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Old Armenian nasal verbs : archaisms and innovations

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Citation

Kocharov, P. (2019, May 2). *Old Armenian nasal verbs : archaisms and innovations*. Retrieved from <https://hdl.handle.net/1887/72201>

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Issue Date: 2019-05-02

CHAPTER 1. INTRODUCTION

Section 1.1. Problem statement

The present study is dedicated to a particular issue of Old Armenian historical grammar — the evolution of the verbal classes characterised by a subset of imperfective suffixes containing a dental nasal phoneme (henceforth the *nasal classes*) from Proto-Indo-European to the earliest Old Armenian texts of the 5th century CE. Old Armenian has multiple nasal classes which presumably go back to a single PIE class characterised by a nasal infix.¹ The goal of the present research is to clarify how and why the Proto-Armenian verbal system developed its diversity of nasal classes. The study will address the interaction of sound changes with formal and functional analogy behind the evolution of nasal classes.

A surface review of the Old Armenian inherited verbal lexicon (e.g. in *LIV*²: 758–760) will suffice to see that roughly one half of inherited verbs belongs to the nasal classes. It makes the Old Armenian nasal verbs particularly important for the comparative grammar of Indo-European languages. Some noticeable matches between Old Armenian and Ancient Greek, such as Arm. *zgenum* and Gk. ἔννυμαι ‘clothe oneself’, Arm. *lk’anem* and Gk. λιμπάνω ‘leave’, may be taken as indications of a shared evolution of the nasal classes in these two branches. An important aspect of the present study is to pinpoint the innovations shared by Old Armenian and Ancient Greek as opposed to the other Indo-European languages. This aspect is connected to the ongoing debate on the position of Armenian within the Indo-European language family; see the recent overviews of the issue in Martirosyan 2013, de Lamberterie 2013, Kortlandt 2016, and Kim 2018 along with the monographic assessment of the topic in Clackson 1994, all with ample references to the previous scholarship.

Although the Old Armenian nasal classes contain many inherited roots, only a relatively small number of stems, both perfective and imperfective, can be derived from PIE prototypes. Besides, the nasal classes contain some verbs without etymology and no recognised Urartian, Iranian, Greek, or Syriac loanwords. Thus, the nasal classes belong to

¹ Proto-Indo-European had numerous verbal classes, each characterised by a specific ablaut pattern, marking of the threefold opposition of tense-aspect stems, and voice assignment pattern. At least three of them contained the nasal suffixes **-n(e)u-* and **-n(e)h₂-*, and the infix **-n(e)-*. The hypothesis that the suffixed stems were produced by the infixed stem, first proposed in de Saussure 1879, has become the mainstream among Indo-Europeanists. Altogether, there is suggestive evidence that the nasal suffixes already existed at some stage of the proto-language.

the PIE heritage and remained productive for some time within early Proto-Armenian. The inner-Armenian productivity of the nasal stems conditioned their secondary spread (cf. Meillet 1900b = 1977: 75f.; Godel 1975:124). The conditions of the spread, its relative chronology as well as grammatical properties of secondary nasal verbs have not been sufficiently clarified.

Much of the inner-Armenian spread of the nasal verbs was based on analogy. The following types of analogy will be taken into account in the present study: (a) analogy based on the formal features of a paradigmatic class (e.g. the type of perfective stem, ablaut, peculiarities of inflection); (b) analogy based on the argument structure; (c) analogy based on actionality and aspectual features; (d) analogy based on lexical semantics. Importantly, only type (c) concerns the nasal morpheme on its own, while types (a), (b), and (d) concern a predicate as a whole and a respective nasal class as its integral morphological representation. The present study aims to specify which of the listed analogical processes played a role in the rise and spread of the Old Armenian nasal classes. It implies distinguishing the lexical items in which a nasal affix is an inherited idiosyncratic morphological feature from those in which it is grammatically or analogically motivated. It is clear from the start that this challenging task can be fulfilled only partially due to the limitations of the evidence. However, it is worthwhile to determine the limitations of the method and empirical data for the issue at hand.

