

Ambisyllabicity in Pakistani English: Optimality Approach

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Abstract

The current research paper investigates the phenomenon of ambisyllabicity in Pakistani English (PE) by using the framework of Optimality Theory for examining the ambisyllabic consonants and syllable structures within the Pakistani English variety. Ambisyllabicity in non-native varieties of English remains under-researched. The current research paper identifies the constraints and ranking that influences the placement of ambisyllabic consonants in PE, and comparing these consonants with the British English (BE). The nature of the study is descriptive. The study collected the data from acoustic analysis and native speakers intuitions, focusing on word medial consonants. The analysis of the data reveals that ambisyllabicity in (PE) is similar to (BE) but there are some unique constraints rankings in PE due to the transfer of effects of native languages. The study contributes to a more comprehensive understanding of the syllable structures in World Englishes and phonological phenomenon in Pakistani English.

Keywords: Ambisyllabicity, Pakistani English, Optimality Theory, Syllable structures.

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Introduction

Ambisyllabicity, a phenomenon in which a consonant simultaneously belongs to both the preceding and following syllables, plays vital role in the phonological processes and in the syllabification within English and other languages. The feature of ambisyllabicity significantly effects phonotactics, syllable boundary definitions, and stress patterns, making it an essential area of study in both theoretical and applied areas of linguistics. In the past, ambisyllabicity has been explored extensively in native varieties of English such as American English and British English. The data shows that limited research has been done in the non-native varieties of English particularly Pakistani English. The phenomenon of ambisyllabicity will surely help to understand the syllable structure, phonotactic constraints and language transfer effects in Pakistani English (PE).

Mir and Afsar (2023) state that Pakistani English, a distinctive variety of English spoken by millions of speakers in Pakistan, has evolved under the influence of local languages such as Urdu, Punjabi, Sindhi, and Pashto. These languages bring with them specific phonotactic constraints and syllable structures, which are reflected in the way English is spoken in Pakistan.

As a result, Pakistani English shows significant phonological features differ from British English or American English varieties in the areas like syllabification, stress patterns, placement, and consonant distribution. Ambisyllabicity, is related to syllable structures and can be analyzed studied through syllabification.

The current research applies the theoretical framework of Optimality Theory (OT) for the analysis of ambisyllabicity and ambisyllabic consonants in Pakistani English (PE). Optimality Theory (OT) provides a model for the understanding of language specific constraints and ranking of these constraints that govern the phonological outputs. The application of OT to PE helps in identification of constraints that shape ambisyllabicity in this variety of English, and to compare the key findings with other dialects of English. The focus of the study allows for systematic explanation of the phenomenon under investigation and how constraints effect the arrangements of consonants within Pakistani English.

The research aims to identify instances of ambisyllabicity within Pakistani English, Particularly in word word-medial consonants, and to determine the specific constraints and their rankings that derive the phonological process of ambisyllabicity within Pakistani English (PE). Moreover, the study focuses to compare the output with the British English (BE) related to the phonological phenomenon of ambisyllabicity. Through the Optimality Theory (OT) the study offers more effective understandings of syllable structure in PE, highlighting the influences of local languages impact English phonology in Pakistan. The study bridges the gap between theory and practice, and expands the application of OT to non-native English varieties but it also enriches the phonological variation across World Englishes.

Literature Review

The phenomenon of ambisyllabicity is used to refer the shared relationship between two syllables where one consonants is essentially connected with the boundaries of two syllables within the phonological process of syllabification. Ambisyllabification has been studied in native varieties of English using the phonological framework for analyzing its impact on stress pattern, prosody, and syllabic transitions. After the development of Optimality Theory (OT), ambisyllabification can be better explained , and has been explained by the linguists in a better way for understanding it across the different varieties of English, though limited research explores its occurrences in non-native English varieties like Pakistani English (PE). The current section examines key research works on the phenomenon of ambisyllabification and syllable structures within the native varieties of English, the application of OT, and the implications of local languages on the phonology of Pakistani English (PE).

Kahn (1976) studied the phenomenon of ambisyllabicity in English, explaining the specific contexts where consonants are ambisyllabified, particularly in the context of intervocalic

situations, belong to both preceding and the following syllables. Kahn's model is foundational, discussing the phenomenon of ambisyllabicity in American and British Englishes. Silkirk (1982) studied ambisyllabicity and stated that ambisyllabicity helps in smoothing the transitions between two syllables. Harris (1994) discussed that ambisyllabicity is transition of preceding consonant to proceeding consonant within the syllables. Cote & Morrison (2020) described the phenomenon of ambisyllabicity and how this phenomenon works within the phonological systems, confirming the ambisyllabicity frequently appear in unstressed syllables, and intervocalic positions, it affects the prosodic structures of English.

Prince and Smolensky (1993) developed the framework of Optimality Theory (OT) for the explanation of complex phonological phenomenon like ambisyllabification. Later, linguists have adopted this framework for better explanation of ambisyllabicity in a constraints- based approach. McCarthy & Prince (1995) state that language specific constraints result from hierarchically ranked constraints, allowing a systematic investigation of the constraints and their ranking that influence ambisyllabic structures. Clements (2019) states that ambisyllabicity occurs when markedness constraints like *Coda and Onset interact to permit consonants shared between syllables. Féry & van de Vijver (2003) state that ambisyllabicity occurs more frequently within American English in unstressed syllables, while intervocalic contexts in British English, and constraints ranking will be unique in each variety of English.

