

The Phonology of Armenian

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The Armenian language, also called Hayeren, belongs to the Indo-European language family and is spoken by over 6.7 million people. 3.4 million live in Armenia with 3.1 million of those speakers speaking it at a native level. Outside Armenia, most speakers reside in Georgia and Russia with sizable communities in Iran, The United States of America, Lebanon, Egypt, Azerbaijan, Iraq, France, and Bulgaria. Armenian Script is the most commonly used orthography for the language. In 1915 over 50 dialects existed but due to the Armenian genocide many Western dialects went extinct and now there are slightly over 30. Of the remaining dialects, the most popular are the Eastern and Western dialects which contain many regional sub-dialects.

My speaker's name is Sahag Barsamian; he is a 20 year old student at University of California, Los Angeles who was born in Hollywood, CA. He has lived the past three years living on campus and lived most of his life in Los Angeles, CA. He also spent occasional summers in Russia, and visited Armenia a couple of times on vacation. Sahag speaks both the Standard Eastern dialect of Armenian and Californian English at a native level but mainly uses Armenian at home. Sahag also speaks some Russian as both his parents are native speakers. He knows how to read and write in English and in Armenian Script; the de facto Armenian orthography. Sahag primarily speaks English and received all of his formal education in English. In addition, living outside of home for the past three years has drastically reduced his use of Armenian and Russian.

Armenian contains 31 consonants, 6 vowels, and 9 diphthongs. All of these are shown on my word list at the end of the paper. My word list is a synthesis from Vaux (1998), Dum-Tragut (2009). The consonants, vowels, and diphthong sections all include minimal and near pairs used to describe contrasting phonemes in the language. My allophones show examples where different allophones of the same phoneme are used to illustrate how the sound changes depending on environment. I did not include a list of suprasegmental minimal pairs because in Armenian individual stress almost falls on the final syllable and when it does not it is related to intricate underlying structure still being debated (Vaux 1998, p. 2). All of the phonetic transcriptions are based on my speaker's production of the sounds, while the phonemic descriptions were obtained from my sources. I will now outline the overall structure of my speaker's language while noting differences in my speaker's production and the source text.

Consonants

	Bilabial	Labio-dental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Glottal
Plosive	p b		t d					k g		
Aspirate Plosive	p ^h		t ^h					k ^h		
Nasal	m			n						
Trill				r						
Tap/Flap				r						
Fricative		f v		s z	ʃ ʒ				χ ʁ	h
Affricate				tʃ dʒ	tʃ dʒ					
Aspirate Affricate				tʃ ^h	tʃ ^h					
Approximate		u					j			
Lateral Approximant				l						

All symbols to the right are voiced, while the ones to the left are voiceless.

Armenian has 12 plosives that are only bilabial, dental, and velar. Armenian is unique because it makes a distinction between voiceless plosives and voiceless aspirates (as noted in 7-11). Of my speaker pronunciations there are three notable differences in the plosives. First in my recording it sounds like k becomes partially voiced in word 5 /kin/. However, looking at a spectrogram you cannot see voicing. I argue that since the next adjacent sound is a vowel, so I suggest that [k] might undergo voicing assimilation towards the end of the sound. Second, in 5 and 6 [l] undergoes nasal assimilation. This is not common pattern as shown in word 49 /sɛjran/ does not include a nasalized a. None of my source text mention anything about this so it is possible that this optional alteration could be due to the fact that my speaker is a native English speaker. Lastly, in word 7, word final /k/ appears to become an ejective. This

also happens in word 18. This did not make me list 7 as a near minimal pair because Dum-Tragut (2009) mentions in some dialects /k^h/ is pronounced as [k'] (p. 17). Armenian only contains two nasals /m/ and /n/ shown in words 13-14 even though it seems that Armenia has more due to the fact that /n/ undergoes place assimilation which can even change into a /m/ as shown in Vaux () I argue that this place assimilation is valid due to words 69 and 70 which mean impossible and indestructible respectively (p. 19). Since they share a morpheme (ible = able to be) it is possible that in underlying structure /an/ = able. In addition, both [ɑŋkareli] [andʒɪndʒɛli] contain [eli] but other words in Vaux(19) contain /an/ and not contain a negative meaning [eli] must be the not morpheme. Therefore [an] must be the same morpheme that contains that same /n/ phoneme that undergoes place assimilation.