The scope of the present study is to review all Old Armenian nasal verbs attested in a representative selection of early classical texts (see Section 1.5), and provide an in-depth analysis of the formal and functional changes in the nasal classes, taking into account up-to-date etymological findings and insights in general linguistics.

My approach will be to first describe the grammatical content of the Old Armenian nasal classes synchronically pinpointing the similarities and contrasts across the classes in terms of their argument structure, voice assignment, and lexical aspectual features. This part of the research has trivial limitations. Obviously, it is impossible to establish all the complexities of usage judging from limited textual attestations. Thus, the categorisation of the Old Armenian nasal verbs according to their argument structure and lexical aspectual features, as presented in Chapter 2, is inherently deficient. The reader will have an opportunity to estimate the degree of credibility of the selected classifiers per lexical item. Nonetheless, the chosen grammatical parameters make it possible to control the data, and, should the necessity arise, improve in the description with an immediate access to its implications for the diachronic analysis.

The main objective of the diachronic analysis will be to establish the evolution of formal and functional properties of the nasal classes. In particular, the following questions will be addressed: which of the Old Armenian nasal stems can be derived from core PIE or

some variety of dialectal PIE reconstructable for a group of branches, and which stems are clear inner-Armenian innovations; whether innovative nasal stems can be stratified in light of the known Proto-Armenian sound changes and, if so, whether any changes in their grammatical properties can be detected; how the evolution of the nasal classes correlates with the process of root levelling over the PFV and IPFV stems within Proto-Armenian; which of the two tense-aspect stems, perfective and imperfective, served as the derivational base for the new nasal verbs; which factors determined the split of the nasal suffixes into two series beginning with *-n-* and *-an-* and their distribution among the four thematic conjugations. Multiple related issues of the historical phonology and morphology of Old Armenian will be addressed in the course of the present study in order to answer these major questions.

Section 1.2. PIE and Old Armenian nasal classes

The PIE verbal system of the Greco-Aryan type, based on the three-way opposition of tense-aspect stems (imperfective “present stem” — IPFV, perfective “aorist stem” — PFV, resultative/stative “perfect stem” — RES), evolved into the Old Armenian verbal system that was based on the two-way opposition of stems (imperfective “present stem” — IPFV, perfective “aorist stem” — PFV) in the course of approximately three millennia (cf. Meillet 1910–1911a = 1962: 83–122; Godel 1980 = 1982; etc.).² Unlike the opposition of the PFV and IPFV stems based on the use of preverbs found in Balto-Slavic, Germanic, and Italo-Celtic, Old Armenian developed in line with Ancient Greek and the Indo-Iranian languages, where stems were contrasted by means of affixes (Meillet 1896 = 1977: 25). The present, imperfect, and aorist tenses were retained. The loss of the PIE perfect was compensated with the emergence of the Old Armenian periphrastic perfect and pluperfect. Apart from the imperative, the PIE non-indicative moods were reduced to the subjunctive/future in its two aspectual varieties, imperfective (“present subjunctive”) and perfective (“aorist subjunctive”). The PIE inflectional voice category was retained in a renovated form. See Meillet 1936, Jensen 1959, Godel 1975, Klingenschmitt 1982, and, recently, Martirosyan *frthc.* § 5 with references.

Like in PIE, the Old Armenian nasal affixes are found only in IPFV stems. The Old Armenian nasal suffixes *-n-*, *-nčʻ-*, *-an-*, *-ančʻ-* occur in a variety of paradigmatic classes, each characterised by a specific combination of a nasal suffix with one of the four conjugations in *-e-*, *-i-*, *-a-*, and *-u-*,³ and one of the four PFV stems — the root stem, the *cʻ*-stem, the *acʻ*-stem, and the *i*-stem. Not all of the combinations were possible (see Table 1). The paradigmatic classes had unequal productivity. Only two classes were productive — a class that contained productive causatives (IPFV *-an-e/i-* : PFV *-Ø-*), and a class that contained

² See an overview of the structural differences between the so-called Greco-Aryan and Indo-Hittite verbal systems in Clackson 2007: 118–138. The Armenian branch clearly belongs to the Greco-Aryan type, in which the three tense-aspect stems constituted part of the inflectional, not derivational, morphology. As it will be demonstrated in the course of the present study, Ancient Greek and Old Armenian share important morphological features which allow to view them as belonging to a cluster of particularly closely related branches within the languages with the verbal system of the Greco-Aryan type. See Bartolotta 2009 on the aspectual contrasts between the PIE tense-aspect stems with further references.