Though research on the phenomenon of ambisyllabicity in native varieties of English has been very frequent, studies on non-native varieties of English such as Pakistani English (PE) remains scarce. Mir & Afsar (2024) state that Pakistani English (PE) is a unique variety of English influenced by many local languages like Urdu, Pashto, Punjabi, Pashto, Balochi, Hindko, which have distinct phonotactic constraints that may effect English phonology in Pakistan. Mahboob (2004) states that Pakistani English phonology is influenced by local languages because local languages vary in many ways from English. Ahmar (2004) further states that local languages in Pakistan have unique phonological structures and it affects the phonology of Pakistani English speakers. Mahboob (2004) found that Pakistani English has unique phonological features including vowel reduction, consonant clustering, and syllable segmentation. Moreover, Mir (2024) states that Pakistani English follows a unique set of constraints that influence ambisyllabicity and PE is influenced by other local languages spoken in different regions of Pakistan like Punjab, Sindh, KPK and Azad Kashmir.

Rahman (2021) states that local languages influence phonology of Pakistani English in a significant way and it affects the phonological process of ambisyllabicity. Zafar and Mehmood (2022) explored the constraints ranking in Pakistani English phonology and how local languages affect the phonology of Pakistani English. They found that distinct constraints shaped by local linguistic influences the syllable boundaries and ambisyllabicity. Baig (2023) states that

Pakistani English transfer rules of phonology from their native languages like Punjabi and Pashto. Raza (2023) states that syllable final consonant retention and stress patterns are transferred from local languages of Pakistani English speakers and it greatly affects the phenomenon of ambisyllabicity in Pakistani English. These studies show that phonology of Pakistani English is influenced by local languages and ambisyllabicity is because of local languages phonology that greatly affects the phonology of PE.

The current study fills the research gap by addressing the issue of ambisyllabicity in Pakistani English with the framework of Optimality Theory (OT), seeking to identify the constraints governing the phenomenon of ambisyllabicity, and their ranking specific to PE and compare with British English. Through the study, there will be an addition in the field of World Englishes by explaining how local languages influence and shape the phenomenon of ambisyllabicity in non-native varieties of English. The application of OT to PE enhances the understandings of phonological processes like ambisyllabicity in PE and offering deep insight between local languages and English in shaping the process of syllabification and syllable structures in Pakistani English.

Research Methodology

The current research work explores the phonological process of ambisyllabicity in Pakistani English (PE) using the mixed-methods approach grounded in Optimality Theory (OT). The framework is very effective in analyzing the phonological process of ambisyllabicity by ranking, identifying the constraints and how ambisyllabic consonants behave in Pakistani English and it also helps to understand how local languages influence the ambisyllabicity at the word medial boundaries of the syllable structures. The current section clarifies the data collection and data recordings followed by detailed data analysis in OT Theory. Moreover, the section clarifies the strategies used for the sampling and analysis.

Sampling and Participants

The study draws a sample of 10 native Pakistani English speakers from Punjab, Sindh, Baluchistan, Azad Kashmir and Gilgit Baltistan to capture the dialectal variations within Pakistani English. Participants were selected using the purposive sampling to ensure that the participants represent different age groups and linguistic background like Urdu, Sindhi, Punjabi, Balochi, Hindko and Pashto, which are known for their influence on the phonology of Pakistani English. All the participants were advanced speakers of English and having 10 years of English language teaching experience to ensure the proficiency and fluency in Pakistani English.

Data Collection

Speech Recordings

Speech recording were conducted using a controlled environment to obtain high-quality audio data for the acoustic analysis of the speech sounds to mark the syllable boundaries and identifies the ambisyllabic consonants in the intervocalic positions , where ambisyllabicity commonly occurs in BE as highlighted by (Côté & Morrison, 2020). A word list was used to record the speech sounds in which consonants occur in VCV contexts like better, happy, letter. Additionally, speakers were asked to talk on any topic for two minutes to record their natural speech without any external influence. This was effective to capture the natural syllable patterns of the speakers within PE.

Native Speaker Intuitions

The native speakers data was collected through the recordings of informal interviews. All the participants were given a list of words and phrases and they were asked to pronounce the words. The purpose was to know how they intuitively parse syllables in Pakistani English. The data was gathered for Optimality Theory analysis and for acoustic analysis to mark the syllable boundaries and to know how an ambisyllabic consonants appear on Praat. Moreover, the purpose was to know the constraints and rank these constraints in Pakistani English phonology.

Data Analysis

The data analysis was carried out in two-steps. First acoustic analysis of the speech data was carried out to identify the instances of ambisyllabicity. Second, OT-based analysis was done to determine the constraints and their ranking in Pakistani English.

Acoustic Analysis

Acoustic analysis was done using the Praat software, which allows for precise measurement of phonetic properties, such as voice onset time, formant transitions, and closure duration. The matrices help to determine whether a consonant is ambisyllabic or not by knowing their onset and coda positions. By analysis these acoustic properties, data helped to identify the ambisyllabci consonants in Pakistani English and speakers mark stress in various phonological contexts within Pakistani English. Recent studies have confirmed that acoustic properties help in identifying the ambisyllabic consonants in the adjacent syllable contexts (Clements, 2019).

Optimality Theory Analysis

Optimality Theory (OT) was applied to identify the constraints and rank the constraints interactions that govern ambisyllabic structures in Pakistani English. The OT analysis was done using the markedness constraints like *Coda and Onset, and faithfulness constraints like MAX-IO and DEP-IO as well as transition constraints like *Complex (McCarthy & Prince, 1995).

These constraints were ranked based on their relevancy with the Pakistani English and their applications in the non-native varieties of English and the phonological patterns that govern the ambisyllabicity. The Optimality analysis was conducted to identify the general constraints in Pakistani English, and rank these constraints in Pakistani English based on the data collected through recordings as identified in other varieties of English.

