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## Nasalization in the Urdu Language: Assimilation and Geminatio Patterns of Words Having /n/ Phoneme

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**Abstract:** *This study aims to explore the assimilation and geminatio phenomenon of words having /n/. The autosegmental Theory of (Goldsmith, 1976) is used as a theoretical framework. (Alkumer, 2020) have elaborated 'Autosegmental theory' that phonetics presentation is an aggregation of supra-segmental parts of speech, which have some initial problem of how the multiple levels of sequences can be related or linked. This research shows that /n/in words having /n/ and /b/ combination at the word middle level tend to assimilate into /m/, but the combination remains intact at word initial and final level and geminatio of /n/ is speaker-dependent. Celata, Calamai, Ricci, & Bertini (2013) have manifested the role of style and placement of phoneme in a word is crucial for a sound to get assimilated. It has been elucidated that groups of people sharing the same cultural schema and level of education tend to speak differently.*

**Key Words:** Nasalization, Assimilation, Geminatio, Phoneme, Nasal Sound

### Introduction

Urdu belongs to the Indo-Aryan group of languages with over 100 million speakers worldwide. Therefore, it has many pronunciations and accents based on local regions. It is an official national language, on the other hand, more significantly, "lingua franca" in Pakistan. Consequently, it is highly respected as compared to other indigenous languages.

Man has an inborn connection to sound and meaning based on witless knowledge of the rules.

This inherent knowledge is used to interpret and produce anonymous expressions but there is no familiar system or grammar providing the main reason for possible phonetics transcriptions. This unique text gives way to possible phonetics "presentations" based on phonetic features and phonotactic contexts in languages (Halle & Chomsky, 1968). Phonetic rules are the knowledge of all existing combinations of sounds of a given language related to pronunciation (Odden, 2005). Therefore, phonetic rules affect morphology and morpheme combination of word formation for

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disseminating proper meaning. If a word is spoken differently, it may cause influence the written form of that word as well. For instance, the word 'subtle' is spoken as /sʌtl/ in English but can be spoken by some non-native speakers as /sʌbtəl/. So, languages have a staunch rapport between morpheme and phoneme ([Jensen, 2004](#)).

A number of studies have confirmed the different pronunciation of words in the required language by the effect of the native language after considering the phonetic rules e.g., English, Russian, Japanese, Czech, Hungarian, Setswana, Dutch, Finnish etc. ([Finch, 2000](#)) ([Panevova & Hana, 2010](#)).

The American National Standards Institute (ANSI) suggests that the quality of voice relies on a common variation of the sound equipment that creates more pronunciation and a variety of words based on temporary verbal actions ([Kreiman, Sidtis, & Gerratt, 2014](#)).

In addition, Vander highlighted the importance of; the mood of the speakers and the change in language as a result of phonetic principles ([Hulst, 1979](#)). Furthermore, Sound Change Theory (SCT) suggests that the pronunciation of many words and the reactivation of objects are inevitable aspects of language during rapidly speaking because of the natural variation of an unplanned organization to express another variant of pronunciation to utter the same word ([Ohala, 1991](#)) ([Odden, 2005](#)).

The Urdu language has uniqueness in written and spoken nasal /n/ phonemes. Segmental features of it show an abundant variation of /n/ in connected speech. The assimilation phenomenon is shown by words having nasal /n/ in them in a regular pattern, but the gemination of /n/ is quite unusual and irregular. These two supra-segmental features i.e., assimilation and gemination, become more evident in Urdu when it comes to the use of some nasal /n/ in words.

Assimilation and germination are the segmental processes of connected speech. In phonology, assimilation is a process in which one sound resembles the adjacent sound. It can happen within a word or two simultaneously pronounced

words can show the assimilation process. This phenomenon happens in usual routine communication but it occurs very frequently during speaking fast. For instance, 'hand bag' is sometimes uttered as 'hembag' in the rapid speech. The assimilation process shows regularity in its practices, i.e., voiceless sounds are assimilated into voiceless sounds, nasal sounds get assimilated into nasal sounds and voiced sounds get assimilated into voiced sounds. Gemination is the phonological process in which consonantal doubling of sounds does happen. Usually, gemination occurs as a result of the elision of some sounds. For example, the word 'unknown' is pronounced as 'un-nown' here, it is the doubling of 'n' consonant because of the elision of /k/ sounds ([Roach, 2000](#)). Because of this idiosyncratic use of /n/, different people have a different and distinguished manners of pronouncing words having /n/ in it.

