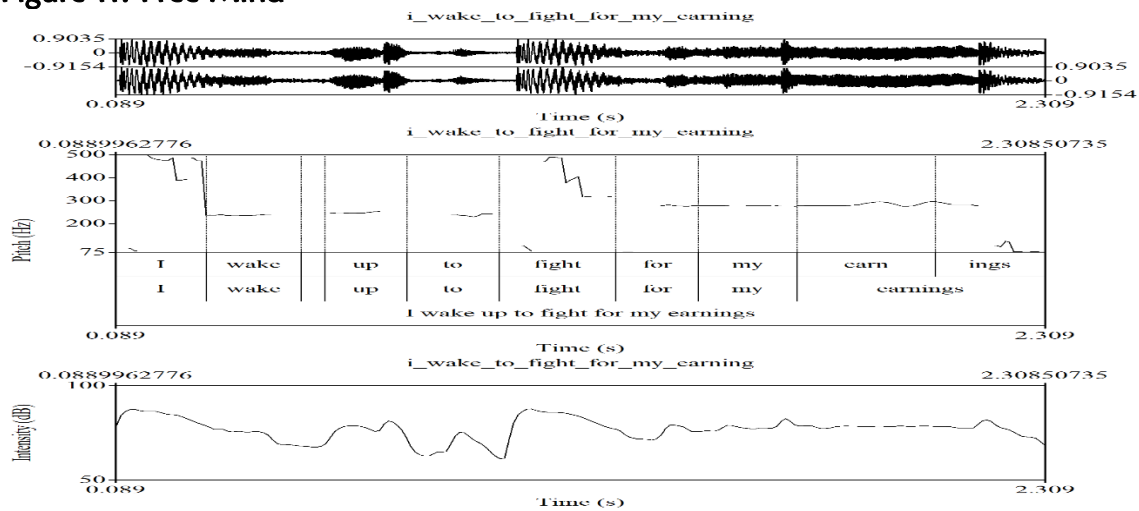
Figure 10

But_you_try_to_tell_me_all_this_things

Pitch Modulation Range: 50 Hz to 250 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.3596 ms per syllable

Rhythm Analysis: Longer syllable durations with flat rhythmic flow, indicating slower tempo and potentially higher rhythm duration.
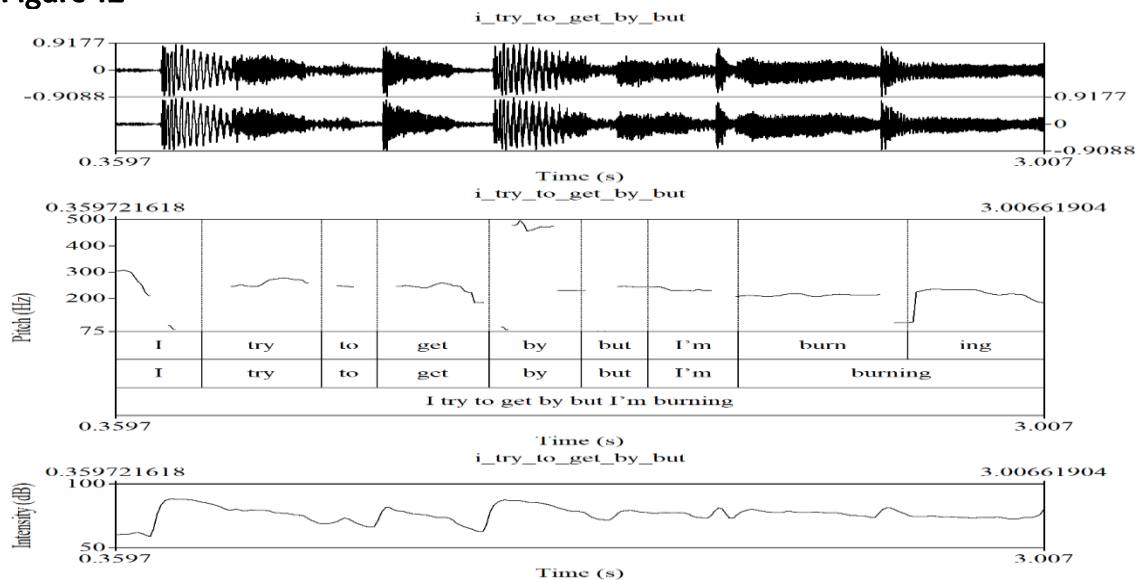
Figure 11: Free Mind