Validity and Reliability

For ensuring the validity, both qualitative and quantitative approaches were used , allowing the triangulation findings of the collected data across different sources. Reliability was maintained by cross-verifying the OT analysis with the phonological patterns observed in prior research on Pakistani English.

Ethical Considerations

All the participants were provided informed consent, and data collection was conducted by observing all the ethical guidelines, including confidentiality and voluntary participation in the research work. Audio recordings were anonymous to protect the identity of the participants. The research methodology provided a systemic way to analyze the phonological phenomenon of ambisyllabicity in Pakistani English (PE). Optimality Theory provided a better strategy for identifying and ranking the constraints that govern the ambisyllabicity process and how local languages influence the process in Pakistani English. The acoustic analysis offered a comprehensive approach for understanding ambisyllabicity in PE and the study is a great contribution in World Englishes.

Data Analysis & Discussion

The phenomenon of ambisyllabicity in Pakistani English can be categorized into different types based on phonological environments, where certain consonants serve as the boundaries of preceding and proceeding syllable structures and exhibit the characteristics of both the syllabic onset and coda. Data shows that in the Optimality Theory, these syllabic consonants are governed by specific constraints (markedness and faithfulness). Here are the types of ambisyllabicity in Pakistani English discussed below:

Intervocalic Ambisyllabicity

Intervocalic ambisyllabicity occurs when a consonant appears between two vowels in the words in Pakistani English, here ambisyllabic consonant functions both as coda of the preceding syllable as well as the onset of the proceeding syllable in di-syllabic, tri-syllabic words.

Table 1: Intervocalic Ambisyllabicity in PE

Word	BE Transcription	PE Transcription	CV Structure in BE	CV Structure in PE	Ambisyllabic Consonant
Better	/ˈbet.ər/	/ˈbet.tər/	CVC.VC	CVC.CVC	/t/
Letter	/ˈlet.ər/	/ˈlet.tər/	CVC.VC	CVC.CVC	/t/
Liter	/ˈlaɪ.tər/	/ˈlaɪt.tər/	CVV.CVC	CVVC.CVC	/t/
About	/əˈbaʊt/	/əbˈbaʊt/	V.CVVC	VC.CVVC	/b/
Happy	/ˈhæp.i/	/həp.pi/	CV.CV	CVC.CV	/p/
Locker	/ˈlɒk.ər/	/ˈlɒk.kər/	CV.CV	CVC.CVC	/k/

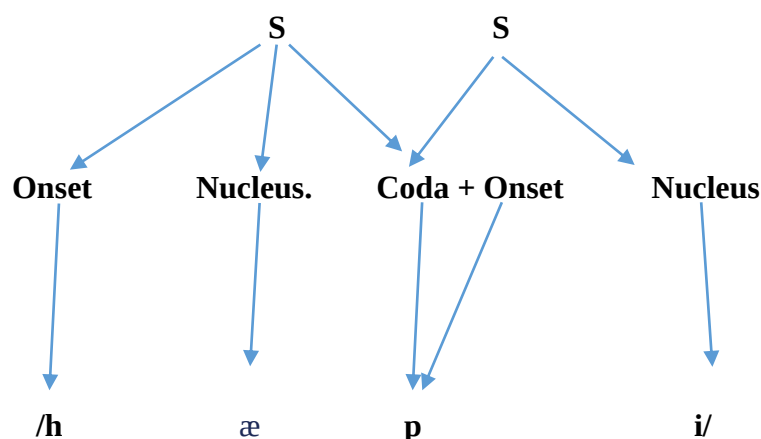


Fig 1: Ambisyllabicity of /p/ in intervocalic context in PE

The above data shows that the sound /p/ is ambisyllabified in Pakistani English, although it is less common than other stops like /t/ and /d/. The above instance shows that /p/ sound serves as coda of the preceding syllable as well as the onset of the proceeding syllable in the word ‘happy’. The data shows that in PE, speakers ambisyllabify the sound /p/ when it occurs in VCV context. In VCV context the sound /p/ attains the phonetic features of both the syllables due to the native languages’ (Urdu, Pashto, Punjabi) influences. Data shows that when /p/ occurs between two vowels and when vowels are unstressed, it behaves ambisyllabically as shown in fig 1. The above table also shows that in Pakistani English speakers syllabify the word ‘happy’ differently as compared to British English as shown in the table 1. The reason is Pakistani English speakers do not miss the coda of the syllables and they bring the onset of the following

syllable to coda position and pronounce it on both at the coda as well as on the onset positions as in case of /p/ in the word ‘happy’ unlike BE. This is because native language phonotactics cause the ambisyllabicity of the sounds like /p/, /t/ and /d/. The data also signifies that Optimality Constraints in Pakistani English govern the ambisyllabicity is ONSET constraint.

