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Rhythm and Rhyme: A Phonetic Analysis of Rap Lyrics

Thesis submitted in partial fulfilment of requirements for the degree of BA in English Philology

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ABSTRACT

The present research focuses on the phonetic analysis of the pronunciation of American rap artists within rap tracks. The core aim of this research is to recognise and study a collected corpus of 104 consciously made phonemic readjustments of rap language pronunciation. The methods to carry out the research consist of several types of analysis: auditory, descriptive, comparative, explanatory, quantitative and qualitative. The variety of analyses assist at indicating the phonemic readjustments as well as elaborating on them and showing whether there are tendencies of phonemic readjustments or is every case of the variable unique. Making use of Kawahara's (2008) *Psychoacoustic Similarity* and Katz's (2015) *Rhyme* theory, the research aims at explaining the phonemic variations within the corpus as well as elaborating on them. The results show that the majority of phonemic readjustments instances are distinct and do not develop any well founded tendencies related to sound variation. The analysis shows that only the readjustments of final consonants construct tendencies, however, as consonants do not affect rhyme formation, this data seems to be irrelevant to the research. The readjustment of vowels on the other hand do not form any proclivity and depend on the the artists' unconscious knowledge of similarity and the conditions of rhyme correspondent formation.

ACKNOWLEDGEMENTS

CONTENTS

1. ITRODUCTION

In recent years, there has been considerable attention dedicated to rap music. From the year of 2002 to February 2017, the Billboard charts, which define the best in music across every genre, and are the most recognised and quoted music rankings in the world, show that rap songs or songs which feature rap artists, are placed within the top 3 in almost every year. Hip-Hop is known to be one of the newest musical genres to reach the masses, but it also is one of the most popular and influential, thus gathering much scholarly consideration. However, it must be put to consideration that, most scholarly articles are associated with the motives and social influences that rap music carries. Scholars tend to study the message carried through the words of the artist, with only a few discussing such characteristics as the grammaticality or phonological aspects. Hirjee (2010: 1) claims that when song lyrics are studied, it is mainly the content that is mined for thematic and mood indication with the aspect of the actual sound of the words themselves being neglected. Nonetheless, the sounds of their speech delivery within the lyrical nature are as important as the mood indicators. Since to my knowledge there are very few studies conducted on the musical genre and its technicality within the field of phonetics and phonology, this research will be concerned with identifying and explaining the readjustments of the pronunciation of American rappers.

In order to look deeper into the peculiarities of the pronunciation of American rappers, the issue of accent must be addressed first. Languages have different accents which means that pronunciation depends on age groups, education, social class and even the slightest geographical variations, with American English being no exception (Roach 1991: 4). GA (General American English) is the standard accent of American English (Crystal 2003: 3). Naturally, studying the pronunciation used in American rap music according to General American English pronunciation seems relevant for the study. The choice to use General American English for the analysis of the corpora was made because it is expected that it would highlight the phonemic readjustments, which were made by the rap artists, most efficiently. It is known that most American rap songs contain the use of AAVE (African American Vernacular English), however, it would be impossible to detect the pronunciation transcriptions of every word found in the corpora, thus the approach of relying on accents other than GA English was abandoned.

The most important and contributing to this research is the subject of rhyme, as the research will be mainly focusing on the irregular phonemic patterns of rhymes within rap songs. Roach (2009: 76) claims that: "Rhyming verse has pairs of lines that end with the same sequence of sounds." If matching sound sequences would be examined, these would consist of the vowel and a final consonant of the last syllable, whilst the initial consonants have no importance to the rhyme: meaning that 'seen' and 'lean' do rhyme, even though the initial consonants /l/ and /s/ are different. To explain the phenomenon of the rhyme, one must firstly be aware of the hierarchical structure of the syllable. A good example to demonstrate the hierarchy of the syllable would be by deconstructing the word 'plant'. The word 'plant' is a single syllable word which begins with a consonant cluster /pl/, preceding the vowel /æ/ and ends with the cluster /nt/. The first pair of consonants is called the *onset*; this part of the word would not contribute to the rhyme in an appropriate instance of rhyming. The part which goes after the onset is called the *rhyme* or in some cases *rime*. As the constituent called *rime* plays a role in phonology (Selkirk 1982, Harris 1983, Steriade 1988), within this research, the notion of *rhyme* will also be referred to as *rime,* in order to distinguish it from the stereotypical rhyme relation itself (Katz 2015). The *rime* further consists of a *nucleus* and a *coda*. In other words, the *rime* begins at the nucleus of a syllable and extends to the end of it. In this case, based on the figure by Harrington (2009), the *rime* of the word 'plant' would be /æ/ (see Figure 1).
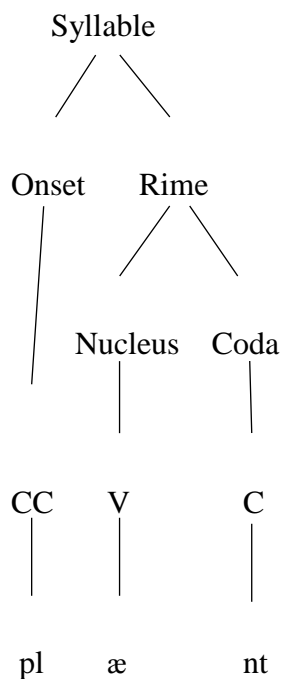

Figure 1.

Of course, there are rhymes, which consist of more than one syllable. However, all syllables which are not stressed also participate in the rhyme relation (Katz 2015). The whole string which is involved in the rhyme is called the *rhyme domain*. The *rhyme domain* is the rime of a stressed syllable and the entirety of none or more succeeding unstressed syllables (Holtman 1996). Two strings or *rhyme domains* which function in a rhyme relation are called a *correspondent pair that* consists of two *correspondents* (Katz 2015). An example of correspondence taken from Thomas Hardy's *A Philosophical Fantasy* (Holtman 1996: 104) is shown in the instance below (1):

(1). m a r s h a l /ˈmɑr·ʃəl/   p a r t i a l /ˈpɑr·ʃəl/

   1 2 3 4 5 6   1 2 3 4 5 6

Within the examples above, perfect correspondence between 2 and 6 (/ɑr·ʃəl/) can be seen. The consonants of the onsets differ, however, the onset might be ignored as it is excluded from the "rhyming part" (Buckley 1997: 5).

As *perfect rhymes*, which are words that match both the vowel and consonant sounds (*with the exception of the onset)* to construct a rhyme, could be quite limiting when constructing lyrics, it is obvious that rap artists tend to use *imperfect rhymes*, also known as *slant rhymes* (See Instance 2).

 (2). *Perfect rhymes:*   *Imperfect rhymes:*

    c*a*t/b*a*t; d*i*g/p*i*g; bl*e*w/fl*e*w.   heart/star; thumb/gun; sick/mist.

As seen from the example above, it is clear that *imperfect rhymes* are formed with similar but not identical sounds. This category of rhymes does not have to meet the regulations of *perfect* rhymes such as matching vowels or consonant sounds. In most cases of *slant* rhymes, either the consonant segments differ whilst the vowels remain identical, or vice versa (Hirjee 2010:

122). Because of the wide choice of rhyming patterns *slant* rhyming provides, many instances of such lyrical formations occur, as shown in the example below (3):

(3). "*And be **prosperous**, though we live **dangerous**, **Cops could just** arrest me, **blaming us**, we're held like **hostages**"* - Nas (1994).

It must be highlighted that, the availability of *slant* rhyme makes it difficult to determine which domains belong to the rhyme correspondence (Katz 2015). However, Kawahara (2007: 59) analyzed the concept of rhyme in lyrics of Japanese rap, and found that some consonant pairs would notably appear more in imperfect rhymes than others. The scholar (2007: 2) points out the phenomenon of *imperfect rhymes* by providing a few English examples, "in Oxford Town, BOB DYLAN rhymes *so**n*** with *bo**mb*** (Zwicky 1976); in Rapper's Delight by THE SUGARHILL GANG, *sto**p*** and *ro**ck*** rhyme(in this paper, song titles are shown in italics and artists' names in CAPITALITALICS)." It is clear that the pairs of */n/ and /m/* as well as */p/ and /*k*/* do not function as identical consonants, however, the rhyme correspondents are congruent in terms of all features excluding the notion of placement. It is expected that this research paper will agree with the claim that rappers create rhyme pairs by intentionally readjusting the phonemes within the pronunciation of words, thus, "establish the tendency that the more similar two consonants are, the more likely they are to make a rhyme pair" (Kawahara 2007: 2).

Having observed a number of the latest rap tracks, it seems that in frequent cases the pronunciation of some words can alter quite drastically in order to sustain a fluent rhyming and rhythmical pattern of the song, even though in regular speech and General American pronunciation, the lyrics would not share an identical or similar *rhyme domain* and would not function as correspondents. Hirjee (2010: 24) mentions that most scholars studying rap music have a tendency to ignore sound and word patterns. However, the scholar highlights that the sounds themselves function as the central part of rap music which can provide information associated with rhyme schemes and vocal delivery. "This data can be characteristic of different rappers, as MCs often boast of the uniqueness and superiority of their rhyming style" Hirjee (2010: 24).