The Urdu language has an unusual phenomenon of nasal patterns and phoneme /n/. It shows variations in pronunciation when it comes to diverse locations in a word. This is the most ignored topic in the area of research. The present study aims to explore all the possible assimilation and gemination patterns of words having phoneme /n/ in them. This present study has described the multiple utterances of Urdu words with respect to different positions of /n/ in them. As far as gemination phenomenon of /n/ is concerned, this study is trying to explore the best possible ways of germination of phoneme /n/. This research study would be proved helpful in highlighting the patterns of assimilation in the Urdu words having /n/ in them. Assimilation seems position dependent, while on the other hand, germination seems to be dependent on the speaker, i.e., to what extent the speaker geminates /n/ by following regular patterns or not.

### Objectives of the Research

1. To describe the different pronunciations of Urdu words because of the different placement of /n/ in them.
2. To elaborate on the irregular gemination phenomenon in Urdu having phoneme /n/.

3. To illustrate the patterns of assimilation of nasal sounds.

### Research Questions

This research has the following research questions:

1. Why are the Urdu words pronounced differently having nasal /n/?
2. Why do the irregular patterns of gemination occur in Urdu having /n/?
3. How does /n/ get assimilated into /m/?

### Literature Review

The researcher has discussed the patterns of nasal airflow and targets Hindi native speakers to analyze the patterns of nasal sounds with respect to the airflow of nasal sounds. The statistics after analyzing the speech of Hindi speakers show that the additional nasal sound becomes more prominent when there is a combination of the nasal vowels followed by a voiced stop. Thus /jaha/ 'here' plus /geja/ 'went' produced /jahaNgeja/ but /jaha/ plus /kaho/ 'say' yielded /jahaNkaho/. The description manifests that while using words individually, there was no nasal intrusion but when two words were combined in the connected speech, it became easy to perceive the nasal sound in them. It did not occur intentionally by the speaker but it merely appears because of the physiological factors i.e., velum doesn't rise rapidly. Words having voiced plosives may endure this kind of velic outflow in that they can procure voiced stops; voiceless stops cannot manage such outflow as their plosive feature would be rigorously obliterated. The present study is also trying to explore the nasal patterns within the words to elaborate on the different possible combinations of nasal sounds with other nearby sounds in the word (Ohala, 1991).

Stress is the chief supra-segmental factor that causes different utterances by substituting segmental patterns and reaching the level of alternate utterance substantiated (Farooq & Mahmood, 2021).

They carried out an analysis of Urdu speech based on a corpus study and established that numerous utterances happen because of the re-syllabification of Urdu vocabulary. The outcomes have also elucidated phonological patterns of the

Urdu language at a broader level. Their research has shown the following results about multiple pronunciations, that is, re-syllabification is observed merely in nouns, adjectives and verbs. Secondly, stress plays an important role in the re-syllabification of Urdu vocabulary e.g., unstressed articulation causes elision and stressed articulation causes epenthesis. Thirdly, phonemic elision has been reported only in multi-syllabic words. They further maintain that dictionaries simply include morphological data but phonological patterns of vocalic alternation are not included in any thesaurus. Therefore, they suggest that such variations can be added to the new dictionaries to cope with the trouble of diverse utterances of Urdu words. The phonological information has been proved beneficial for speech recognition and natural language processing tools for avoiding speech errors. The present research is also aiming to substantiate multiple pronunciation and doubling of Urdu nasal words with respect to gemination phenomenon of supra-segmental features (Cohn, 1993).

The nasal consonants are frequently obliterated, preceding the unvoiced stops in the English language. e.g. *sent* /sent/ [set]. Nasalization patterns in English are seen because of Deletion of the Nasal, Deletion of Coronal Stop and Glottalisation (Cohn, 1993). This present research is also aiming to discuss nasalization queries in the Urdu language. There is also no set and pre-determined phonological rule in Urdu for nasalization of sounds but this phenomenon does happen in the Urdu language.

The researcher, Al-Deaibes, has used Auto-segmental theory to analyze assimilation and gemination processes in the rural Jordanian dialect of Arabic. His research has manifested that expected patterns of assimilation are different from the assimilation patterns fostered by the accent of the rural Jordanian dialect of Arabic. For gemination process of this dialect, he concludes that the placement of sounds within a word is highly significant to let any phoneme geminates. He further maintained that people tend to geminate sounds more occasionally when they come in the middle of a word rather than at the last position of a

word (Al-Deaibes, 2016). The present study is focused on nasal assimilation and gemination processes.