³ Beginning with Hübschmann (1883: 93–5), the thematic vowels are often interpreted as part of the stem rather than inflection, hence morphemic segmentations like *-na-m*, *-ana-m*, etc. This approach, rooted in the diachronic analysis, makes it difficult to account for the 3 sg. pres. act. ind. *-ē*, 2 pl. pres. act. *-ēkʻ*, and inf. *-el* in the *e/i*-conjugation. In the present study, synchronically motivated segmentations are continually used (*-n-am*, *-an-am*, etc.).

productive inchoatives (IPFV *-an-a-* : PFV *-ac'*). The remaining classes were recessive, although they included a large number of frequently used verbs.

Table 1. Old Armenian nasal classes

		Perfective stems			
		-∅-	-c'	-ac'	-i-
Imperfective stems	<i>-n-u-</i>	+	+		+
	<i>-n-a-</i>	+			
	<i>-n-e/i-</i>	+			+
	<i>-an-a-</i>			+	
	<i>-an-e/i-</i>	+			+
	<i>-nč'-i-</i>				+
	<i>-anč'-e-</i>	+			

Traditionally, the Old Armenian nasal classes are derived from the PIE paradigmatic classes with the IPFV suffixes **-n(e)u-* and **-n(e)h₂-*, and the infix **-n(e)-*; see Greppin 1973, Hamp 1975, and Klingenschmitt 1982 for an overview and discussion of the traditional Proto-Armenian reconstructions.⁴ Altogether, Old Armenian does not contain assured direct traces of PIE nasal infixed stems from roots ending in consonants, **-u-*, or **-H-*, so that one may argue that the nasal infix was eliminated at an early stage of Proto-Armenian, and that the suffixes **-n(e)u-* and **-n(e)h₂-* were the only prototypes of the attested variety of Old Armenian nasal suffixes. In addition, one may take into account yet another structural type as part of the hypothesis on the evolution of the PIE nasal stems that has recently been offered by Kloekhorst (*EDHIL*: 152–155).

According to Kloekhorst, the PIE infix goes back to the pre-PIE IPFV suffix **-(e)n-*, which could form pres. act. 3 sg. **CRC-én-ti*, 3 pl. **CRC-n-éti* and pres. mp. 3 sg. **CRC-ón-e*, 3 pl. **CRC-n-ér*. In the forms where the zero-grade of the nasal suffix came into contact with a root-final obstruent or a laryngeal, the prenasalisation of that consonant occurred, yielding 3 pl. **CRⁿC-n-éti*. Later, the levelling of the prenasalised forms across the paradigm yielded 3 sg. **CRⁿC-én-ti*. After that, the cluster **ⁿCn-* was simplified to **ⁿC-* producing paradigms of the type 3 sg. **CRⁿC-én-ti*, 3 pl. **CRⁿC-éti*. Under the pressure of the 3 pl. form, the suffix **-en-*, still present in the singular, was introduced into the root by a metathesis yielding 3 sg. **CR-ne-ⁿC-ti*. The metathesis might have been facilitated by the mismatch in the order of the nasal and a root-final consonant in the singular and plural.

⁴ The literature dedicated to the PIE nasal formations is immense. Besides handbooks on the PIE verbal morphology, one can mention Pedersen 1893, Kuiper 1937, Strunk 1967, Teijeiro 1970, Rasmussen 1990, Meiser 1993 among many others.