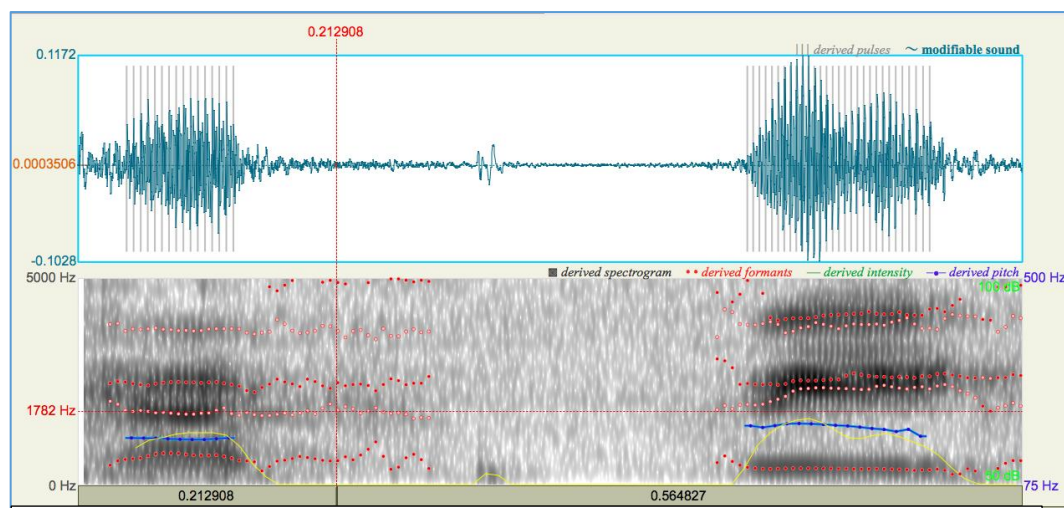


Fig 2: The spectrographic representation of ambisyllabic /p/ sound in PE

Constraints

- **Flap Realization Constraint (Flap-Real):** This constraint is used to refer the situation in which a flap is used in intervocalic position, which turns the consonant ambisyllabic and connects the syllables strictly with onset and coda.
- **Uniformity:** This is a faithfulness constraint that requires the realization of consonant in a uniform manner. In the situation where a flap meets the uniformity in unstressed context by aligning with both the syllables and become ambisyllabic.
- **Syllable Contact Law (SCL):** This constraint again promotes the smoother transition between syllables that enhances the fluidity and adheres to the prosodic structures in BE & PE.

Tableau 8: Tableau analysis of the word /bə'nɑ:nə /in PE

/ 'læd.ər/	FLAP-Real	UNIF	SCL
a. / 'læd.dər/			*
b. / 'læ.dər/	*!		
c. / 'ld.ər/		*!	

Tableau 2: Tableau analysis of the word /'hæp.i/ in PE

/'hæp.i/	Onset	*Coda	Max-IO	SCL
a./'hæp.pi/			*	*!
b./'hæ.pi/	*!			
c./'hæp.i/		*!		
d./'.æpi/			*!	

The above table shows that the ambisyllabicity of the sound /p/ in Pakistani English refers to a unique phonological environment in which /p/ is ambisyllabified because it occurs in the intervocalic context and speakers in Pakistani English, because of native language influence like Urdu, Punjabi, Pashto and Hindko use the /p/ as ambisyllabic to form the coda of the preceding syllable and onset of the following one. The constraint ranking will be Onset>*Coda>Max-IO> SCL. The violable candidate is a because it maintains the higher order constraints at the cost of SCL, which is a lower ranked constraint in PE. The candidates b, c, and d are not violable because they violate the higher order constraints.

Unstressed Syllable Ambisyllabicity

The unstressed ambisyllabicity refers to the unstressed syllables in which a consonant is ambisyllabified at the boundaries of the syllables with smoother transition without causing phonological stress e.g., in the word “banana”, /n/ is ambisyllabified between two unstressed syllables.

Table 3: Intervocalic Ambisyllabicity /n/ in PE

Word	BE Transcription	PE Transcription	CV Structure in BE	CV Structure in PE	Ambisyllabic Consonant
Banana	/bə'nɑ:.nə/	/bə'nɑ:.nə/	CV.CV.CV	CV.CVC.CV	/n/

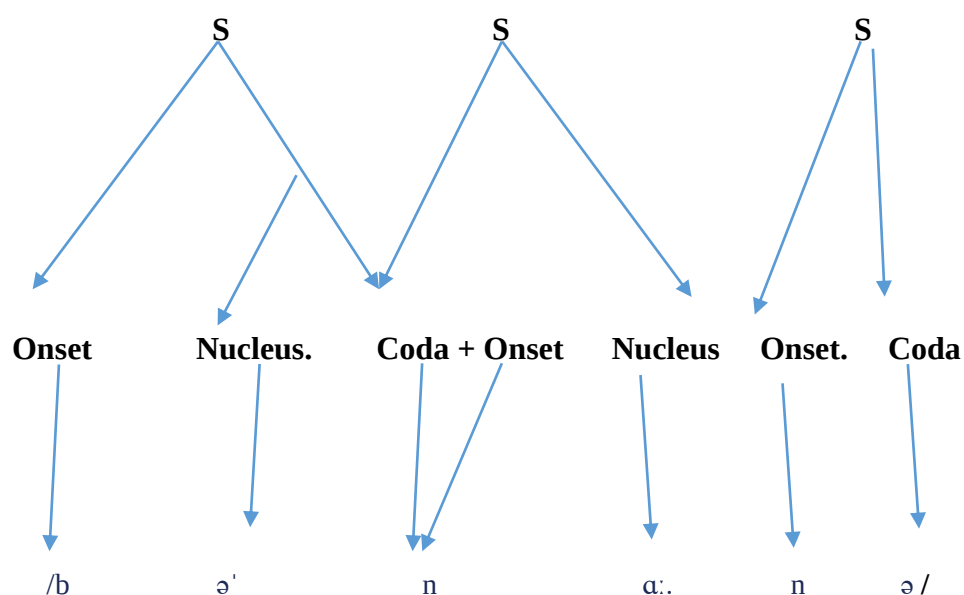
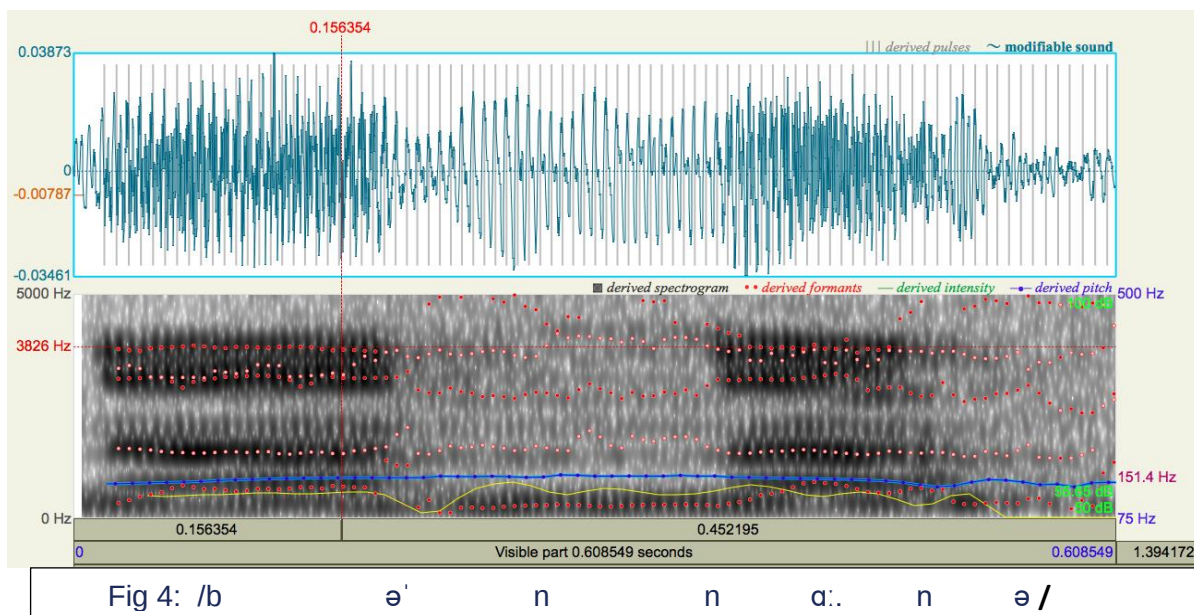