The researcher has highlighted that place of assimilation of pre-velar nasal sounds do happen only on word middle and final level. They have carried out an acoustic study based on electropalatographic analysis of words having /nk/ and /ng/ clusters in them. They have manifested the role of style by which a speaker does utter some words and the time span a word takes to be pronounced. They have discovered that assimilation depends on speech rate, and placement of sound in a word is highly crucial for a sound to get assimilated (Celata et al., 2013). The present study is also trying to discover the speaker dependency and placement of phonemes in a word to substantiate the assimilation and gemination processes of nasal sound in Urdu Language

A few pieces of research have been done on the nasalization patterns of Indo-Aryan languages and no such work can be seen in the case of Urdu that particularly describes the assimilation and gemination processes of nasal sounds. This research will explore all the patterns that are responsible for multiple pronunciations in Urdu because of nasal phoneme /n/ and has an aim to explore the assimilation phenomenon caused by /n/ phoneme and the irregular patterns of gemination of words having nasal /n/ sound in them.

### Research Methodology

This is qualitative research and descriptive in nature. Autosegmental Theory is used as the theoretical framework. This theory no longer treats phonetic patterns separately because these are gathered in sound fragments and this permits phonetic patterns to overlay, and for that reason, phonetic patterns are structured as autosegments linked to terminals of consonants (Cs) and vowels (Vs). These versions specialize in stress, tonality, nasal synchronization and vowels and have more scope than just manner and place of articulations. Consistent with these

versions, every autosegmental layer includes the chain of auto-segments which can be prepared linearly, and unique features are located on separate tiers which might be prepared by affiliation traces (Goldsmith, 1976).

Many research articles have elaborated on 'Autosegmental theory', it is a specific assertion about the geometry of phonetic presentations. They suggest that phonetics presentation is made up of a set of several simultaneous sequences of these parts, which have some initial problem of how the multiple levels of sequences can be related – or linked. They further maintained that this theory involves the coordination of some active articulators that comprise–the tongue, lips, larynx and velum (Alkumet, 2020).

Data have been taken from native speakers of Urdu belonging to different regions, age groups and education levels. Data has been analyzed qualitatively.

### Data Analysis

Nasalization in Urdu purely happens because of the placement of the /n/ phoneme within a word. It tends to behave differently when followed by a vowel or consonant and changes the pronunciation accordingly. The present research is trying to explore the manners by which /n/ tends to get changed with respect to the assimilation and gemination process. It is observed that it is the unique attribute of /n/ phoneme to give multiple pronunciation factors and it is not influenced by age, education, or area of the speaker.

### Voiceless Stops

In Urdu, whenever /n/ sound is followed by a vowel and have a voiceless consonant stop, that vowel tends to get nasalized. For example, 'bark' in Urdu is pronounced as / b<sup>h</sup>ök / . In many researches of Ohala, he has manifested that the characteristic nasalization of vowels is the most significant feature of the Indo-Aryan languages (Ohala, 1991) , as in the following examples;

Table 1

Urdu	Meaning
/ b <sup>h</sup> ök /	Bark

/ sā:s /	Breath
/ sã:p /	Snake
/ q <sup>h</sup> ã:p /	To Cover Something
/ kã:p /	To shiver

### Voiced Consonant Stop

In the case when /n/ is followed by a vowel, but ends with a voiced consonant stop, it tends to be pronounced

properly and clearly as follows:

**Table 2**

Words	Meanings
/ ma:ŋ/	To ask for something
/tã: ŋ/	Leg
/ tʃãŋ /	Moon
/ rãŋ/	color/dyes

### Words Ending at Voiceless Consonant

#### Fricative /s/

In connected speech of Urdu, /n/ gives queer phenomenon when it is followed by some consonants. If /n/ is coming after some consonant and ends with voiceless consonant fricative like /s/, though it tends to be nasalized but it gets overly pronounced by some people. This variation does not come by education factor, age or regional factor, but some people are used to putting extra stress.

**Table 3**

over some phonemes and pronounce the phonemes stressfully. As a result, gemination of /n/ sound happens in the pronunciation of the words.

As in the case of the English phonological system, lateral /l/ phoneme presents two different sounds i.e. clear /l/ when coming before vowels i.e., light, long and dark l when coming after vowels i.e., milk, ball etc. The same is the case with Urdu nasal sound /n/. It becomes more prominent in words that are mentioned below. For example,

Urdu words	stressed version of pronunciation	Meaning
/ p <sup>h</sup> ãNS /	/ p <sup>h</sup> ãnnəs /	Entangled
/ hãNS /	/ hãnnəs /	Laugh
/ d <sup>h</sup> ãNS /	/ d <sup>h</sup> ãnnəs /	To Stuck in something
/ ãNS /	/ ãnnəs /	Name of boy

In Urdu, gemination process does happen with other sounds as well. But those processes are well defined and followed by everyone. For instance, in Urdu word مقدر /d/ sound is being geminated as /moqəddãr/, though in the written version, only one /d/ sound can be perceived but in the spoken version, it tends to be geminated. Same as that /t/ sounds in being geminated in the word /moqəttãr/. In both cases, this germination is well understood and practiced by every native speaker. But

germination phenomenon of /n/ sound is of peculiar nature and few people practice it. It is observed that gemination of /n/ is being accomplished by the epenthesis of schwa /ə/, as the word /ãNS / is being pronounced as /ãnnəs /. Epenthesis is referred to as the additional sounds in the pronunciation of the word (Farooq & Mahmood, 2021).