Pitch Modulation Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.2467 ms per syllable
Rhythm Analysis: A wave in the rhythmic flow suggests variability in syllable durations, with shorter overall syllable duration than Figure 10. Wave-like rhythm flow indicates some rhythmic alternation at relatively equal intervals.
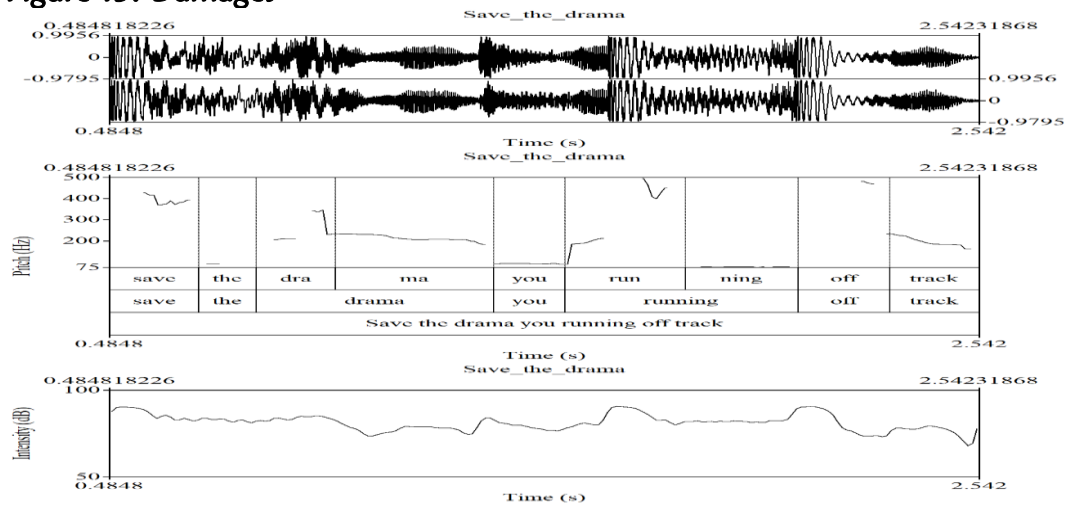
Figure 12

Pitch Modulation Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB

Syllable Duration: 0.2968 ms per syllable
Rhythm Analysis: Slightly longer syllable durations with a consistent rhythmic flow of some variation in rhythm flow.
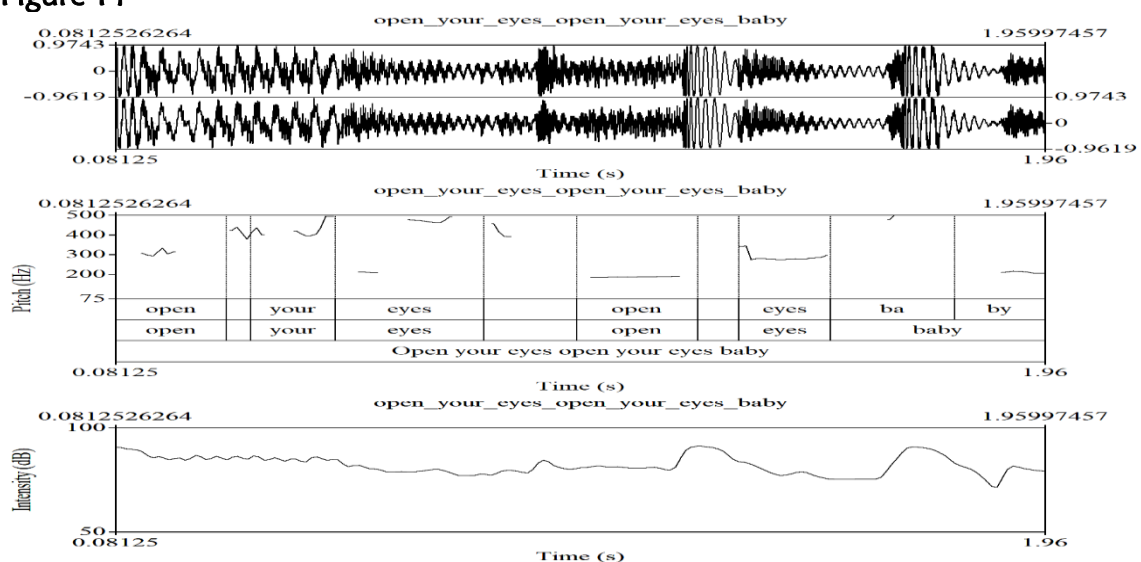
Figure 13: Damages