Fig 3: Ambisyllabicity of /n/ in intervocalic context in PE

The above data shows that the sound /n/ is ambisyllabified in Pakistani English, although it is less common than other stops like /m/ and /d/. The above instance shows that /n/ sound serves as coda of the preceding syllable as well as the onset of the proceeding syllable in the word 'banana'. The data shows that in PE, speakers ambisyllabify the sound /n/ when it occurs in VCV context. In VCV context the sound /n/ attains the phonetic features of both the syllables due to the native languages' (Urdu, Pashto, Punjabi) influences. Data shows that when /n/ occurs between two vowels and when vowels are unstressed, it behaves ambisyllabically as shown in fig 1. The above table also shows that in Pakistani English speakers syllabify the word 'Banana' differently as compared to British English as shown in the table 1. The reason is Pakistani English speakers do not miss the coda of the syllables and they bring the onset of the following syllable to coda position and pronounce it on both at the coda as well as on the onset positions as in case of /n/ in the word 'Banana' unlike BE. This is because native language phonotactics cause the ambisyllabicity of the sounds like /n/, /m/ and /d/. The data also signifies that Optimality Constraints in Pakistani English govern the ambisyllabicity is ONSET constraint.



Constraints:

On the ambisyllabic /n/ in Pakistani English, the following constraints govern the phenomenon:

- **Onset:** The constraint of Onset requires the syllables to have an onset, it encourages the intervocalic consonant to belong to the onset of the following syllable in a given structure.
- ***Coda:** The constraint of *Coda discourages the consonants to occur at the final positions of the syllable structures. However, in case of an ambisyllabic consonant the constraint is violable by appearing at the coda position.
- **Weight-to-Stress Principle (WSP):** The WSP constraints is used for stressed syllables are usually heavy with coda & long vowels. In the words unstressed syllables avoid stress on ambisyllabified syllables.

Tableau 4: Tableau analysis of the word /bə'nɑ:nə/ in PE

/bə'nɑ:nə/	Onset	*Coda	WSP
a. /bə'nɑ:nə/		*	*
b. /bə'nɑ:nə/	*!		
c. /bə'nɑ:nə/		*!	

The above table shows that the ambisyllabicity of the sound /n/ in Pakistani English refers to a unique phonological environment in which /n/ is ambisyllabified because it occurs in the intervocalic context and speakers in Pakistani English, because of native language influence like Urdu, Punjabi, Pashto and Hindko use the /n/ as ambisyllabic to form the coda of the preceding syllable and onset of the following one. The constraint ranking will be Onset > *Coda > WSP. The violable candidate is a because it

maintains the higher order constraints at the cost of WSP, which is a lower ranked constraint in PE. The candidates b & c are not violable because they violate the higher order constraints.

Ambisyllabicity in Consonant Clusters

The consonant clusters like /s/, /l/ show ambisyllabicity in non-native dialects of English, where a consonant behaves ambisyllabically in both the syllables simultaneously.