There are different ways in which epenthesis does occur. Firstly, it can happen due to behaviour

of speaker i.e., how he wants to utter that certain word or it can occur because of ‘the time’ articulation of that certain word takes. In the case of the gemination of /n/ phoneme, the epenthesis of schwa sound /ə/ takes place because of the attitude of the speaker. A speaker tends to geminate the /n/ sound and epenthesis schwa sound / ə /, when /n/ is followed by any voiceless consonant like / s / sound. The epenthesis phenomenon also becomes the cause of an increase in the number of syllables of a word. For instance, the word /ʌns/ is a monosyllabic word, but the epenthesis following the germination

of the / n / phoneme makes it a bi-syllabic word, that is /ʌn.nəs/ (Farooq & Mahmood, 2021).

Data taken from different people reveal that this germination and epenthesis is speaker dependent and does not concern with any dialect or age and education factor.

### /n/ Followed by Labiodental / v / Sound

Another condition of /n/ is that when it comes in the middle of the Urdu word and is followed by labiodental /v/, it tends to get nasalized rather than being pronounced in a clear way. i.e.

Table 4

Urdu words	Expected Pronunciation	Accepted Pronunciation
سانول	/ sanvʌl /	/ sāvʌl /
کنول	/ kənvʌl /	/ kōvʌl /
کٹوال	/ kʊnvā /	/ kōvā /
دھواں	/ d <sup>h</sup> ʊnvā /	/ d <sup>h</sup> ōvā /
بھٹور	/ b <sup>h</sup> ənvʌr /	/ b <sup>h</sup> ōvʌr /
سٹور	/ sənvʌr /	/ sōvʌr /

### Assimilation Phenomenon

Nasal phoneme /n/ in Urdu spoken version also shows assimilation phenomenon within a word but following a set pattern. Whenever /n/ comes with /b/ in Urdu words but this combination must be

followed by some already existing phoneme and it must come on the second number, then it tends to give another nasal sound i.e., /m/. Anyhow, this combination stays intact when it comes in just at the word initial or final level.

Table 5

Words	Expected Pronunciation	Assimilated Version
عنبر	/ ʌnbər /	/ ʌmbər /
سنبل	/ sɒnbəl /	/ sɒmbəl /
انبیا	/ ʌnbija /	/ ʌmbija /
منبر	/ minbər /	/ mimbər /
گنبد	/ gɒnbəḍ /	/ gɒmbəḍ /
سنبلھال	/ sɒnb <sup>h</sup> al /	/ sʌmb <sup>h</sup> al /

Some other words also have the same /n,b/ combination but it comes at the word initial position and tends to be pronounced clearly. /n/ gives its own nasal sound and /b/ gives its own plosive sounds. e.g., نبی / nabi /, نبیانا / nib<sup>h</sup>ana /, نبیل / nəbi:l / etc. the reason behind clear pronunciation of /n/ and /b/ is that the pronunciation of these

words is being accomplished by the addition of some short vowels in them.

These are the possible conditions in which Urdu /n/ tends to behave differently. This difference in pronunciation may cause trouble for a non-native learner and speaker.

## **Conclusion**

This study has elaborated on the queer nature of nasal sound /n/ in Urdu phonetics and phonology with respect to assimilation and gemination processes. The assimilation process is observed to give regular patterns to pronounce any word, but the placement of sound matters a lot for any /n/ sound to be assimilated. /n/ at the initial or ending position does not tend to be assimilated but when it comes to the middle position of a word, it inclines towards assimilation. On the other hand, gemination of /n/ phoneme depends on the speaker because few people tend to geminate /n/ sound and

the rest of the people do not tend to geminate /n/ sound in words. It has been proved that the different pronunciations of words containing /n/ are due to their placement within a word and have no sociological or dialectical influence. Groups of people sharing the same cultural schema and level of education tend to speak differently. This difference is not based on a regional basis rather on the individual level. Previously no such research on the nasalization phenomenon has been done in the area of the phonology of Urdu. This study would show more vistas to the new researchers for their future research.

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