Armenian contains 6 six affricates with distinctions made between voiceless affricates and voiceless aspirated affricates. 17 and 18 are near minimal pairs but they are essentially minimal pairs because /k^h/ belongs to the same allophone as /k'/ as described above.

Armenian has 10 fricatives including uvular and glottalics. Word [fabrika] and [var] are near minimal pairs because as far as I know /a/ has no allophones and /f/ and /v/ are both word initial. I included 2 sets of minimal pairs for /h/ because it could be possible that vowels are devoiced before other vowels. Also noteworthy is that in 26-27 /d/ becomes [t^h] (which also occurs in 40/41 after an alveolar flap which I cannot explain. The reason why /d/ is the underlying phoneme is given in Vaux. There are 4 liquids and 2 approximates and 6 vowels. Since I obtained most of these words from my speaker, almost all the phonetic transcriptions are identical to the phonetic transcriptions of the words.

There are 10 diphthongs and nearly all of them are near minimal pairs because I had a tough time obtaining examples from my speaker. What is unique about a lot of these diphthongs is that /t/ becomes [tʰ] before a vowel or diphthong. In addition, /sɛjran/ gains a [t] when pronounced. This could be due to allophonic variation but since I do not fluently speak and Armenian it is possible that when I told my speaker to say this name they could have heard it as an entirely different name.

In my word list I presented three allophones. In the first it is shown that an alveolar trill becomes a flap before coronals. Word 64 gives an example where it happens in its environment and Word 65 shows where it does not change because it is not preceding a coronal. More examples are shown in Vaux (2008, p. 19). Vaux (1998) explains that voiced plosives and affricates are pronounced as voiceless aspirates after [r] and when word finally after a vowel (p. 16). I show an example of this in 66-67 but Vaux shows many more. 68 shows that voiced plosives and affricates do not always change into voiceless aspirates. Lastly, 69 through 70 show that \n\ undergoes place assimilation (as described before).

My speaker was fairly consistent with the phonemic translations provided by my sources. This is probably due to the fact that my sources were based on the same dialect as my speaker. Most of the phonemes of the language were proven with minimal pairs but most of the near minimal pairs were fairly similar words. In addition to the allophones I described there are more in the language waiting to be found. In particular it would be helpful to know under what conditions /d/ becomes [tʰ], although this may just be due to my speaker's individual variation.

Referenced Wordlist

Consonants

Minimal Pairs:

Plosives

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
1. [p]	/pat/	[pat]	Wall(first sound has static)
2. [b]	/bat/	[bar]	Duck
3. [t]	/tat/	[tat]	Grandmother
4. [d]	/dat/	[dat]	Courtroom Trial
5. [k]	/kin/	[kʲɪn]	Woman
6. [g]	/gin/	[gʲɪn]	Price

Aspirate Plosives

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
7. *[pʰ]	/pʰak/	[pʰakʰ]	Closed/Slut
8. *vs	/bak/	[bak]	Courtyard
9. [tʰ]	/tʰur/	[tur]	Give(Command)
10. vs.	/tur/	[tʰur]	Sword/Sabre
11. [kʰ]	/kʰujr/	[kʰujr]	Sister
12. vs.	/kujr/	[kujr]	Blind

*Represents a near minimal pair.

Nasals

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
13. [m]	/mor/	[mor]	Mom
14. [n]	/nor/	[nor]	New

Affricates

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
15. [tʃ]	/tʃax/	[tʃax]	Sale
16. [dʒ]	/dʒax/	[dʒax]	Left
17. *[tʃʰ]	/tʃʰaŋk/	[tʃʰaŋk]	Claw
18. *[dʒʰ]	/dʒʰaŋkʰ/	[dʒʰaŋkʰ]	Effort

*Represents a near minimal pair.