Table 5: Intervocalic Ambisyllabicity /s/ in PE

Word	BE Transcription	PE Transcription	CV Structure in BE	CV Structure in PE	Ambisyllabic Consonant
Basic	/'beɪ.sɪk/	/'beɪs.sɪk/	CVV.CVC	CVVC.CVC	/s/
Ballot	/'bæl.ət/	/'bæl.lət/	CVC.VC	CVC.CVC	/l/

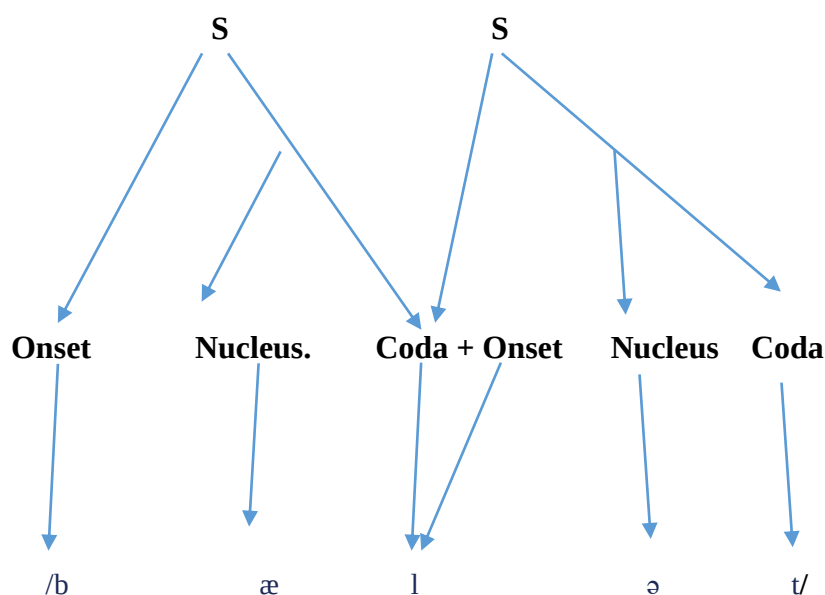


Fig 5: Ambisyllabicity of /l/ in PE

The above data shows that the sound /l/ is ambisyllabified in Pakistani English, like /s/ and /r/. The above instance shows that /l/ sound serves as coda of the preceding syllable as well as the onset of the proceeding syllable in the word ‘banana’. The data shows that in PE, speakers ambisyllabify the sound /l/ when it occurs in VCV context. In VCV context the sound /l/ attains the phonetic features of both the syllables due to the native languages’ (Urdu, Pashto, Punjabi) influences. Data shows that when /l/ occurs between two vowels and when vowels are unstressed, it behaves ambisyllabically as shown in fig 1. The above table also shows that in Pakistani English speakers syllabify the word ‘Ballot’ differently as compared to British English

as shown in the table 1. The reason is Pakistani English speakers do not miss the coda of the syllables and they bring the onset of the following syllable to coda position and pronounce it on both at the coda as well as on the onset positions as in case of /l/ in the word ‘Banana’ unlike BE. This is because native language phonotactics cause the ambisyllabicity of the sounds like /s/, and /l/. The data also signifies that Optimality Constraints in Pakistani English govern the ambisyllabicity is ONSET constraint.

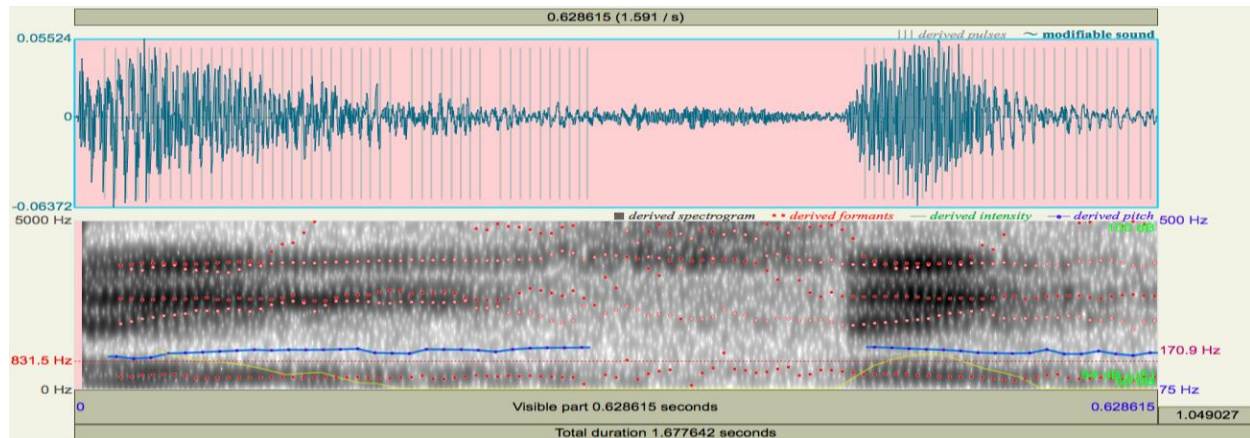


Fig 6: The spectrographic representation of “Basic” in PE.

Constraints:

- **Sonority Sequencing Principle (SSP):** The Sonority Sequencing Principle (SSP) indicates that within a syllable a specific sonority hierarchy, with sonorous closer to the nucleus. Ambisyllabic consonants in the syllables often adjust to meet the sonority of the both syllables.
- **Contiguity:** The faithfulness constraint doesn't allow the splitting of the clusters in the syllables. Ambisyllabic consonant are adjusted in such a way that it maintains the phonotactic proximity.
- ***Complex (for clusters):** The constraint of * complex restricts syllables from starting or ending with complex clusters, encouraging the ambisyllabic consonants in both the syllables.

Tableau 6: Tableau analysis of the word /bə'na:nə /in PE

/ 'beɪ.sɪk/	CONG	*Complex	SSP
a. 'beɪs.sɪk/			*
b. 'beɪs.ɪk/	*!		
c. / 'besk/ /		*!	