Pitch Modulation Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.2286 ms per syllable
Rhythm Analysis: Equal timing of syllables indicates a consistent rhythmic pattern, with shorter syllable durations suggesting a faster tempo.
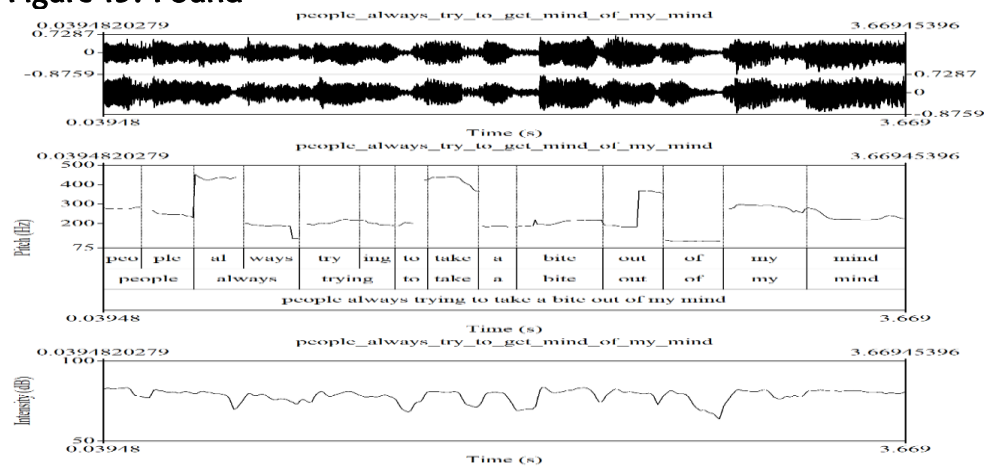
Figure 14

Pitch Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB

Syllable Duration: 0.2684 ms per syllable
Rhythm Analysis: Slightly longer syllable durations with consistent rhythm showing relatively equal timing.
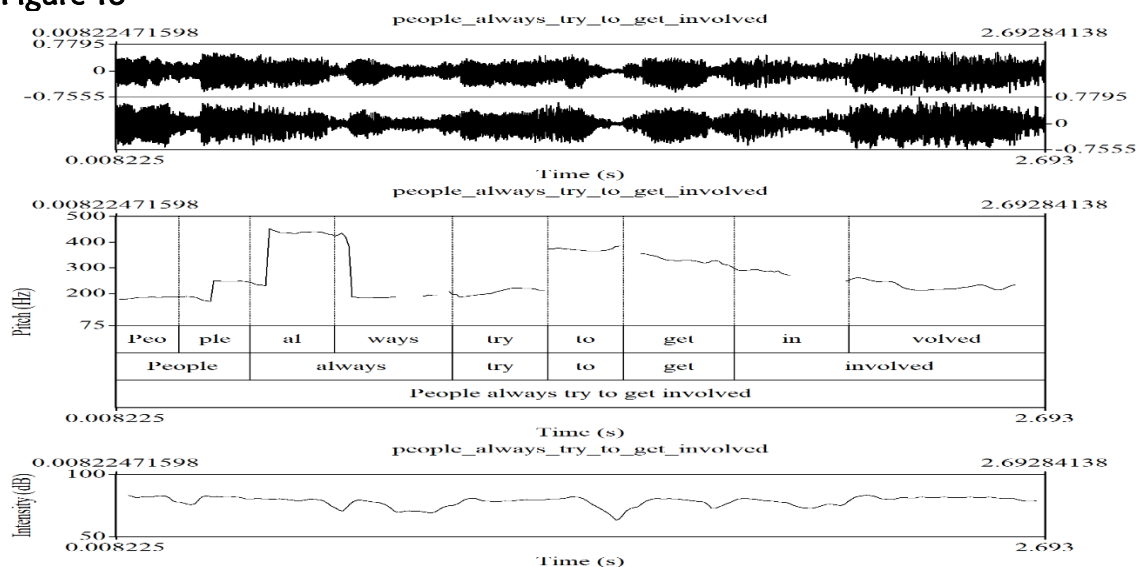
Figure 15: Found

Pitch Modulation Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.2593 ms per syllable
Rhythm Analysis: Consistent rhythmic pattern with moderate syllable duration

Figure 16

Pitch Modulation Range: 75 Hz to 500 Hz
Intensity Range: 50 dB to 100 dB
Syllable Duration: 0.2980 ms per syllable
Rhythm Analysis: Consistent rhythmic flow with slightly longer syllable durations.