In order to study a unique case of phonemic readjustment, one must be aware of psychoacoustic similarity, as conventional theory of phonological sound changes would be of little use for a research of such nature. Many researches within the field of phonetics and phonology claim that many phonological occurrences refer to psychoacoustics. According to Kawahara (2007: 111), psychoacoustics is perceived similarity between sounds based on detailed acoustic information. Steriade (2003) states that speakers are aware of perceptual distances that occur between two phonological elements and by regarding that knowledge, they aim to minimize the perceptual imbalance of two relative elements in phonology. Kawahara (2007: 112) has discovered that many works of other scholars regard to psychoacoustic similarity as an important part in shaping phonological patterns which include the patterns of verbal art as well. Some previous researches prove that psychoacoustic similarity is required between two rhyming segments or those beginning with segments that sound the same or begin with the same letter (Middle English alliteration (Minkova 2003), English imperfect puns (Fleischhacker 2005), Japanese rap rhymes (Kawahara 2007), Romanian half-rhymes (Steriade 2003)). Basing this analysis on the compilation of researches done, it seems that by having the knowledge of similarity, rap artists tend to readjust the conventional pronunciation in such way so that two hardly or non-corresponding sequences would function as a rhyming pair. This effort of similarity strictly relies on psychoacoustic information and is governed by the principle of maximizing psychoacoustic similarity between two elements.

Hip-Hop culture and the genre of rap have to be addressed as well. Rap is a musical genre that is inseparable from Hip-Hop culture. It is known that the musical genre of rap cannot be considered as a genre detached from Hip-Hop culture, both are interrelated (Escoto 2012: 55). Hip-Hop is a cultural movement which involves the practices of break dancing, graffiti street art, DJ'ing- mixing and blending music, and lastly- MC'ing, which means *Master of Ceremonies.* Alim (2011: 424) has studied the practice of the MC and defines the term as "*Moving the* Crowd". Other scholars explain the motives of the MC and state that the main task of an MC is to attend in improvisational verbal duels called freestyle battles or ciphers with other MC's (Alim, 2006; Lee, 2009a; Newman, 2005). Additionally, the ciphers grant the participants an opportunity to display and improve their lyrical creativity, share their views of the world and show their social posture (Spady et al., 2006). The MC of today is

defined as the rap artist, which will be the main focus of the cultural movement within the research. "In rap, artists chant intricately rhymed verses over repetitive instrumental beats" Hirjee (2010: 1). Officially, it is considered that the Hip-Hop movement began in the project of Bronx in New York in 1970's (Escoto 2012: 55). As rap represents American slang, a lot of variation and constant change takes place within the language of rap songs and even Native Americans might have a hard time understanding some words- especially those of the older generation, thus sparking interest to study and analyse the genre.

Primarily, this corpus based analysis is aimed at recognising and studying phonemic readjustments found in the pronunciations of American rap artists within rap tracks. The study will be based on the concept of *psychoacoustic similarity* as it is believed that rap artists are aware of sound similarity and deliberately adapt phonemes in the pronunciations of morphemes which do not correspond to other rhyme domains, consequently, creating *rhyme pairs*.

This research project will continue with the section of *Data and Methodology* in which the gathered corpora, methodology and tools used to carry out the study will be introduced and explained. After having introduced the target of study and methods used, an extensive and detailed section of the *Data Discussion* will occur presenting the results of the study and what can be drawn and observed from them. The research will end with the part of *Conclusions* within which the results will be summarized and elaborated on. Also, the *Conclusions* will involve a critique of what lacked within this project as well as what else could be done and involved in further research for greater development of the study.

2. DATA AND METHODOLOGY

This section shall cover both the materials and methodology used for this research. Firstly, the motivation and reasoning behind the choice of the corpora: the choice of specific authors and musical tracks; the election of pronunciation instances for detailed analysis; the sources for General American English pronunciation and rap song language pronunciation transcriptions as well as lyrics. Secondly, the methods and process of the analysis will be discussed, which includes: indicating the framework of the research and an overview of the tools and techniques used to transcribe rap song speech pronunciation.

2.1. Data

2.1.1. Corpus construction and samples

One of the main principles of this research lies within the selection of the suitable rap artists and songs which will be detailed further in the paper. There was no particular criteria or unity applied regarding theme or rap genre while collecting the corpora. The list of artists and songs included in the research are a mix of different subgenres of rap music: 'alternative', 'boom bap', 'commercial', 'g-funk', 'gangsta rap' and 'underground'. Differentiating the subgenres within the corpus is neither relevant, nor important to the research as it is concerned mainly with the analysis of phonemic change and not thematic context or rhythmical patterns. On the contrary, it could be quite useful that many genres are included within the study because that would broaden the spectre of the analysis to greater extent.

A total of 15 rap songs were chosen for the corpus which includes 17 different rappers as some songs contain other featuring artists who also show the tendency of phonemic readjustment. The main criteria for the choice of the artists are: all rappers have to be of North American origin. This was done so that there would be less accent based variation that could greatly influence the pronunciation of the artist. Excluding every artist according to age and origin seems to be of little value to the analysis as well, however, it was done for research

matters to show that groups distributed by origin and age hardly share any propensity of phonemic readjustment (see Table 1).

Table 1.

Rap artists	Age	Origin
21 Savage	24	Atlanta, Georgia, U.S.
6lack	24	Baltimore, Maryland, U.S.
Big Sean	29	Detroit, Michigan, U.S.
Eminem	44	Detroit, Michigan, U.S.
French Montana	32	South Bronx, New York, U.S.
Future	33	Atlanta, Georgia, U.S.
Gucci Mane	37	Atlanta, Georgia, U.S.
Lil Wayne	34	Hollygrove, New Orleans, U.S.
Logic	27	Gaithersburg, Maryland, U.S.
Nicki Minaj	34	Queens, New York, U.S.
Offset	25	Atlanta, Georgia, U.S.
Pusha T	39	Virginia Beach, Virginia, U.S.
Tee Grizzley	23	Detroit, Michigan, U.S.
TY Dolla $ign	32	South Los Angeles, California, U.S.
Wiz Khalifa	29	Pittsburg, Pennsylvania, U.S.
YFN Lucci	26	Atlanta, Georgia, U.S.
Young MA	25	Brooklyn, New York, U.S.

An example of how studying phonemic readjustments in the pronunciation of rap artists, according to origin groups, is inessential for the research, can be drawn by analysing the pronunciation of the artist Big Sean. As it will be later seen within the corpora, Big Sean tends to readjust the phoneme /ɔ/ into a vowel digraph /oʊ/, which can also be found in the pronunciation of other artists from Detroit. However, there are cases of when the rapper readjusts the phoneme /ɔ/ into an open /ɔ:/ sound, which can be detected in the pronunciation

of rap artists from Atlanta. This means that artists most often rely on their knowledge of psychoacoustic similarity rather than consider state accent in patterns of verbal art.

Also, the selection of specific artists is not random as well, as only the ones who have a large number of slant rhymes within their lyrics have been chosen. The list of the artists includes: 21 Savage & Metro Boomin, 6lack, Big Sean, Eminem, French Montana, Future, Gucci Mane, Lil Wayne, Logic, Migos (consisting Takeoff and Offset), Nicki Minaj, Pusha T, Tee Grizzley, TY Dolla $ign, Wiz Khalifa, YFN Lucci, Young M.A.

The next criterion is concerned with the year of production of the rap songs which varies from the year 2015 to 2017. The songs within the corpora are not older than 2 years in order to keep the data anlysis as new as possible. In a previous research done by Katz (2015) about phonological typology within rap rhymes, the year of production of songs varies from 1993 to 2007. This, however, is not accurate for a research of this kind, as the technical approach to the genre evolves and changes almost yearly. The choice of specific songs for this research is also not accidental. Only the songs containing at least one instance of a very severe case of phonemic readjustment have been chosen. Also, it is very important for the research that only songs that are or have been within the top 100 of the *Billboard Hot* chart in the years of 2015, 2016 and 2017. It was decided to include the most listened to songs within the corpora and exclude the unpopular ones because of mass appeal. It is logical that the more popular the song, the greater the influence to the public it has, in this case- influencing language and pronunciation trends of the public. Thus, choosing popular songs for detailed research and analysis makes it more relevant and important than studying unpopular songs.

List of rap songs from the gathered corpora:

1. *21 Savage & Metro Boomin- No Heart*

   A platinum certified (RIAA) single by the rapper 21 Savage and music producer Metro Boomin, released in October 19, 2016. The track has reached the 43rd spot in the *US Billboard Hot 100* chart.

2. *6lack- PRBLMS*

A single by rap artist Ricardo Valdez Valentine (stage name: 6lack) from Atlanta, Georgia, released in November 18, 2016, for which he is best known for. "PRBLMS" has reached the 72nd spot in the *US Billboard Hot 100* chart and has a peak position of 23 in the *US Rap* chart.

3. *Atlantic Records- Sucker for Pain*

A song by the American rappers Lil Wayne and Wiz Khalifa as well as the band Imagine Dragons, with Logic, TY Dolla $ign and X Ambassadors. The song was released in June 24, 2016 by Atlantic Records and Warner Bros. records for the motion picture *Suicide Squad* (2016). It has reached the 15th spot in the *US Billboard Hot 100* and has even peaked at number 1 in the *UK R&B* chart.