The above table shows that the ambisyllabicity of the sound /s/ in Pakistani English refers to a unique phonological environment in which /s/ is ambisyllabified because it occurs in the intervocalic context and speakers in Pakistani English, because of native language influence like Urdu, Punjabi, Pashto and Hindko use the /s/ as ambisyllabic to form the coda of the preceding syllable and onset of the following one. The constraint ranking will be CONG>*Comp>SSP. The violable candidate is a because it maintains the higher order constraints at the cost of SSP, which is a lower ranked constraint in PE. The candidates b & c are not violable because they violate the higher order constraints.

Ambisyllabicity in Flapping Environments

The ambisyllabicity in the flapping environment in Pakistani English is very common where often /t/ & /d/ becomes [ɾ] when they occur between the unstressed syllables.

Table 7: Intervocalic Ambisyllabicity /s/ in PE

Word	BE Transcription	PE Transcription	CV Structure in BE	CV Structure in PE	Ambisyllabic Consonant
Better	/ˈbet.ər/	/ˈbet.tər/	CVC.VC	CVC.CVC	/t/
Ladder	/ˈlæd.ər/	/ˈlæd.dər/	CVC.VC	CVC.CVC	/d/

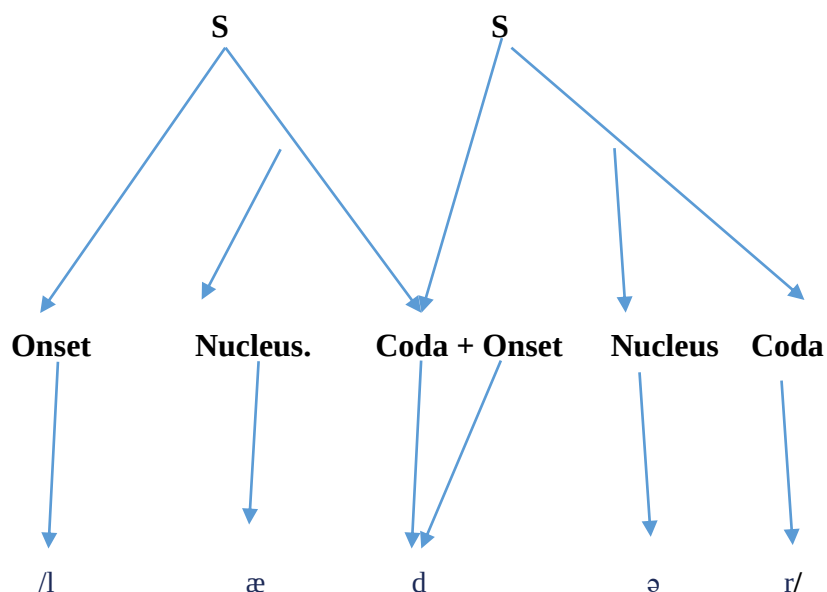


Fig 7: Ambisyllabicity of /d/ in PE

The above data shows that the sound /d/ is ambisyllabified in Pakistani English, like /t/. The above instance shows that /d/ sound serves as coda of the preceding syllable as well as the onset of the proceeding syllable in the word ‘ladder’. The data shows that in PE, speakers ambisyllabify the sound /d/ when it occurs in VCV context. In VCV context the sound /d/ attains the phonetic features of both the syllables due to the native languages’ (Urdu, Pashto, Punjabi) influences. Data shows that when /d/ occurs between two vowels and when vowels are unstressed, it behaves ambisyllabically as shown in fig 1. The above table also shows that in Pakistani English speakers syllabify the word ‘ladder’ differently as compared to British English as shown in the table 1. The reason is Pakistani English speakers do not miss the coda of the syllables and they bring the onset of the following syllable to coda position and pronounce it on both at the coda as well as on the onset positions as in case of /d/ in the word ‘ladder’ unlike BE. This is because native language phonotactics cause the ambisyllabicity of the sounds like /t/. The data also signifies that Optimality Constraints in Pakistani English govern the ambisyllabicity is ONSET constraint.