The mismatch provoked an analogical remaking of the singular after the plural forms. After the split of the Anatolian branch from PIE, prenasalised consonants lost their nasalisation yielding the well-known type of the infixed stem with 3 sg. **CR-né-C-ti*, 3 pl. **CR-n-C-énti*. In Anatolian, by contrast, prenasalised velars retained their nasalisation. Within the aforementioned scenario, Old Armenian fits the non-Anatolian system so that the traditional analysis of infixed stems applies. Yet, the nasal suffix **(e)n-* might have survived on the margins of the system where root-final consonants were not prenasalised or the suffix was not eliminated by the pressure of the 3 pl. forms in verbs for which the plural was not a pivotal part of the paradigm. One may consider such a possibility for bi-consonant roots where the lack of **-R-* would block prenasalisation. Thus, for example, the pre-PIE pres. act. 3 sg. **b^hh₂-en-ti* / 3 pl. **b^hh₂-n-enti* could be retained in PIE (and not become **b^{hn}h₂-en-ti* and **b^{hn}h₂-n-enti*, respectively) and be reflected in Arm. *ban-am* ‘open’.

In PIE, nasal stems, like most other types of characterised IPFV stems, constituted paradigmatic patterns primarily with PFV root stems. This structural feature is also found in many Old Armenian nasal verbs as an archaism. Deviations from that default paradigm type are also found, including one secure instance of a reduplicated PFV stem, some suggestive cases of sigmatic stems, and inner-Armenian *c*’-formations. It will be questioned which of these types constitute core PIE heritage, dialectal PIE innovation, or Proto-Armenian innovation.

The grammatical meanings associated with nasal verbs vary significantly in the daughter languages. Two grammatical domains are traditionally associated with the PIE nasal stems: 1) Aktionsarts consistent with the imperfective aspectual meaning, and 2) valency-increasing derivational semantics.

The PIE nasal affixes are imperfective by default given that they were used exclusively in the IPFV stem in the principle Indo-European languages. “Imperfective” is an umbrella term that covers a set of primitive aspectual meanings such as “durative”, “iterative”, “habitual”, etc., and, potentially, the original use of the nasal affixes could have been more narrow in PIE or pre-PIE. For example, the imperfective aspect proves to be an insufficiently accurate category in determining the use of a nasal infix in PIE **ui-né-d-* ‘look for’ (cf. Skt. *vindáti* tr. ‘find’) next to **uoid-* ‘know’ (cf. Skt. *véda* tr. ‘know’). Both forms could perhaps be used in a context of the present tense. Altogether, one observes a clear grammatical contrast in the semantic relation of these forms to the punctive meaning ‘saw; found’ of the PFV root stem **ueid-* (cf. Skt. *ávidat* ‘found’), cf. “X *was looking for* (**ui-né-d-*) Y and *found* (**ueid-*) it” and “X *has seen/found* (**ueid-*) Y and *knows* (**uoid-*) it”.

The above-mentioned PIE paradigmatic pattern that combined IPFV nasal stems with PFV root stems, typical for the so-called “aoristic” verbs, suggests that PIE nasal stems commonly expressed actionalities with the [+ telic], [+ dynamic], [+ durative] aspectual

features. The present study will explore whether the Old Armenian evidence supports such a distribution of features. In particular, special attention will be given to verbs with different features, e.g. [– telic] verbal like *jeranim* ‘have a fever’.

A conventional aspectological framework will be used in the present study to break the generic imperfective meaning into specific aspectual meanings (progressive, durative, stative, iterative, etc.) and describe their distribution in the Proto-Indo-European, Proto-Armenian, and Old Armenian nasal stems (see § 1.3.2).

There is a growing consensus based on the decompositional approach to verbal lexical semantics that lexical aspect of a predicate may depend on its argument structure and idiosyncratic lexical features (see Tenny 1987; van Valin & LaPolla 1997; Kennedy & Levin 2008, among others). Thus, a valency-changing derivation can influence the aspectual content of tense-aspect markers (e.g. intr. *I write* [– telic] next to tr. *I am writing a letter* [+ telic]). Therefore, it is difficult to determine whether the distribution of nasal stems in PIE and their analogical spread at various stages of Proto-Armenian depended on argumental or aspectual meanings. The fact that nasal affixes were linked to the imperfective slot in the tense-aspect paradigms of Proto-Indo-European and Proto-Armenian, does not exclude the possibility that the derivational semantics of the nasal classes could be linked to grammatical parameters beyond aspect, in particular, the argument structure of a verb. For example, the Old Armenian causatives in *-ucʻanem* show how the analogical spread of a nasal affix can be determined by the non-aspectual derivational semantics of a productive valency-changing formation that utilised such affix.