4. *Big Sean- Bounce Back*

A song by American rapper Big Sean, released in October 31, 2016. It also features additional vocals from labelmate Kanye West and American singer Jeremith. "Bounce Back" is the rappers most successful song with a peak position of number 6 within the Billboard charts.

5. *Big Sean- No Favors*

Another track by the rapper from Detroit, released in 2017, February 3. This song is featured by one of the biggest names in the Hip Hop industry Eminem (Marshall Mathers); therefore, becoming one of the most popular hits in the Billboard charts and amongst listeners peaking in 22nd place.

6. *Eminem- Infinite (Remastered Edition)*

Originally, the song was released on November 12, 1996 by Web Entertainment. However, On November 17, 2016, it was remastered and released five days after the 20th anniversary of the album, therefore makes it to the list of the corpora. The track "Infinite" is one of Eminem's most famous due to the unusual and complex rhyming scheme. Its highest peak position within the Billboard chartings was 97th.

7. *French Montana- Unforgettable*

"Unforgettable" is a song created by the American rapper French Montana and is his most successful hit in 2017. It features the American artist Swae Lee and has reached

its peak position of number 50 in May 13, 2017 within the *US Billboard Hot 100* chart and number 18 within the *US Rap* chart.

8. *Future- Mask Off*

This track was created and released by the American rapper Future in April 18, 2017. It is the highest-charting single on the US *Billboard Hot 100* that the artist has ever released, having peaked in fifth place in May. The song gathered positive attention of the masses, which resulted with a Platinum certification from the Recording Industry Association of America (RIAA).

9. *Gucci Mane- Both*

This track is the third single from American rapper Gucci Mane, released in January 31, 2017 and features the globally known Canadian rapper Drake. The track has reached the 41st spot within the *US Billboard Hot* 100 chart and peaked its way up to number 16 in the *US Hot R&B/Hip-Hop Songs* list as well. The production of the song was provided by Metro Boomin and Southside.

10. *Migos- T-Shirt*

Released and impacted on the radio on February 14, 2017 by the American group Migos. The song is the second highest-rated song of the group by managing to reach the top 20 on the *Billboard Hot 100* in the United States.

11. *Nicki Minaj, Drake & Lil Wayne- No Frauds*

The song was released in March 10, 2017. It is a single by the American female rapper Nicki Minaj, American rapper Lil Wayne and Canadian celebrity Drake. It has reached 14th spot in the *US Billboard Hot 100* and No. 8 in the *US Hot R&B/Hip-Hop Songs* charts.

12. *Pusha T- Untouchable*

The tune was produced and released by American producer Timbaland in 2015. The track is famous for featuring the samples of the legendary rapper Notorious B.I.G as well as paying tribute to the legend from Brooklyn, New York.

13. *Tee Grizzley- First Day Out*

A song made by the American rapper Tee Grizzley from Detroit, Michigan in 2016. The single gained much success and appeared in the top 25 within the Billboard 100 top singles list. It is the artists very first released single of his musical career and which made his name gather recognition and fame globally.

14. *YFN Lucci- Everyday We Lit*

Released on December 16, 2016 by the American rapper YFN Lucci, the track has peaked its way up the 79th spot on the US *Billboard Hot 100* and 36th within the US *Hot R&B/Hip-Hop Songs* charts. The song features the American singer PnB Rock and is one of the most successful tracks of the young artist YFN Lucci.

15. *Young M.A.- Hot Sauce*

The song was made by the emerging female rapper Young M.A. from Brooklyn in 2017 and peaked at number 19 on the Billboard Hot 100, being the artists most successful song in her career. This track is also the only solo single, which is created by a female rapper within this list.

The fitting instances of phonemic variations have been picked and incorporated within the corpora with no particular generic unity other than unusual phonemic readjustments within the pronunciation of the rap artist. While reading the transcripts of the lyrics of the songs in General American English pronunciation, some lines did not rhyme; however, they did have all qualities of a well-put rhyme within the pronunciation of the rap performer within the audio track. All instances of this case from all 15 audio tracks have been put for research and analysis which will be showcased along with the audio tracks further on within the next section of the research.

The transcripts for the lyrics of the Hip Hop audio tracks have been gathered from one source in order to keep the variety of mannerisms in transcribing song lyrics as minimal as possible. The source is called 'Genius'. It is a freely available database which can be accessed through an internet website and within which one can get a hold of song lyrics transcriptions and any other information about the songs and artists for almost every English song that has been released for purchase and use to the public. Today, it is the most popular website for obtaining popular English song lyrics in the world and amongst hundreds of other lyric websites, and

for that reason, it has been chosen as the main source for rap song lyrics transcriptions for this analysis. As seen in the image (see Picture 1) below, 'Genius' is the first occurring website for rap song lyrics in the most popular and globally used search engine 'Google'.
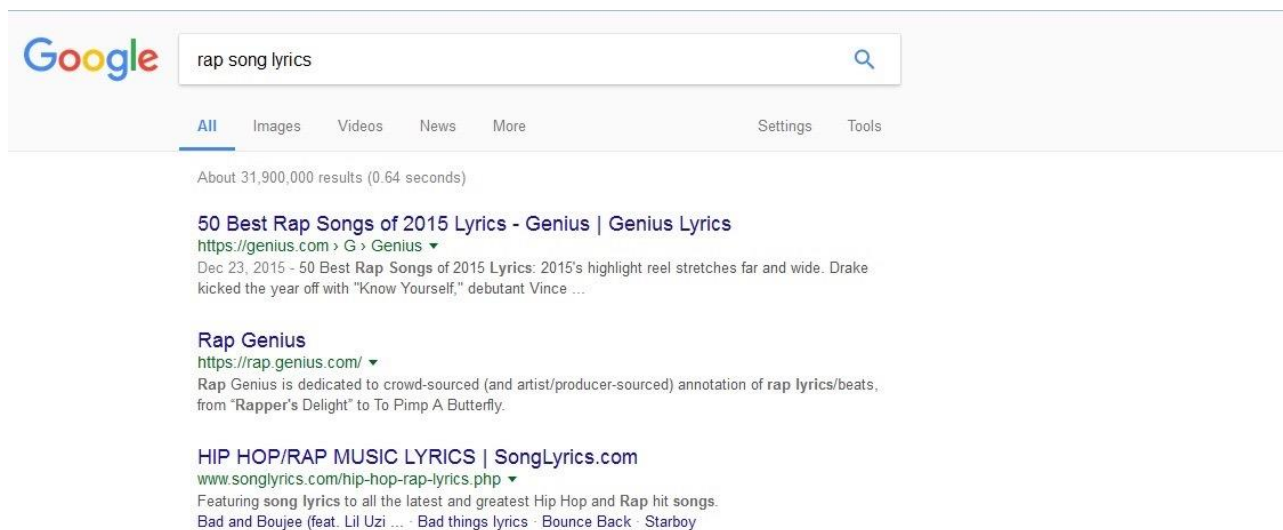
Picture 1.

The transcriptions for General American English pronunciation have been obtained from the freely accessible digital version of the Cambridge Dictionary. The digital version was chosen instead of the paperback version because of more word and word form variety and a more efficient research process regarding the searching of certain words and their pronunciation transcripts.

The transcriptions for the pronunciation of the rappers within rap audio tracks will be gathered from auditory perception. One might argue that this type of compilation of corpora is subjective and might vary based on who compiles it. However, it is difficult if not impossible to access the pronunciation transcriptions of speech within songs digitally, because it is impossible to separate the instrumental and the speech within a complete audio track. If the whole audio track is put into an automatic transcribing program, the sounds of the music and speech blend and confuse the program; therefore, speech becomes unrecognisable and all of the materials would have to be transcribed by hand once again. Using a pronouncing dictionary would be irrelevant as well, as it fails to transcribe non-standard lexical items (Katz 2015), which occur quite often in the genre; therefore, it was abandoned. As a result, auditory

perception is the best and arguably only realistic approach to study rap artists' pronunciation within their songs.

2.2. Methodology

The methodology within the research includes the frameworks of: auditory, descriptive, comparative, explanatory, quantitative and qualitative analysis. The process of auditory analysis has been already introduced and discussed in the previous paragraph. The descriptive analysis will be mainly concerned with demonstrating the instances of the non-lexical items. It does not however address the questions how and why such phonemic variations have been used by the rappers. Kothari (1990: 2) provides a definition for descriptive analysis in great detail: "Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present." The main objective of descriptive analysis is that the researcher has no control over the variables; he only reports what has happened or what is happening at the moment Kothari (1990: 3). The comparative analysis will be used to compare the pronunciation of rap performers received from auditory analysis and the General American English pronunciation obtained from the Cambridge Dictionary. If there will be such cases of various pronunciation transcription options, the very first transcriptions will be used to avoid complications and confusion (Hirjee 2010: 10). Collier (1993: 5) provides an explanation on how comparative analysis actually functions and what is the purpose of it. The scholar (Collier 1993: 5) states that this type of analysis is fundamental in concept-formation by showcasing similarities and contrasts among cases; this sharpens the power of description of the researcher. Comparison is used to test hypotheses and contributes in discovering new ones which help build theory. The explanatory analysis will be mainly concerned with trying to explain and elaborate how and why such phonemic changes have been made by the rap artist. Kothari (1990: 3) explains this methodology by saying that in explanatory analysis, the researcher uses information and facts that are already available and make critical evaluation by analysing them. The quantitative analysis will showcase the instances as well as the calculated frequency of every phonemic readjustment made by the rap artists. This data will help distinguish whether there are some tendencies of phonemic readjustment amongst rappers or whether the majority of pronunciation variables are unique. Lastly, the qualitative methodology will elaborate upon

the results of the quantitative methodology and provide observations about phonemic readjustment tendencies or unique instances.