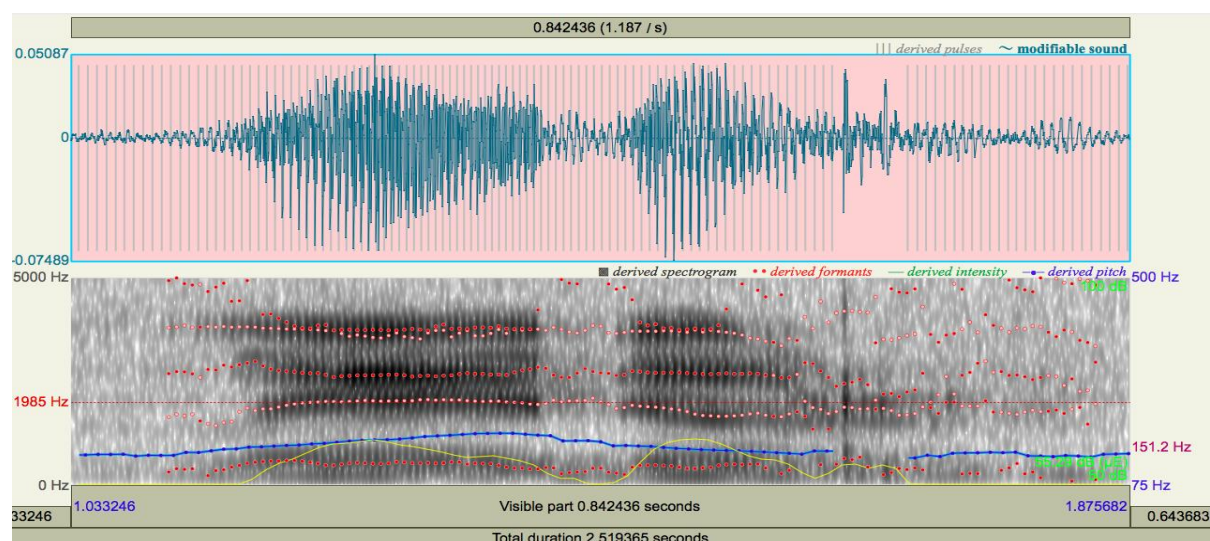


Fig 8: The spectrographic representation of the word ladder in PE

Constraints

1. **Flap Realization Constraint (Flap-Real):** This constraint is used to refer the situation in which a flap is used in intervocalic position, which turns the consonant ambisyllabic and connects the syllables strictly with onset and coda.
2. **Uniformity:** This is a faithfulness constraint that requires the realization of consonant in a uniform manner. In the situation where a flap meets the uniformity in unstressed context by aligning with both the syllables and become ambisyllabic.
3. **Syllable Contact Law (SCL):** This constraint again promotes the smoother transition between syllables that enhances the fluidity and adheres to the prosodic structures in BE & PE.

Tableau 8: Tableau analysis of the word /bə'na:nə /in PE

/læd.ər/	FLAP-Real	UNIF	SCL
a. /læd.dər/			*
b. /læ.dər/	*!		
c. /ld.ər/		*!	

The above table shows that the ambisyllabicity of the sound /d/ in Pakistani English refers to a unique phonological environment in which /d/ is ambisyllabified because it occurs in the intervocalic context and speakers in Pakistani English, because of native language influence like Urdu, Punjabi, Pashto and Hindko use the /d/ as ambisyllabic to form the coda of the preceding syllable and onset of the following one. The constraint ranking will be FLAP-Real> UNIF>SCL. The violable candidate is a because it maintains the higher order constraints at the cost of SCL, which is a lower ranked constraint in PE. The candidates b & c are not violable because they violate the higher order constraints.

Table 9: Summary of Constraints in Ambisyllabicity Types

<i>Ambisyllabicity</i>	<i>Constraints</i>
<i>Intervocalic</i>	ON, *COD, SCL, Max-IO
<i>Unstressed Syllable</i>	*COMP, DEP-IO, WSP
<i>Consonant Cluster</i>	SSP, Contiguity, *COMP,
<i>Flapping Environment</i>	Flap- Real, Uniformity, SCL

In Pakistani English, Ambisyllabicity varies by phonological environment and the regional varieties, with Optimality constraints (OT) such as * Coda, Onset, SSC, SCL guiding the distribution of ambisyllabic consonants across different syllabic contexts. Understanding of these constraints provides a better way to study the ambisyllabicity and prosody in Pakistani English.

Conclusion

The current research work investigated ambisyllabicity in Pakistani English (PE) through the lens of Optimality Theory (OT) aiming to identify how phonological constraints shape the syllable structures in the given word in Pakistani English. The findings of the study show that ambisyllabicity is a unique characteristic of Pakistani English that is governed by phonotactics norms of native languages spoken in different regions of Pakistan like Urdu, Punjabi, Sindhi, Balochi, Pashto.

The optimality analysis of the ambisyllabic constraints govern the behavior of these consonants which share the properties at the coda and onset of the syllables in Pakistani English. The study shows that these constraints both markedness and faithfulness have distinctive features in Pakistani English distinctive from BE. The study contributes to the broader field of World Englishes in advancing the understanding of ambisyllabicity in Pakistani English.

The analysis of the data reveals that ambisyllabicity in Pakistani English is influenced by the phonotactics of local languages and the underlying phonological structures of the native languages of the PE speakers. Data shows that the faithfulness constraints like Max-IO, which preserves the original segments of the input, is ranked highly in Pakistani English due to the influence of the regional languages that do not allow the deletion of the intervocalic consonants unlike British English. Moreover, data shows that *Complex, which does not allow the complex coda at the end of the syllables, SCL facilitates the transitions of the ambisyllabicity in the syllable structures in Pakistani English. The findings of the study align with the studies conducted in other varieties of English. In addition, data reflects that local languages like Urdu, Punjabi, Sindhi, Pashto influence the syllabification in Pakistani English.

The data shows that VCV context in Pakistani English, encourages ambisyllabicity unlike BE. Data shows that ambisyllabicity occurs in specific phonetic environments like with the unstressed syllables in Pakistani English. Moreover, the current study finds that ambisyllabicity also occurs in stressed syllables but more frequent in unstressed environments because of the native languages influences. The study finds that there are four major types of ambisyllabicity in Pakistani English like stressed, unstressed, flapping and consonant cluster environments.

The current study contributes to the broader understanding of the phonological variations in World Englishes by the account of Optimality Theory in ambisyllabic structures in Pakistani English influenced by local languages. Furthermore, the current study helps in understanding the phenomenon of ambisyllabicity in non-native Englishes where local phonology shapes the linguistic features of Pakistani English. Moreover, the current research is aligned with the World Englishes. The current study provides valuable insights on syllables in Pakistani English but limited to small sample size. Future research will help the cross phonetic contexts investigations of aspirated and unaspirated consonants specifically stops. Moreover, exploring the Sociolinguistics factors will also benefit the future studies in the area.

The current research shows that ambisyllabicity is a very complex phonological phenomenon in Pakistani English shaped by morphological and phonological structures having influences from the regional languages like Punjabi, Pashto, Pahari, Urdu, Hindko, Balochi. The results of the study depict that ambisyllabicity in Pakistani English is governed by markedness and faithfulness constraints like *COMP, Onset, SCL, SSP. The current study contributes to the

deeper understanding of ambisyllabicity in Pakistani English and enhances the application of Optimality Theory to World Englishes.

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