Aspirated Affricates

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
19. [tʃʰ]	/tʃʰsitʃʰ/	[tʃʰsitʃʰ]	Stake
20. vs.	/tʃsitʃ/	[tʃsitʃ]	Breast
21. [tʃʰ]	/tʃʰaɤ/	[tʃʰaɤ]	Fat
22. vs.	/tʃaɤ/	[tʃaɤ]	Spoke(on a wheel)

Fricatives

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
23. *[f]	/fabrika/	[fabrika]	Factory
24. *[v]	/var/	[var]	Below
25. .vs	/sar/	[sar]	Ice
26. [s]	/sard/	[sarrʰ]	Spider
27. [z]	/zard/	[zarrʰ]	Ornament
28. [ʃ]	/uʃ/	[uʃ]	Late
29. [ʒ]	/uʒ/	[uʒ]	Force, Power
30. [x]	/vaχ/	[vaχ]	Fear
31. [ɤ]	/vaɤ/	[vaɤʰ]	Early
32. [h]	/hai/	[haj]	Armenian
33. vs.	/bai/	[baj]	Verb
34. [h]	/hot/	[hot]	Smell(noun)
35. vs.	/χot/	[χot]	Grass

Liquids

Phoneme	Phonemic trans.	Phonetic trans	Eng. Gloss
36. [r]	/lur/	[lur]	News
37. [r]	/lur/	[lur]	Silence
38. [l]	/lujs/	[lujs]	Light
39. vs.	/kujs/	[kujs]	Nun

Approximates

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
40. *[v]	/vɔrdi/	[vɔrtʰi]	Son
41. *[j]	/jɔtʰ/	[jɔtʰ]	Seven

*Represents a near minimal pair.

Vowels

Minimal Pairs:

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
42. [i]	/hɛrɒxɔsi/	[hɛrɒxɔsi]	Phone's(Possessive)
43. [e]	/hɛrɒxɔsɛ/	[hɛrɒxɔsɛ]	The Phone
44. [ɛ]	/ɛr/	[ɛr]	Was(Past tense)
45. [ɔ]	/ɔr/	[ɔr]	Day
46. [u]	/ur/	[ur]	Where
47. [a]	/sar/	[sar]	Mountain
48. vs.	/sɛr/	[sɛr]	Love(noun)

C. Diphthongs

Minimal Pairs:

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
49. *[ɛj]	/sɛjran/	[sɛjtran]	Name
*.vs	/sar/	[sar]	Mountain
50. [aj]	/hɑjr/	[hɑjr]	Father
51. vs.	/hɔr/	[hɔr]	Father's(Possessive)
52. [ɔj]	/nɔj/	[nɔj]	Noah
53. .vs	/na/	[na]	Nominative Pronoun
54. [uj]	/tʰujn/	[tʰujn]	Poison
55. vs	/tan/	[tʰan]	Yogurt Drink
56. [uj]	/lujs/	[lujs]	Light
57. [uj]	/gujn/	[gujn]	Color
vs.	/gin/	[gin]	Price
58. *[jɑ]	/matjan/	[matʰjan]	Book
59. *vs	/tun/	[tʰun]	House
60. *[jɔ]	/ardjɔkʰ/	[ardjɔkʰ]	Verify
61. *.vs	/dukʰ/	[dukʰ]	You All*
62. [ju]	/arjun/	[arjun]	Blood
63. vs	/arɛn/	[arɛn]	Aaron(Name)

*Represents a near minimal pair.

D. Allophones:

Examples:

[r] changes to [r̥] preceding coronals.

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
64. /r/	/arʒekʰ/	[arʒekʰ]	Value
65. /r/	/kerp/	[kerp̥]	Form

SEA generally changes voiced plosives and affricates into voiceless aspirates after [r] and when word finally after a vowel.

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
66. /d/	/bard/	[bartʰ]	Complicated
vs. /d/	/dat/	[dat]	Courtroom Trial
67. /dʒ/	/audʒ/	[otʰs]	Snake
vs. /dʒ/	/dʒaχ/	[dʒaχ]	Left
68. /b/	/χumb/	[χumb]	Group
vs. /b/	/bat/	[bat]	Duck

/n/ undergoes place assimilation. This is separate from the phonemic nasal /m/ which does not have place assimilation.

Phoneme	Phonemic trans.	Phonetic trans.	Eng. Gloss
69. /n/	/ankareli/	[aŋkareli]	Impossible
70. /n/	/andʒndʒeli/	[andʒndʒeli]	Indestructible
71. /n/	/niutʰ/	[niutʰ]	Subject

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