3. DATA DISCUSSION

Within this chapter, the analysis of the research will be conveyed as well as both the demonstration and discussion of the data and the analysis results. The analysis will firstly begin with the descriptive research. Within this part of the thesis, the instances of nonstandard phonemic variations in the pronunciations of the rap artists will be indicated as well as displaying the whole lyrical scheme of where the readjustments are supposed to correspond and function in rhyme pairs within the song. This part of the analysis, however, shall not focus on explaining the motivation behind such phonemic readjustments, it is strictly meant for displaying and indicating them. All pronunciation instances from the audio tracks will be then compared to the transcriptions of the same words gathered from the Cambridge Dictionary. The phonemic readjustments within the pronunciation of rappers shall be explained within the explanatory analysis section. This part of the thesis will provide pronunciation transcriptions received from auditory perception of exact parts where the phonemic readjustments are believed to be made by the rap performers. After the analysis of the pronunciations and having identified the cases of phonemic readjustments, the quantitative analysis will showcase the frequency of each case separately. These results shall then be evaluated within the qualitative analysis.

3.1. Descriptive Analysis

This segment of the research will demonstrate the corpora alongside with all instances of phonemic readjustments made by rappers in rap tracks. The corpus consists of extracts taken from 15 critically selected rap songs. Only the lyric lines consisting of cases with phonemic readjustments as well as those which are believed to have initiated the change of phonemes will be showcased, as the remaining extracts do not affect the phonemic readjustments and have no importance to the study. The corpus (see Chapter 3.1.1.) demonstrates 112 carefully analysed lines of rap lyrics which share *rhyme domains* with one another and are potential *correspondents* according to the auditory analysis. The *corresponding* lines have been marked by coloured font (•; •; •; •; •) in order to distinguish the instances of phonemic readjustment and utterances which possibly triggered them. Next to the corresponding lines, the transcriptions of the pronunciations of rap artists will also be shown which were compiled by the use of auditory perception. To distinguish, these transcriptions will also be marked by

coloured font (•; •; •; •; •). The morphemes have also been segmented into individual phonemes in order to organise and accentuate the vowel digraphs, consonant clusters and single phonemes which are believed to be the core objects that underwent phonemic readjustment and have been affected by the notion of *psychoacoustic similarity*. The corpora of phonemic readjustments can be found in the appendices. The transcriptions of these segments can be viewed in the table (see: Table 2) alongside with the transcriptions of phonemic components of the same utterances in GA English, from which the readjustments have been constructed.

3.1.1. Corpora Sample

"Moo, remember when you had them green things mailed *|* ˈmeɪld *|*

With vacuum seals trying not to have them green things smelled *|* ˈsmeɪld *|?*

After the pre-trials, after the status *|* ˈstætʊs *|*

After them impact statements, after the castle *|* ˈkæs.ʊl *|*

Aye JR nigga, ain't it a blessing *|* ˈbles.ɪn *|?*

We made it out Lansing after all that happened *|* ˈhæp.ɪn *|?*

Cuz said don't entertain them hungry *|* ˈhoʊŋ.ɡri *|* niggas

I wish I would pay attention to these homeless *|* ˈhoʊm.lɪs *|* niggas

*I went to trial back to back, bitch I'm 2-*0 *|* ˈoʊ *|*

The state of Kentucky banned me from every jewellery store *|* ˈstoʊ *|"* - Tee Grizzley (2016).

3.2. Comparative Analysis

The section of the Comparative Analysis of this thesis will demonstrate how the phonemic readjustments differ from General American English. It is expected from this segment to high point the differences between the pronunciation of standard American English and the pronunciation of the verbal art patterns within the corpora. The morphemes have also been segmented into individual phonemes in order to accentuate the vowel/consonant clusters and single phonemes which are believed to be the core objects that underwent phonemic readjustment and the notion of *psychoacoustic similarity*. The transcriptions of these segments can be viewed in the table (see: Table 2) alongside with the transcriptions of the phonemic components of the same utterances, but in GA (General American) English, from which the readjustments have been constructed.

3.2.1. List of Pronunciation Transcriptions

fire- | ˈfɑɪər | (GA English); | ˈfɑː | (Phonemic Readjustment);

die- | ˈdaɪ | (GA English); | ˈdɑː | (Phonemic Readjustment);

July- | ˈdʒʊˈlaɪ | (GA English); | ˈdʒʊˈlaː | (Phonemic Readjustment);

fire- | ˈfɑɪər | (GA English); | ˈfɑː | (Phonemic Readjustment);

pill- | ˈpɪl | (GA English); | ˈpiːl | (Phonemic Readjustment);

 real- | ˈriː.əl | (GA English); | ˈriːl | (Phonemic Readjustment);

real- | ˈriː.əl | (GA English); | ˈriːl | (Phonemic Readjustment);

killed- | ˈkɪld | (GA English); | ˈkiːl | (Phonemic Readjustment);

scale (GA English); | ˈskeɪl | (Phonemic Readjustment);

 sells | ˈselz | (GA English); | ˈseɪl | (Phonemic Readjustment);

bale | ˈbeɪl | (GA English);

 belt | ˈbelt | (GA English); | ˈbeɪlt | (Phonemic Readjustment);

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problems | ˈprɑː.bləmz | (GA English); | ˈprɑːblɪmz | (Phonemic Readjustment);

calling | ˈkɑː.lɪŋ | (GA English); | ˈkɔːlɪn | (Phonemic Readjustment);

space | ˈspeɪs | (GA English);

thing | ˈθɪŋ | (GA English); | ˈθeɪŋ | (Phonemic Readjustment);

thing | ˈθɪŋ | (GA English); | ˈθeɪŋ | (Phonemic Readjustment);

change | ˈtʃeɪndʒ | (GA English); | ˈʧeɪndʒ | (Phonemic Readjustment);

great | ˈɡreɪt | (GA English);

day | ˈdeɪ | (GA English);

bank | ˈbæŋk | (GA English); | ˈbeɪnk | (Phonemic Readjustment);

steak | ˈsteɪk | (GA English);

drink | ˈdrɪŋk | (GA English); | ˈdreɪnk | (Phonemic Readjustment);

brain | ˈbreɪn | (GA English);

fire | ˈfaɪər | (GA English); | ˈfɑː.ɪə | (Phonemic Readjustment); try | ˈtraɪ | us | ˈʌs | (GA English); | ˈtrɑː.ɪəs | (Phonemic Readjustment);

us | ˈʌs | (GA English); shoulders | ˈʃoʊl.dɚz | (GA English); | ˈʃoʊl.dʌz | (Phonemic Readjustment);

trust | ˈtrʌst | in | ˈɪn | (GA English); | ˈtrʌstɪn | (Phonemic Readjustment);

concussion | kənˈkʌʃ.ən | (GA English); | ˈkənˈkʌʃ.ɪn | (Phonemic Readjustment);

getting | ˈɡetɪŋ | (GA English); | ˈɡɪt.ɪn | (Phonemic Readjustment);

finish | ˈfɪn.ɪʃ | (GA English);

righteous | ˈraɪ.tʃəs | (GA English); | ˈraɪʧɪs | (Phonemic Readjustment);

right | ˈraɪt | risk | rɪsk | (GA English);

growing | ˈɡroʊ.ɪŋ | (GA English); | ˈɡrɔːɪn | (Phonemic Readjustment);

for | ˈfɔr | me | ˈmiː | (GA English); | ˈfɔːmɪ | (Phonemic Readjustment);

for | ˈfɔr | (GA English); | ˈfoʊ | (Phonemic Readjustment);

go | ˈgoʊ | (GA English);

Bolt | ˈboʊlt | (GA English); | ˈboʊl | (Phonemic Readjustment);

for | ˈfɔr | (GA English); | ˈfoʊ | (Phonemic Readjustment);

angel | ˈeɪn.dʒəl | (GA English); | ˈeɪndʒoʊ | (Phonemic Readjustment);

angles | ˈæŋ.gəlz | (GA English); | ˈeiŋgoʊz | (Phonemic Readjustment);

odds | ˈɑdz | (GA English); | ˈɑːdz | (Phonemic Readjustment);

out | ˈaʊt | (GA English); | ˈɑːt| (Phonemic Readjustment);

gazing | ˈgeɪzɪŋ | (GA English); | ˈgeɪzɪn | (Phonemic Readjustment);

wasteland | ˈweɪst.lænd | (GA English); | ˈweɪst.lɪn | (Phonemic Readjustment);

wrestler | ˈres.lɚ | (GA English); | ˈresələ | (Phonemic Readjustment);

embezzler | ɪmˈbez.lɚ | (GA English); | ɪmˈbezələ | (Phonemic Readjustment);

specialer | ˈspeʃəlɚ | (GA English); | ˈspeʃələ | (Phonemic Readjustment);

