

## Phoneme Type Frequency in Romanian

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This paper presents research into the relative frequencies of phonemes in Romanian, focusing on the high central vowel /i/ to demonstrate how type frequency reflects its former allophonic status as an allophone of /a/. My analysis shows that the low type frequency of /i/ correlates with the vowel's minimal expansion beyond its original allophonic environments. More generally, a frequency analysis helps us study the vowel system in two ways: first, it measures how the functional load of the vowel space is divided up across the lexicon. Secondly, by examining the co-occurrences of segment pairs, we may detect cases of phonological conditioning: if two segments co-occur with a greater degree than that predicted by their respective frequencies, phonological processes might be the cause. This is the case in Romanian.

/i/ is the most recent phonemic addition to the vowel system of Romanian (Table 1), which arose as an allophone of /ə/ and spread by virtue of borrowings. The historical facts show that [i] was allophonic in native words of Latin origin, emerging mainly through pre-nasal raising. Borrowings from Slavic, however, cannot be explained through allophony alone, and later borrowings from Turkish show a correspondence between Turkish [i] and Romanian /i/, indicating the vowel was on the verge of phonemic status.

To determine the type frequencies of phonemes in Romanian, I used a word list (Vladutu 2009) containing wordforms, which are specific phonological forms (Levelt 1983). Graph 1 shows the relative type frequencies of Romanian vowels, including only monophthongs. The relative frequencies are closely tied with each vowel's participation in Romanian morphology; for example, /i/ appears in many verb inflections and plural nominal forms, while the morphological role of /i/ is limited to verb gerunds.

Among the vowels of Romanian, type frequency varies widely; the least-frequent vowels are /i/ and /ə/. The low type frequency of /i/ in particular follows from its origins as an allophone, and from the circumstances of its phonemicization: /i/ was originally conditioned in stressed syllables preceding a nasal, and also by a preceding /r/ or following /rC/. This is precisely the variety of phonological conditioning that can be shown through this type-frequency analysis, and we see the degree to which /i/ remains restricted to its original conditioning environments in Graph 2: nearly 85% of instances of /i/ are followed by nasals /n/ and /m/, and 8% are followed by /r/, another conditioning environment. Although evidence from Slavic borrowings indicates an expansion of environments permitting /i/, it became established as a phoneme without spreading into many new native words.

These results demonstrate that although /i/ is contrastive in Romanian, its contrastiveness is marginal; the minimal pairs separating /i/ and /ə/ are limited to /rəw/ 'bad' vs. /riw/ 'river'; /tsər<sup>l</sup>/ 'lands' vs. /tsir<sup>l</sup>/ 'a little'; and /vər/ 'cousin' vs. /vir/ 'I thrust' (Coteanu 1981). A type-frequency analysis allows us to examine the functional load of phonemes in modern Romanian, for comparison with the historical picture. With regard to /i/, I argue that in the vowel's type frequency, we see little more than the phonological footprint of the processes that brought /i/ into Romanian: the role of /i/ has not expanded much beyond its original allophonic role. These data show that while /i/ is a phoneme in Romanian, it is still very restricted to certain phonological environments, and that its persistence in the language is likely due to high token frequency.

Table 1.

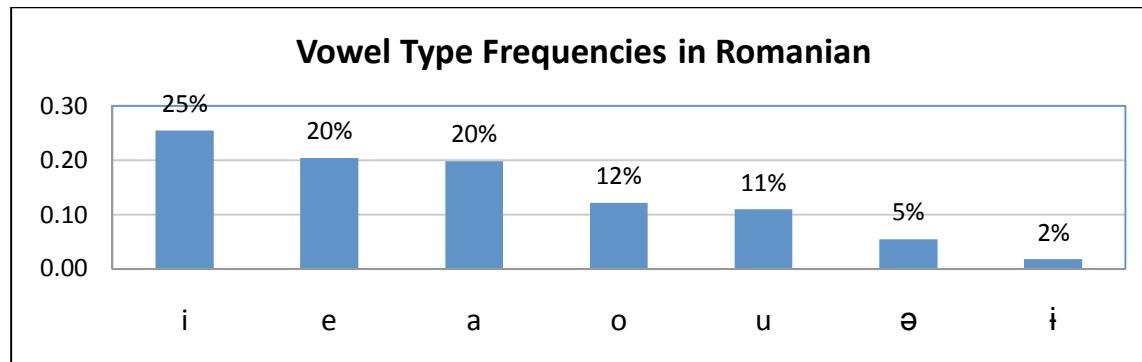
Phonemic Vowel Chart

i	ɨ	u
e	ə	o
	a	

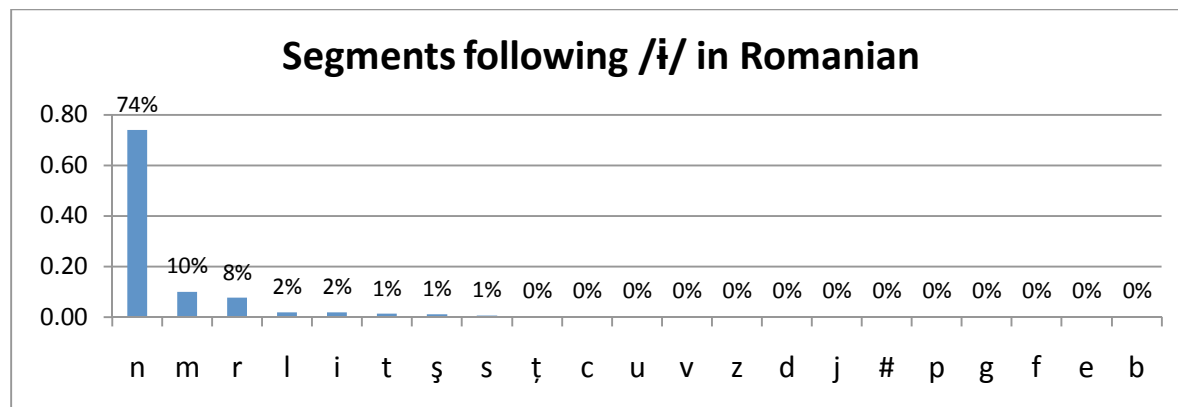
Orthography

i	â / î	u
e	ă	o
	a	

Graph 1. Vowel Type Frequencies (monophthongs only)



Graph 2. Segments following /ɨ/ in Romanian



### References

- Coteanu, Ion. 1981. *Structura și evoluția limbii române (de la origini până la 1860)*. Bucharest: Editura Academiei Republicii Socialiste România.
- Levelt, W. J. M. 1983. *Speaking: From Intention to Articulation*. Cambridge, MA: MIT Press.
- Vladutu, Daniel. 2009. Romanian word list for journalistic applications. Personal communication, February 6, 2009.