Results and Discussion

i. to investigate the timing rhythm of selected Nigerian Hip-hop music using statistical and acoustic tools (Praat)

The study analysed syllable durations and rhythmic alternation using PRAAT, focusing on acoustic features such as pitch, intensity, and syllable duration. Syllable durations were extracted from the Praat graphs for each song by TemiladeOpeniyi (TEMS) and AdedamolaAdefolahan (Fireboy DML). The findings syllable durations ranges from 0.206ms, 0.2885 ms, 0.3027 ms, 0.3106 ms, 0.5272 ms, 0.3401 ms, 0.3754ms, 0.3456 ms, 0.3016 ms, 0.3596 ms, 0.2467 ms, 0.2968 ms, 0.2286 ms, 0.2684 ms, 0.2593 ms and 0.2980 ms. The durations ranged from 0.206 milliseconds (ms) to 0.5272 ms across the selected songs. This consistency was evident across different pitch and intensity ranges, reinforcing the uniformity of the rhythm in the sampled songs.

ii. to determine whether selected Nigerian Hip-Hop music exhibits syllable-timed or stress-timed rhythm patterns in the alternation of strong and weak syllables or not;

Using the extracted syllable durations, the rhythmic patterns were analysed to classify the music as either syllable-timed or stressed-timed. Syllable-timed rhythms typically exhibit relatively equal syllable durations, while stressed-timed rhythms show more significant variation between stressed and unstressed syllables. The analysis revealed that most Nigerian Hip-Hop songs in the sample exhibited a syllable-timed rhythm. For example, the consistent syllable durations and flat rhythm flow across songs like *Champion, Remember Me, and Dreamer* suggest a syllable-timed pattern. Although some songs, such as "*Crazy Tings*" showed slight variations in rhythm flow, the overall pattern remained closer to syllable-timed rather than stressed-timed. Hence, the uniformity in syllable duration, despite variations in tempo and pitch, reinforces the syllable-timed classification of the sampled songs. Also, acoustic properties such as consistent pitch and intensity range further support the syllable-timed nature of the music. The flat rhythmic flow observed in most songs, as visualised in the *Praat* graphs and isochrony analysis, aligns with the characteristics of syllable-timed rhythm.

Implications of Timing Lyrics in Nigerian Hip-Hop Music for Nigerian English Rhythm

1. Shift towards Syllable-Timed Rhythm: Nigerian hip-hop mostly follows a syllable-timed rhythm, unlike native English, which is stress-timed. This shows how Nigerian languages which are syllable-timed influence Nigerian English.
2. Impact on Teaching English in Nigeria: The syllable-timed rhythm found in Nigerian hip-hop suggests the need to adjust how English rhythm is taught in Nigeria. Teachers should help students understand both syllable-timed and stress-timed rhythms to improve communication.
3. Cultural Identity in Language: The rhythm of Nigerian hip-hop blends local language features with English, creating a unique Nigerian style. This shows how music helps express cultural identity through language.
4. Effect on Learning English: Young Nigerians exposed to syllable-timed rhythms in music may carry these patterns into their English speech, making their rhythm different from native English speakers.
5. Creating a Uniform Rhythm: The consistent timing of syllables in Nigerian hip-hop may help create a standard rhythm for Nigerian English, making it distinct from other forms of English.

Conclusion

The timing rhythm of selected Nigerian Hip-Hop music, as analysed using syllabification and acoustic tools, shows a high degree of rhythmic consistency with minimal variation in syllable duration. Overall, the predominant pattern is syllable-timed, reflecting consistent syllable durations and rhythmic uniformity across the sampled songs. The music predominantly exhibits syllable-timed rhythmic patterns characterised by relatively equal syllable durations and flat rhythm flows. This is supported by both the acoustic analysis and statistical testing of syllable durations.

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