Intergalactical | ˈɪntəgəˈlæktɪkl | (GA English); | ˈɪntəgəˈlæktɪkuːl | (Phonemic Readjustment);

cynical | ˈsɪnɪkl̩ | (GA English); | ˈsɪnɪkuːl̩ | (Phonemic Readjustment);

fool | ˈfuːl | (GA English);

school | ˈskuːl | (GA English);

tool | ˈtuːl (GA English);

|cool | ˈkuːl | (GA English);

practical | ˈpræk.tɪ.kəl | (GA English); |ˈpræk.tɪ.kuːl | (Phonemic Readjustment);

tactical | ˈtæk.tɪ.kəl | (GA English); | ˈtæk.tɪ.kuːl | (Phonemic Readjustment);

tactful | ˈtækt.fəl | (GA English); | ˈtækt.fuːl | (Phonemic Readjustment);

track | ˈtræk | tickle | ˈtɪk.əl | (GA English); | ˈtræk.tɪk.uːl | (Phonemic Readjustment);

ring | ˈrɪŋ | (GA English); | ˈræŋ | (Phonemic Readjustment);

plank | ˈplæŋk | (GA English);

know | ˈnoʊ | (GA English);

on | ˈɔn | | ˈoʊn | (GA English);

hours | ˈaʊərz | (GA English); | ˈɑːʊəz | (Phonemic Readjustment);

karats | ˈker.əts | (GA English); | ˈkɑːrətz | (Phonemic Readjustment);

home | ˈhoʊm | (GA English);

more | ˈmɔr | (GA English); | ˈmoʊ | (Phonemic Readjustment);

gang | ˈgæŋ | (GA English); | ˈgeɪŋ | (Phonemic Readjustment);

domain | ˈdəˈmeɪn | (GA English);

liability | ˌˈlaɪ.əˈbɪl.ə.t̬i | (GA English);

adrenaline | əˈdren·əl·ɪn | (GA English); | əˈdren·əl·i | (Phonemic Readjustment);

anything | ˈen.i.θɪŋ | (GA English); | ˈen.i.θeɪŋ | (Phonemic Readjustment);

insane | ɪnˈseɪn | (GA English); | ˈɪnˈseɪn | (Phonemic Readjustment);

Canada | ˈkæn.ə.də | (GA English);

calendar | ˈkæl.ən.dɚ | (GA English); | ˈkæl.ən.də | (Phonemic Readjustment);

stamina | ˈstæm.ə.nə | (GA English);

Atlanta'd | æˈtlæntəd | her | ˈhɚ | (GA English); | æˈtlæntəd.hə | (Phonemic Readjustment);

panties | ˈpæn.t̬ɪz | up | ˈʌp | (GA English); | ˈpæn.t̬ɪzə | (Phonemic Readjustment);

amateur | ˈæm.ə.tʃɚ | (GA English); | ˈæm.ə.tʃə | (Phonemic Readjustment);

sir | ˈsɝː | (GA English); | ˈsɝː | (Phonemic Readjustment);

there | ˈðeər | (GA English); | ˈðɝː | (Phonemic Readjustment);

soldier | ˈsoʊl.dʒɚ | (GA English); | ˈsoʊl.dʒɝː | (Phonemic Readjustment);

vulture | ˈvʌl.tʃɚ | (GA English); | ˈvʌl.tʃɝː | (Phonemic Readjustment);

selling | ˈselɪŋ | (GA English); | ˈseˌlɪn | (Phonemic Readjustment);

inhaling | ɪnˈheɪlɪŋ | (GA English); | ɪnˈhelɪn | (Phonemic Readjustment);

fell | ˈfel | in | ˈɪn | (GA English); | ˈfelɪn | (Phonemic Readjustment);

wild | ˈwaɪld | dumb | ˈdʌm | (GA English); | ˈwæl.dʌm | (Phonemic Readjustment);

album | ˈæl.bəm | (GA English); | ˈæl.bʌm | (Phonemic Readjustment);

kinda | ˈkaɪ.ndə | (GA English);

honoured | ˈɑː.nɚd | (GA English); | ˈɑː.nə | (Phonemic Readjustment);

finer | ˈfaɪnɚ | (GA English); | ˈfaɪnə | (Phonemic Readjustment);

star | ˈstɑːr | (GA English); | ˈstɔː | (Phonemic Readjustment);

cars | ˈkɑːrz | (GA English); | ˈkɔːz | (Phonemic Readjustment);

Jaws | ˈdʒɔz | (GA English); | ˈdʒaʊz | (Phonemic Readjustment);

gauze | ˈgɔz | (GA English); | ˈgaʊz | (Phonemic Readjustment);

over | ˈoʊ.vɚ | (GA English); | ˈoʊ.və | (Phonemic Readjustment);

coca | ˌˈkoʊ.kə | (GA English);

sales | ˈseɪlz | (GA English);

mailed | ˈmeɪld | (GA English);

smelled | ˈsmeld | (GA English); | ˈsmeɪld | (Phonemic Readjustment);

status | ˈstætəs | (GA English); | ˈstætʊs | (Phonemic Readjustment);

castle | ˈkæs.əl | (GA English); | ˈkæs.ʊl | (Phonemic Readjustment);

blessing | ˈbles.ɪŋ | (GA English); | ˈbles.ɪn | (Phonemic Readjustment);

happened | ˈhæp.ənd | (GA English); | ˈhæp.ɪn | (Phonemic Readjustment);

hungry | ˈhʌŋ.gri | (GA English); | ˈhoʊŋ.gri | (Phonemic Readjustment);

homeless | ˈhoʊm.ləs | (GA English); | ˈhoʊm.lɪs | (Phonemic Readjustment);

song | ˈsɔŋ | (GA English); | ˈsoʊŋ | (Phonemic Readjustment);

bone | ˈboʊn | (GA English);

wrong | ˈrɔŋ | (GA English); | ˈroʊŋ | (Phonemic Readjustment);

hoe | ˈhoʊ | (GA English);

wrong | ˈrɔŋ | (GA English); | ˈroʊŋ | (Phonemic Readjustment);

0 | ˈoʊ | (GA English);

store | ˈstɔr | (GA English); | ˈstoʊ | (Phonemic Readjustment);

on | ˈɔn | (GA English); | ˈoʊn | (Phonemic Readjustment);

foreign |ˈfɔr.ən | (GA English); | ˈfɔːr.ɪn | (Phonemic Readjustment);

glowing | ˈgloʊ.ɪŋ | (GA English); |ˈglɔːɪn | (Phonemic Readjustment);

going | ˈgoʊ.ɪŋ | (GA English); | ˈgɔːɪn | (Phonemic Readjustment);

name | ˈneɪm | (GA English);

name | ˈneɪm | (GA English);

sing | ˈsɪŋ | (GA English);|ˈseɪŋ | (Phonemic Readjustment);

drink | ˈdrɪŋk | (GA English); | ˈdreɪŋk | (Phonemic Readjustment);

think | ˈθɪŋk | (GA English); | ˈθeɪŋk | (Phonemic Readjustment);

wait | ˈweɪt | (GA English);

hits | ˈhɪts | (GA English);

sense | ˈsens | (GA English); | ˈsɪns | (Phonemic Readjustment).

Table 2.

Phonemic Readjustment in the Corpus		
ɑɪər>ɑː	ə>ɪ	ɔ>ɔʊ
ɑɪər>ɑː.ɪə	ə>ʊ	ɔʊ>ɔː
ɑɪ> ɑː	əl>oʊ	oʊlt>oʊ
ɑɪ.ʌ>ɑː.ɪə	ɚ>ʌ	ɔr>ɔː
ɑɪ> æ	ɚ>ə	ɔr>oʊ
aʊ> ɑː	ɚ>ɜː	æ>eɪ
aʊ> ɑː.ʊ	ɪ>iː	æ>ɪ
ɑː>ɔː	ɪ>eɪ	ld>l
ʌ>oʊ	ɪ>æ	lz>l
ʌp>ə	iː.ə>iː	lɚ>ələ
e>eɪ	m>i	kl>kuːl
eɪ>e	ɑ>ɑː	kəl>kuːl
e>ɪ	ɔ>ɔː	ŋ>n
e> ɑː	ɔ>aʊ	nd>n

3.3. Explanatory Analysis

This section shall expand on why certain phonemic readjustments have been made by the rap artists, what rhyme domains initiated them and what is the purpose of such changes. The descriptive analysis will be carried out by studying samples of the phonemic readjustments made by the rap artists demonstrated within the Descriptive Analysis. These samples shall be anatomised into phonemes where necessary in order to indicate the initiative domains steering the phonemic variations of other rhyme correspondents. The readjusted objects will be broken down into vowel and consonant phonemes, digraphs and clusters in order to showcase how the rappers applied their knowledge of *psychoacoustic similarity* within their lyrical schemes. Helmholtz (1885/1954) has proposed a methodology of *acoustic similarity* to analyse similarity between chords basing the analysis on studying the number of frequencies. Other

scholars (Parncutt, 1989; Terhardt, 1974, 1979) approached the study of *psychoacoustic similarity* by calculating the common pitches which were induced. Bharucha & Stoeckig (1987) studied *psychoacoustic similarity* by basing the analysis on *orthodox associations* instead of shared frequencies. This segment of the analysis will also evaluate the phonemic readjustments according to the measure of *conventional associations*.