Meiser (1993) made a point that valency-increasing derivations were cumulatively encoded by derivational and inflectional markers in PIE. According to him, PIE transitive verbs could be derived from intransitive ones by means of additional morphemes, including nasal affixes.⁵ Meiser claimed that nasal affixes were older than the two other recognised PIE valency-increasing markers, the **eie*-stem with roots in the *o*-grade, and the reduplicated stem, both of which originally had intensive or iterative meaning, and only secondarily received the transitivising function within PIE. According to Meiser, the later productivity of the *o*-grade **eie*-stem as a valency-increasing marker is reflected in the fact that it retained its transitivising function in Indo-Iranian and Germanic. By contrast, the valency-increasing value of nasal formations, still clearly seen in the Anatolian branch (cf. the Hittite *nu*-causatives along with the non-productive *nin*-causatives, cf. Hoffner & Melchert 2008: 175, 178f.; *EDHIL*: 608; Shatskov 2017), is rudimentary in the other branches, e.g. Sanskrit (cf. Skt. *éti* intr. ‘go’ → *inóti* tr. ‘send, impel’; *úrte* intr. ‘move’ →

⁵ This hypothesis does not exclude the marking of transitivity pairs by means of voice endings in common PIE. The coexistence of the “equipollent” and “causative” marking strategies is amply attested in the languages of the world (see § 1.3.1 for details on the transitivity marking strategies).

ṛṇóti tr. ‘move’; *jávate* intr. ‘run’ → *junāti* tr. ‘make run’; *pávate* intr. ‘become clean’ → *punāti* tr. ‘purify’; *rámate* intr. ‘remain’ → *ramṇāti* tr. ‘stop’; etc.).⁶

Altogether, intransitive nasal verbs well attested in Germanic, Baltic, and Slavic, cf. Go. *aflifnan*, Lith. *liūpa*, OCS *prilьnetъ* ‘stick to’ (see Gorbachov 2007; Villanueva Svensson 2011). The Lithuanian infixed intransitive verbs include impersonal verbs (cf. *sniūga* ‘it snows’) as well as the anticausative members of causative/anticausative pairs (*ke-m̃-pa* intr. ‘become dry’ next to *kėpti* intr., tr. ‘bake’). The intransitive infixed formations can be opposed to the transitive verbs in *-in-*, cf. *kėp-in-ti* tr. ‘burn’; both the intransitivizing nasal infix and the transitivizing nasal suffix are non-productive morphological markers and can be regarded as archaisms within Old Lithuanian (Petit 1999: 81f.). Infixes also marked inchoative verbs next to non-nasal stative verbs, cf. *užmiūga* ‘fall asleep’ next to *miēga* ‘sleep’. In Germanic, the most prominent type of intransitive nasal verbs are anticausative verbs of the Germanic 4th weak class, cf. Go. *gafullnan* ‘become filled’ (Ringe 2006: 176–179, 258–260). In Slavic, one also finds the nasal classes with the inchoative and anticausative verbs, cf. *vzbzṇoti* ‘wake up’, *oglxṇoti* ‘become deaf’.

Virtually all of the Old Armenian nasal classes include both transitive and intransitive verbs. Moreover, the synchronically productive Old Armenian markers of both causatives and anticausatives belong to nasal classes (caus. *-ucʻan-e-* vs. anticaus. *-an-a-*). The question arises whether the Old Armenian intransitive nasal verbs constitute an archaism shared with some other IE branches, or it is an inner-Armenian innovation based on reflexive uses of the underlying transitive nasal verbs (cf. Haspelmath 1987 with parallels of the grammatical change “causative → autocausative (reflexive) → anticausative”).

The relation of the Old Armenian nasal morphology to valency-changing categories will be analysed in terms of the theoretical framework discussed in § 1.3.1.