3.3.1. Sample Analysis:

(1). fire- | ˈfɑɪər | (GA English); | ˈfɑː | (Phonemic Readjustment);

    die- | ˈdaɪ | (GA English); | ˈdɑː | (Phonemic Readjustment);

    July- | ˈdʒʊˈlaɪ | (GA English); | ˈdʒʊˈlaː | (Phonemic Readjustment);

    fire- | ˈfɑɪər | (GA English); | ˈfɑː | (Phonemic Readjustment)

As seen within the first sample (1), there are four correspondents which have an identical rhyme domain after the phonemic readjustment. It seems that the rap artist intentionally chose to reconstruct words which have the vowel clusters /ai/ within their root. The sample shows that the rapper omits every phoneme after the low central unrounded vowel /a/ leaving every morpheme to share the same rhyme domain. In this case, it is hard to tell which word plays the initiative role since each has gone through the measure of psychoacoustic similarity.

(2). pill- | ˈpɪl | (GA English); | ˈpiːl | (Phonemic Readjustment);

    real- | ˈriː.əl | (GA English); | ˈriːl | (Phonemic Readjustment);

    killed- | ˈkɪld | (GA English); | ˈkiːl | (Phonemic Readjustment);

The second example from the corpora (2) demonstrates three phonemic readjustments made by the rap artist. It appears that the artist relied on his knowledge of psychoacoustic similarity and readjusted the primary lax high front unrounded /ɪ/ vowel and /iː.ə/ vowel cluster sounds into the tense high front unrounded vowel /iː/. The other readjustment is concerned with the suffix of the word killed. The voiced alveolar stop /d/ is omitted from the pronunciation in order for the utterance to correspond with other rhyme correspondents, which end with the

voiced alveolar lateral liquid /l/. In result, all correspondents share the same rhyme domain which is the cluster /i:l/.

(3). scale (GA English); | 'skeɪl | (Phonemic Readjustment);

sells | 'selz | (GA English); | 'seɪl | (Phonemic Readjustment);

bale | 'beɪl | (GA English);

belt | 'belt | (GA English); | 'beɪlt | (Phonemic Readjustment);

The sample from the corpora (3) reveals that the rapper readjusted the tense mid front unrounded vowel /e/ by pairing it with the unrounded vowel /ɪ/, thus, resulting with a vowel cluster /eɪ/. It appears that the initiative free morpheme is bale, as it is the single utterance maintaining its primary form of pronunciation and the only one which has the consonant cluster /eɪ/ within its original root amongst the rhyme pairs.

(4). great | 'ɡreɪt | (GA English);

day | 'deɪ | (GA English);

bank | 'bæŋk | (GA English); | 'beɪnk | (Phonemic Readjustment);

steak | 'steɪk | (GA English);

drink | 'drɪŋk | (GA English); | 'dreɪnk | (Phonemic Readjustment);

brain | 'breɪn | (GA English);

The sample above (4) provides two cases of phonemic readjustment. As seen, the musician altered the low front unrounded vowel sound /æ/ into the vowel cluster /eɪ/. The second readjustment was done within the pronunciation of the word *drink* by the addition of the unrounded vowel /e/, thus, making it correspond with other rhyme domains which share the identical vowel cluster /eɪ/.

(5). fire | 'fɑɪər | (GA English); | 'fɑːɪə | (Phonemic Readjustment);
try | 'traɪ | us | 'ʌs | (GA English); | 'trɑːɪəs | (Phonemic Readjustment);

In the extract (5), it seems that the artist readjusted the low back unrounded vowels /ɑ/ and /a/ into an open vowel /ɑ:/. The deletion of the voiced alveolar trill /r/ is also evident within the second syllable of the first rhyme correspondent as well as the readjustment from the open mid-back unrounded /ʌ/ to the vowel cluster /ɪə/.

(6). getting | ˈgetɪŋ | (GA English); | ˈgɪt.ɪn | (Phonemic Readjustment);

finish | ˈfɪn.ɪʃ | (GA English);

Here (6) the tense mid front unrounded vowel /e/ is replaced with the unrounded vowel /ɪ/ in order to correspond with the other rhyme domain. Also, the voiced velar nasal /ŋ/ is replaced with the voiced alveolar nasal /n/, presumably so that the vowel correspondence would highlight more through the difference of the consonants.

(7). growing | ˈgroʊ.ɪŋ | (GA English); | ˈgrɔ:ɪn | (Phonemic Readjustment);

for | ˈfɔr | me | ˈmi | (GA English); | ˈfɔ:mɪ | (Phonemic Readjustment);

The next sample (7) shows a readjustment of the /oʊ/ vowel cluster. The cluster and the primary short vowel /ɔ/ are changed with an open mid back rounded vowel /ɔ:/. The readjustment of /ŋ/ is also clearly visible as it is within Example 6 in order to highlight the vowels. As the remaining phonemes within the first correspondent consist of a short /ɪ/ and the nasal /n/, the tense high front unrounded /i/ is also shortened for more rhythmic similarity.

(8). for | ˈfɔr | (GA English); | ˈfoʊ | (Phonemic Readjustment);

go | ˈgoʊ | (GA English);

angel | ˈeɪn.dʒəl | (GA English); | ˈeɪndʒoʊ | (Phonemic Readjustment);

angles | ˈæŋ.gəlz | (GA English); | ˈeɪŋgoʊz | (Phonemic Readjustment);

The extract (8) demonstrates the readjustment of the /ɔ/ and /əl/ clusters. The correspondents are initiated by the utterance *go* therefore all of them share the same rhyme domain of the vowel cluster /oʊ/.

(9). odds | ˈɑdz | (GA English); | ˈɑ:dz | (Phonemic Readjustment);

out | ˈaʊt | (GA English); | ˈɑ:t| (Phonemic Readjustment);

This example (9) reveals a clear case of psychoacoustic similarity as the initial unrounded /ɑ/ remains within both correspondents, however, it is elongated and the omission of the lax high

back rounded vowel /ʊ/ in the first segment of the rhyme pair, makes both correspondents share an identical rhyme domain.

(10). gazing | ˈɡeɪzɪŋ | (GA English); | ˈɡeɪzɪn | (Phonemic Readjustment);

    wasteland | ˈweɪst.lænd | (GA English); | ˈweɪst.lɪn | (Phonemic Readjustment);

This sample (10) shows three cases of phonemic readjustment. The first case is the deletion of the last phonemes within the suffixes of the utterances. Within the first utterance, the velar nasal /ŋ/ is replaced with the alveolar nasal /n/ while the voiced alveolar stop /d/ is omitted absolutely in the second. The second utterance also reveals that the low front unrounded /æ/ is replaced with the lax high front unrounded /ɪ/.

(11). wrestler | ˈres.lɚ | (GA English); | ˈresələ | (Phonemic Readjustment);

    embezzler | ɪmˈbez.lɚ | (GA English); | ɪmˈbezələ | (Phonemic Readjustment);

    specialer | ˈspeʃəlɚ | (GA English); | ˈspeʃələ | (Phonemic Readjustment);

The passage (11) is interesting to the research as this readjustment involves additional syllables to utterances. Primarily, the word *wrestler* has 2 syllables while *embezzler* contains 3. After the artist inserted the lax mid central vowel /ə/ between the last two consonants and omitted the rhoticity of the the rhotacized 'schwa' sound, each utterance gained an additional syllable.

(12). cynical | ˈsɪnɪkl̩ | (GA English); | ˈsɪnɪkuːl̩ | (Phonemic Readjustment);

    fool | ˈfuːl | (GA English);

    cool | ˈkuːl | (GA English);

    practical | ˈpræk.tɪ.kəl | (GA English); |ˈpræk.tɪ.kuːl | (Phonemic Readjustment);

    tactical | ˈtæk.tɪ.kəl | (GA English); | ˈtæk.tɪ.kuːl | (Phonemic Readjustment);

The example (12) establishes a chain of identical rhyme correspondences which was initiated either by the utterance *cool* or *fool*. The lax mid central vowel /ə/ was readjusted into a tense high back rounded /uː/. The uː sound was also added between the last two consonants /k/ and /l/ within | *ˈsinikl* |.

(13). ring | ˈrɪŋ | (GA English); | ˈræŋ | (Phonemic Readjustment);

plank | ˈplæŋk | (GA English);

The example (13) shows a readjustment of the lax high front unrounded /ɪ/ as it was replaced by the low front unrounded /æ/ in order to correspond with the other rhyme domain.

(14). know | ˈnoʊ | (GA English);

on | ˈɔn | | ˈoʊn | (GA English);

Here (14) the oʊ diphthong initiated the readjustment of the lax mid back rounded vowel /ɔ/.

(15). gang | ˈgæŋ | (GA English); | ˈgeɪŋ | (Phonemic Readjustment);

domain | ˈdəˈmeɪn | (GA English);

Within the sample above (15), the low front unrounded /æ/ was readjusted according to the diphthong /eɪ/ found within the second syllable of the *domain.*

(16) liability |ˌˈlaɪ.əˈbɪl.ə.t̬i | (GA English);

adrenaline | əˈdren·əl·ɪn | (GA English); | əˈdren·əl·i | (Phonemic Readjustment);

Example (16) shows a phonemic readjustment within the omission of the voiced alveolar nasal /n/ which is supposed to make the tense high front unrounded /i/ more prominent.

(17). Canada | ˈkæn.ə.də | (GA English);

calendar | ˈkæl.ən.dɚ | (GA English); | ˈkæl.ən.də | (Phonemic Readjustment);

The artist (17) demonstrates a readjustment within the deletion of the rhoticity of the 'schwa' sound, therefore, leaving both correspondents with a lax mid central vowel /ə/.

(18). panties | ˈpæn.t̬ɪz | up | ˈʌp | (GA English); | ˈpæn.t̬ɪzə | (Phonemic Readjustment);

amateur | ˈæm.ə.tʃɚ | (GA English); | ˈæm.ə.tʃə | (Phonemic Readjustment);

The extracted sample (18) shows 2 cases of phonemic readjustment. The first is concerned with the replaced of every phoneme within the utterance *up* with the lax mid central /ə/, this then is attached to the first utterance. The whole correspondent shares an identical rhyme domain with the other correspondent which also was readjusted with the deletion of the rhoticity in the secondary 'schwa' sound.

(19). selling | ˈselɪŋ | (GA English); | ˈseˌlɪn | (Phonemic Readjustment);

inhaling | ɪnˈheɪlɪŋ | (GA English); | ɪnˈhelɪn | (Phonemic Readjustment);

fell | ˈfel | in | ˈɪn | (GA English); | ˈfelɪn | (Phonemic Readjustment);

The first two correspondents in the sample (19) share the same phonemic readjustment of the voiced velar nasal /ŋ/, which has been replaced with a voiced alveolar nasal /n/ in order to correspond with the third utterance. Also, the second correspondent shows a readjustment made with the tense mid front unrounded /e/, which has been changed into an unrounded /ɪ/ to achieve similarity.

(20). wild | ˈwaɪld | dumb | ˈdʌm | (GA English); | ˈwæl.dʌm | (Phonemic Readjustment);

album | ˈæl.bəm | (GA English); | ˈæl.bʌm | (Phonemic Readjustment);

The mentioned example (20) reveals 2 cases of phonemic readjustment, one of which is concerned with the replacement of the vowel cluster /aɪ/ with the low front unrounded /æ/ within the first correspondent. The second correspondent is readjusted according to the second syllable of the first correspondent by changing the lax mid central /ə/ into an open mid-back unrounded /ʌ/.

(21). status | ˈstætəs | (GA English); | ˈstætʊs | (Phonemic Readjustment);

castle | ˈkæs.əl | (GA English); | ˈkæs.ʊl | (Phonemic Readjustment);

It is apparent that this sample (21) has no initiative utterance, as in both correspondents the last vowels are replaced with the lax high back rounded /ʊ/.

(22). blessing | ˈbles.ɪŋ | (GA English); | ˈbles.ɪn | (Phonemic Readjustment);

happened | ˈhæp.ənd | (GA English); | ˈhæp.ɪn | (Phonemic Readjustment);

The mentioned sample (22) shows a readjustment from the voiced velar nasal /ŋ/ to the alveolar nasal /n/ within the first correspondent. The second correspondent is readjusted similarly, however, only by the deletion of the alveolar stop /d/ and by replacing the last 'schwa' vowel into a lax high front unrounded /ɪ/.

(23). hungry | ˈhʌŋ.gri | (GA English); | ˈhoʊŋ.gri | (Phonemic Readjustment);

homeless | ˈhoʊm.ləs | (GA English); | ˈhoʊm.lɪs | (Phonemic Readjustment);

Example 23 demonstrates a readjustment from the open mid-back unrounded /ʌ/ to a vowel cluster /oʊ/ in order to match the second utterance. The second correspondent is also slightly readjusted as the last vowel sound changes from 'schwa' to a lax high from unrounded /ɪ/.

(24). song | ˈsɔŋ | (GA English); | ˈsoʊŋ | (Phonemic Readjustment);

bone | ˈboʊn | (GA English);

wrong | ˈrɔŋ | (GA English); | ˈroʊŋ | (Phonemic Readjustment);

store | ˈstɔr | (GA English); | ˈstoʊ | (Phonemic Readjustment);

on | ˈɔn | (GA English); | ˈoʊn | (Phonemic Readjustment);

This example (24) provides the same readjustment of the lax mid back rounded /ɔ/ to a diphthong /o/ʊ throughout all correspondents. However, within *store* the voiced alveolar liquid /r/ is dropped to emphasise the /oʊ/ cluster.

(25). foreign | ˈfɔr.ən | (GA English); | ˈfɔːr.ɪn | (Phonemic Readjustment);

glowing | ˈgloʊ.ɪŋ | (GA English); | ˈglɔːɪn | (Phonemic Readjustment);

going | ˈgoʊ.ɪŋ | (GA English); | ˈgɔːɪn | (Phonemic Readjustment);

The extract (25) provides several cases of phonemic readjustment. The first is the change from the vowel cluster /oʊ/ and rounded /ɔ/ into an open-mid back rounded /ɔː/. Second, the lax mid central /ə/ switches to an unrounded /ɪ/. Last, the velar nasal /ŋ/ is readjusted to the alveolar nasal /n/.

(26). name | ˈneɪm | (GA English);

sing | ˈsɪŋ | (GA English); | ˈseɪŋ | (Phonemic Readjustment);

The sample (26) shows a readjustment from the lax high front unrounded /ɪ/ to the diphthong /eɪ/ in order to correspond with | ˈn<u>eɪ</u>m |.

(27). drink | ˈdrɪŋk | (GA English); | ˈdreɪŋk | (Phonemic Readjustment);

think | ˈθɪŋk | (GA English); | ˈθeɪŋk | (Phonemic Readjustment);

wait | ˈweɪt | (GA English);

The example (27) demonstrates the readjustment from the lax high front unrounded /ɪ/ to the diphthong /eɪ/, which corresponds identically with | 'weɪt |.

(28). sir | 'sɝ: | (GA English); | 'sɝ: | (Phonemic Readjustment);

    there | 'ðeər | (GA English); | 'ðɝ: | (Phonemic Readjustment);

    soldier | 'soʊl.dʒɚ | (GA English); | 'soʊl.dʒɝ: | (Phonemic Readjustment);

    vulture | 'vʌl.tʃɚ | (GA English); | 'vʌl.tʃɝ: | (Phonemic Readjustment);

| 'sɝ: | being the initiative morpheme in the sample (28), in order for other utterances to correspond, the phonemic readjustment is made within other correspondents by replacing both the cluster /eər /and the rhotacized 'schwa' with the stressed /ɝ:/ sound.

3.4. Quantitative Analysis

The Quantitative Analysis provides the frequency calculations of all cases of phonemic readjustment. The computation aids at discovering whether there are certain phonemic readjustment tendencies amongst American rap artists or whether the majority of the cases are unique and discrete. The frequency computations are carried out by calculating the occurrence of all instances from the comparative analysis (see Table 2). The frequency of these occurrences is displayed in the table provided below (Table 3) as well as the percentage of frequencies (Chart 1).

Table 3.

Frequency of Phonemic Readjustment					
Phonem. Readjust.	Freq.	Phonem. Readjust.	Freq.	Phonem. Readjust.	Freq.
ɑɪər>ɑː	2	ə>ɪ	6	ɔ>ɔʊ	5
ɑɪər>ɑː'ɪə	1	ə>ʊ	2	ɔʊ>ɔː	3
ɑɪ> ɑː	2	əl>oʊ	2	oʊlt>oʊ	1

Frequency of Phonemic Readjustment					
aɪ.ʌ>ɑːˈɪə	1	ɚ>ʌ	1	ɔr>ɔː	1
aɪ> æ	1	ɚ>ə (suffix)	6	ɔr>oʊ	4
aʊ> ɑː	1	ɚ>ɜː	3	æ>eɪ	2
aʊ> ɑː.ʊ	1	ɪ>iː	2	æ>ɪ	1
ɑː>ɔː	3	ɪ>eɪ	7	ld>l (suffix)	1
ʌ>oʊ	1	ɪ>æ	1	lz>l (suffix)	1
ʌp>ə	1	iː.ə>iː	1	lɚ>ələ (suffix)	3
e>eɪ	3	ɪn>i	1	kl>ku:l (suffix)	2
eɪ>e	1	ɑ>ɑː	1	kəl>ku:l (suffix)	4
e>ɪ	2	ɔ>ɔː	1	ŋ>n (suffix)	8
e> ɑː	1	ɔ>aʊ	2	nd>n (suffix)	1

- ■ ə>ɪ
- ■ ɚ>ə (suffix)
- ■ ɪ>eɪ
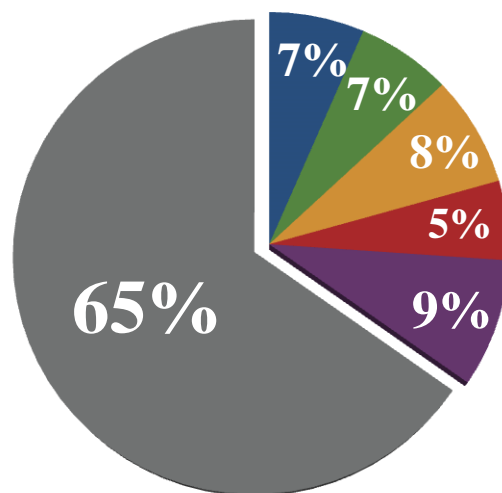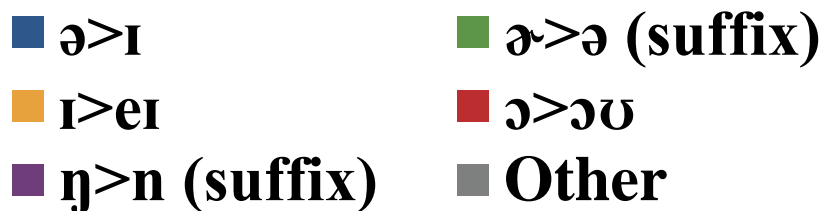- ■ ɔ>ɔʊ
- ■ ŋ>n (suffix)
- ■ Other

Figure 2.