⁶ It is not easy to find secure examples for the reconstruction of nasal stems with valency-increasing function within the Greco-Aryan verbal system. A suggestive case is provided by PIE **h₁eish₂-* intr. ‘move’ (García Ramón 1992; LIV²: 234) → **h₁is-né/n-h₂-* tr. ‘set in motion’: Skt. *iṣṇāti* tr. ‘dispatch (enemy with a weapon; RV 1.63.2d)’ next to Gk. *ἰβάω* tr. ‘expel, make empty’. One may further consider a possibility that PIE **h₁is-né/n-h₂-* was extended with the **ie/o-* suffix at some stage of the proto-language on the evidence of Skt. *iṣanyati* tr. ‘urge on’ and Gk. *ἰάτω* tr. ‘heat’ (García Ramón 1992: 191; Dieu 2014: 143–159 with a detailed lexicological analysis of *ἰάτω* and hypothesis of its semantic change; see also Jasanoff 2003: 124 with an alternative reconstruction PIE **h₁is-ṇh₂-ie/o-*). However, the reconstruction of **h₁is-n(-)h₂-ie/o-* is problematic; the semantic justification is rather weak, and the Sanskrit cognate would point to the loss of **-h₂-*, which did not happen in Skt. *grbhāyāti* ‘grasp’ from **grb^h-n(-)h₂-ie/o-*.

Section 1.3. Theoretical framework

A comparative investigation of the verbal morphology in diachrony requires adopting a theoretical framework that would allow to align to each other morphological categories of different chronological stages in the history of a language, such as PIE and Old Armenian. Multiple approaches exist to map the grammatical and lexical semantics of predicates. Each one is an artificial logical construction intended to grasp universal or quasi-universal generalisations on which grammatical features are relevant to the structure of the languages of the world. By applying such generalisations to a specific language one risks imposing irrelevant parameters on the evidence. And yet it is a necessary cost for any attempt at a cross-language comparison including the diachronic comparison of genetically related languages. In the present study, the distribution of nasal suffixes will be analysed on the basis of argument structure (see § 1.3.1) and lexical aspectual features (see § 1.3.2) of nasal verbs.

§ 1.3.1. Argument structure

A comparative study of the Old Armenian nasal verbs requires taking into account their argument structure and voice marking. In order to check the hypotheses on correlations between the argument structure, voice assignment patterns, and the development of the nasal morphology from PIE to Old Armenian, we will provide a synchronic description of these grammatical parameters for each nasal verb attested in the source material.

The theoretical premises for the description of the argument structure are explicated in § 1.3.1-1, an overview of the Old Armenian voice assignment patterns is given in § 1.3.1-2, and the issue of the agentivity parameter is outlined in § 1.3.1-3.

§ 1.3.1-1. Representation of the core arguments and transitivity alternations

The syntactic properties of the nasal verbs are described using the conventional syntactic model that distinguishes between one-, two-, and three-argument verbs; see van Valin & LaPolla 1997; Bickel & Nichols 2009; Dixon 2010; Malchukov et al. 2010.

The single core argument of a one-argument verb will be referred to as the S argument. In order to distinguish between the so-called “unergative” and “unaccusative” intransitive verbs, the S argument will be indexed as S_A (the AGENT-like subject) and S_O (the PATIENT-like subject). The AGENT-like argument of two- and three-argument verbs will be referred to as the A argument. The non-AGENT-like argument of a two-argument verb will be referred to as the O argument. Peripheral arguments, including the obligatory peripheral arguments

of three-argument verbs, will be referred to as the E argument, and such verbs will be termed *extended transitive verbs*. Thus, ditransitive verbs in which the E argument corresponds to the RECIPIENT-like argument (or the R argument) will be put in the same category as extended transitive verbs such as causative verbs or motion verbs with SOURCE or TARGET arguments. Along the same lines, the term *extended intransitive verbs* will be applied to intransitive verbs with the lexicalised valency on the E argument.

In Old Armenian, the nominative and accusative cases coincide in the singular and differ in the plural of most substantives. In both the singular and the plural, the accusative case is commonly marked by the prepositional *z*-particle (although not always). Insofar as the encoding of the arguments of the intransitive and transitive constructions is concerned, Old Armenian has the *accusative alignment* (S is marked like A and differently to O) except the cases when the direct object is in the singular and is not marked by the *z*-particle, which results in the *neutral alignment* (S is marked like A and O). The default encoding of the arguments in a three-argument construction can be defined as the *indirective alignment* — the PATIENT-like argument of a transitive verb is marked like the PATIENT-like argument of an extended transitive verb and differently from the E argument. The *neutral alignment* is marginally attested for particular verbs (O is marked like the E argument that corresponds to the RECIPIENT-like argument in the double accusative construction). See Jensen 1959: 144–156 for examples.