The table (Table 3) demonstrates all instances of phonemic readjustment as well as the number of their occurrences within the corpora. It seems that the change from the velar nasal /ŋ/ to the velar nasal /n/ is the most frequent readjustment and occupies 9% of the corpora. The /ɪ/>/eɪ/ readjustment occurred 7 times and makes 8% of the corpus. /ə/>/ɪ/ and /ɚ/>/ə/ sound adaptations each take 7% of the corpora, separately occurring 6 times. Other phonemic readjustments occurred 5 and less times with the majority only occupying 1-2% of the corpora.

3.5. Qualitative Analysis

The qualitative analysis of the thesis explains the motivation and tendencies of the phonetic readjustments presented within the qualitative analysis. As it is seen within the samples, *psychoacoustic similarity* is evident throughout each *correspondent rhyme pair*. In every example illustrated, it appears that rap artists from the corpora mostly rely on readjusting vowels as it is easier to manipulate their sound pattern. Consonants on the other hand, are readjusted minimally and only within the suffixes of utterances, usually- by the deletion of the secondary phoneme of a consonant cluster and leaving the first phoneme of the primary sound pair.

The most frequent phonemic readjustment of consonants is the readjustment from the final velar nasal ŋ to an alveolar nasal n. Green (2002: 107) claims that a common feature in AAVE is the reduction of the final consonant. The scholar (Green 2002: 121-122) mentions that this phenomena does not occur in one-syllable morphemes such as *king; ring,* that are | 'kɪŋ |; | 'rɪŋ | but not | 'kɪn|; | 'rɪn|. However, in such examples as *ringing; singing,* which are | 'rɪngɪŋ |; | 'sɪngɪŋ |, the theory approves. Therefore, the instances which contain the loss of the final consonant within the corpora, such as *ŋ>n; ɚ>ə* and even individual cases such as *nd>n; lz>l; ld>l,* can be explained by the measure of the *final consonant reduction-* a distinct tendency in AAVE. Additionally, consonants play no role in the rhyme construction, therefore, the application of AAVE propensities cannot be attributed to this study (Kawahara 2007: 47).

Phonemic readjustments which include vowel changes are difficult to motivate as every instance mostly occurs as an individual case, or has originated as a tendency from a single rap artist and may not be found within the pronunciation of other rappers. Because of artistic

distinction, rap artists do not share rhyme schemes with one another, consequently, even the cases of phonemic readjustment which can be found in several different sources such as, *ɪ>eɪ*; *aː>ɔː*; *e>eɪ*; *ə>ɪ*; *ɔ>ɔʊ,* cannot be correctly motivated as they occur in different cases and function with dissimilar correspondents (see Chapter 3.2.1.). It seems that the current findings of studying rhyming patterns reveal that, when forming rhyme schemes and readjusting phonemic patterns, rappers rely on their unconscious knowledge of psychoacoustic similarity rather than their linguistic knowledge.

4. CONCLUSIONS

In closing this thesis, the study discusses the often ignored aspect of rap lyrics and the collective knowledge of the notion of rhyme- the measure of psychoacoustic similarity in rhyme building by the application phonemic readjustment. By gathering a corpus with the approach of auditory perception, the lyrics and the transcriptions of their pronunciation were extracted and put for study. These extracts were then analysed through other several analysis approaches, which include the methodologies of: descriptive, comparative, explanatory, quantitative and qualitative analysis. By carrying out the descriptive and comparative analyses, the lyric transcriptions of both phonemically readjusted and GA English pronunciations were showcased. Samples of the corpora were broken down and discussed within the explanatory analysis. The frequency of the extracted cases of phonemic readjustment were also calculated and discussed within the sections of quantitative and qualitative analyses.

The results of the data discussion demonstrate that the majority of phonemic readjustment instances are discrete cases and do not develop any valid tendencies of sound change. It appears that a trend of phonemic readjustment lies within the category of consonants and their adaptation within the suffixes of morphemes. Specifically, rappers tend to discard the final consonant in polysyllabic utterances which appears to be a quality of AAVE. However, consonant related readjustments seem to be irrelevant and do not apply to the results of the research as the folk rhyme definition claims that consonants do not affect rhyme formation. Vowels on the other hand, are readjusted without any well-grounded and uniform proclivity, but depend solely on the unconscious knowledge of psychoacoustic similarity of every individual artist and the qualities of the desired rhyme system.

For further research, broadening the corpus by incorporating older rap songs that contain instances of phonemic readjustment seems interesting to the study as it would provide more extralinguistic evidence. This content could perhaps provide information about the development and consonant related tendencies of psychoacoustic similarity.

SUMMARY IN LITHUANIAN

Šio darbo tikslas - ištirti ir įvertinti fonemų adaptavimo ypatybes amerikiečių repo atlikėjų kalboje. Tam, jog ištirti šiuos reiškinius, buvo sukurtas ir panaudotas fonologinis tekstynas, kuris susideda iš 104 standartinės amerikiečių anglų kalbos tarimo pakeitimo atvejų. Šiam tekstynui sudaryti buvo kritiškai atrinkta ir išanalizuota 15 repo dainų, kuriose buvo užfiksuota nestandartinė fonemų vartosena. Garso įrašų atranka buvo paremta kūrinių išleidimo data, atlikėjų kilme, muzikos įrašų populiarumu ir foneminių adaptacijų gausa. Darbo tyrimas buvo atliktas remiantis lingvistine informacija, kuri buvo interpretuojama analizuojant tekstyną. Remiantis Kawahara's (2008) Psichoakustinio panašumo (Psychoacoustic Similarity) ir Katz's (2015) Rimo (Rhyme) modeliais buvo siekiama identifikuoti foneminės adaptacijos atvejus dainininkų tarime ir juos inicijavusius rimo korespondentus.

Foneminių adaptacijų atvejai buvo tiriami keliais analizavimo metodais: auditoriniu, aprašomuoju, lyginamuoju, aiškinamuoju, kiekybiniu ir kokybiniu. Auditorinės metodikos dėka buvo sudarytas tekstynas, kuris vėliau buvo pateiktas aprašomosios analizės dalyje. Lyginamoji analizė padėjo akcentuoti foneminių pakeitimų pavyzdžius juos palyginant su standartinio amerikietiško tarimo transkripcijomis. Aiškinamosios analizės dalyje buvo aptarti foneminės adaptacijos pavyzdžiai, konkrečiai įvardijant kiekvieno foneminio pokyčio pirminį variantą prieš modifikavimo procesą bei galutinį variantą po modifikavimo proceso. Tokiu būdu buvo identifikuotos fonemos, kurios patyrė neadekvatų balsių ilginimą/trumpinimą, priebalsių klasterių galutinio garso pašalinimą žodžio pabaigoje bei pilni fonemu pakeitimai į kitus garsus ar dvigarsius. Kiekybinis ir kokybinis tyrimas parodė ir aptarė kiekvieno garso pokyčio dažnumo kiekį tekstyne.

Darbo rezultatų dėka buvo pastebėta, jog didžioji aptiktų foneminių adaptacijų dalis yra unikalūs atvejai ir nesudaro jokių pagrįstų garsų pokyčių tendencijų. Pastebėta, jog foneminių adaptacijų tendencija pasireiškė neadekvačiame galutinių priebalsių realizavime, pašalinant galutinį priebalsį (pvz: gomurinis /ŋ/- gomurinis /n/). Šis reiškinys buvo traktuojamas kaip African American Vernacular English (AAVE) bruožas. Tačiau tokia tendencija yra nereikšminga šiam tyrimui, kadangi priebalsių modifikavimas nedaro įtakos rimo korespondencijai ir formavimui. Tekstyne aptiktos balsės, kita vertus, yra fonemiškai adaptuojamos nesudarant tendencijos. Balsių modifikavimas dažniausiai pasireiškia

priklausomai nuo kiekvieno repo artisto nesąmoningo psichoakustinio panašumo paisymo bei nuo pageidautinos rimo sistemos savybių.

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