Depending on their lexical features, two- and three-argument verbs can undergo valency-changing alternations. Verbs that do not undergo valency-changing alternations will be referred to as “intransitive” and “transitive”, while verbs that undergo such alternations will be referred to as “ambitransitive”.

In the case of ambitransitive verbs, whenever the S argument of the intransitive construction is co-referential with one of the arguments of the transitive construction, the S will be indexed with the respective subscript letters: S_A , S_O , S_E . Hence, the following formulae: the active/passive alternation — $A-O/S_O-E_A$; the active/antipassive alternation — $A-O/S_A$; active/reflexive alternation — $A-O/S_{A=E}$; the active/reciprocal alternation — $A-O/S_{A_1=A_2}$; the causative/anticausative alternation — $A-O/S_O$, etc. Similarly, the A argument of the two-argument alternation of a three-argument verb will be indexed as A_O or A_E .

The infinitival complement is marked as E_{INF} .

§ 1.3.1-2. Patterns of marking transitivity pairs

The regular pattern of voice marking is presented in Table 2 (see further details in Jensen 1959: 91–102). The forms labelled as “lab” (labile) are used in transitive and intransitive constructions alike and are formally different from “act” and “mp”.

The majority of Old Armenian verbs use the alternation of the *e-* and *i-*conjugations to express the voice opposition. With such verbs, only the imperfect, aor. ind. 1 pl., and aor. subj. 1, 2 pl. do not express the voice category. Verbs that follow the *a-*conjugation or the *u-*conjugation are entirely labile.

Table 2. The expression of the voice category in Old Armenian

	<i>a</i> -conjugation	<i>u</i> -conjugation	<i>e</i> -conjugation	<i>i</i> -conjugation
Pres. ind.	lab	lab	act	mp
Imperf.	lab	lab	lab	lab
Pres. subj.	act, mp	lab	act	mp
Proh.	lab	lab	act	mp
Aor. ind.	act, mp	act, mp	act	mp
Aor. ind. 1 pl.	lab	lab	lab	lab
Aor. subj.	act, mp	act, mp	act	mp
Aor. subj. 1, 2 pl.	lab	lab	lab	lab
Ipv.	act, mp	act, mp	act	mp

Although the ability of particular verbs to participate in valency-changing alternations is language specific, some universal tendencies may be observed. In particular, it has been argued that valency alternations are determined by (a) the choice a language makes to mark the intransitive member of the alternation, the transitive one, or both; and (b) the position of the intransitive member on the spontaneity scale (Nichols & al. 2004; Schäfer 2009; Koonz-Garboden 2014; Haspelmath 1987; 2018). The following patterns of marking transitivity pairs are commonly accepted: 1) the transitive member is basic and the intransitive member is derived (henceforth the “anticausative pattern”, labelled as A); 2) the intransitive member is basic and the transitive member is derived (henceforth the “causative pattern”, labelled as C); 3) both members are marked (henceforth the “equipollent pattern”, labelled as E); 4) both members are formally identical (henceforth the “labile pattern”, labelled as L); 5) both members are formally distinct and underived (henceforth the “suppletive pattern”, labelled as S); see Nedjalkov 1969; Haspelmath 1993; “The World Atlas of Transitivity Pairs” (<http://watp.ninjal.ac.jp/en>).

The valency-changing alternations of the Old Armenian verb can follow one of the three morphological patterns: 1) the L pattern is typical for the present tense of the *a-* and *u-*conjugations (e.g. *ban-am* tr./intr. ‘open’); 2) the E pattern: cf. *hanem* tr. ‘drive away’, *hanim* intr. ‘be taken away’; 3) the C pattern, cf. *spitakanam* intr. ‘become white’ → caus. *spitakac’-uc’anem* tr. ‘make white’, *dar’nam* intr. ‘turn’ → caus. *darj-uc’anem* tr. ‘turn’. There are no cases of a reverse change from the equipollent to anticausative pattern in Old

Armenian, a change that is well represented in the Middle Armenian period (see Megerdooomian 2002).

As shown in Table 2, there are no verbs with a pure equipollent pattern, since some forms of the paradigm are always labile. For convenience, the transitivity marking pattern will be determined by the 1 sg. in the aorist indicative and subjunctive, and the labile aor. ind. 1 pl. and aor. subj. 1, 2 pl. will be left out of consideration.⁷

Apart from the inherently labile forms mentioned in Table 2, some verbs use their active voice forms in the intransitive construction (*activa tantum*) or, *vice versa*, mediopassive forms in the transitive construction (*media tantum* or deponents). The latter two types of lability will be labelled as L_{ACT} and L_{MP} , respectively, cf. *yařnem* intr. ‘rise’ and *unim* tr. ‘have’.⁸

The E, C, and, marginally, L patterns can be securely reconstructed for PIE. The E pattern is well attested in Sanskrit (the *várdhati/várdhate* type) and was, perhaps, the dominant type in Ancient Greek (see Haspelmath 1993: 96f.), and, possibly, already in the dialectal PIE verbal system of the Greco-Aryan type. The C pattern must be reconstructed for PIE on the evidence of the reconstructed morphological causative, identified for different verbs of different morphological types. In particular, it has been claimed that the nasal affixes were introduced into IPFV stems in core PIE as part of the C pattern of marking valency-changing alternations (cf. Meiser 1993). The L pattern must be reconstructed for PIE as well, although its use was, perhaps, rather moderate, cf. act. **h₁es-mi* intr. ‘be’ and act. **h₁ei-mi* intr. ‘go’, both featuring L_{ACT} .

One of the tasks of the present study is to find out how the inherited Old Armenian verbs can be derived from PIE taking into account the distribution of the L, E, and C patterns across the nasal classes. As will become clear from Chapter 2, there are numerous cases of mismatch between the patterns of a verb in PIE and those of its continuant in Old Armenian.

§ 1.3.1-3. Agentivity as a lexicosyntactic parameter

Although Old Armenian does not have overt morphological markers that would discriminate between agentive vs. non-agentive subjects within the transitive and intransitive constructions, the [\pm agentive] parameter appears to be important for the verbal morphology of Old Armenian in synchrony and diachrony, in particular, because it

⁷ This concession is unnecessary in the case of the labile and causative patterns. While the former is labile, the latter is based on the opposition of derivationally connected lexemes and not on the opposition of paradigmatic forms.

⁸ See Letuchiy 2010 with a typological study on the types of lability.

imposes restrictions on the formation of derived causatives (causatives are rarely derived from agentive intransitive verbs in Old Armenian).

In the present study, agentivity is viewed as a scalar parameter which is bound to such lexical features as volitionality, causation, ability for physical and cognitive activity, existence independent from the event described with the verb (cf. Dowty 1991: 572). A standard test will be applied, whenever the evidence of the source material allows it, in order to determine the value of the [\pm agentive] parameter, namely, the possibility of co-occurrence with agency-cancelling adverbs like *unintentionally*. This test allows to discriminate between the verbs with the lexicalised [+ agentive] feature and the remaining verbs, including those in which agentivity is unspecified ([– agentive] and [\pm agentive]). The aforementioned test has obvious limitations in the case of ancient languages with limited corpora. In most cases, judgments on whether or not the first argument is agentive relies on the interpretation of the context. This creates a certain amount of subjectivity in the evaluation of the agentivity parameter, which, altogether, does not render the whole analysis useless. Thus, contextual analysis leaves no doubt that *spananem* tr. ‘kill’ is basically agentive, while *meřanim* intr. ‘die’ is non-agentive, even when these are found without agency-cancelling adverbs.

a. Non-agentive verbs

- Intransitive verbs, e.g. *linim* intr. ‘become’ (S₀[–E])
- Transitive verbs, e.g. *imanam* ‘understand’ (A–O).
- Ambitransitive verbs, e.g. *řeranim* tr. ‘experience (illness)’ / intr. ‘suffer (from illness)’ (A–O_E/S₀).

Here belong verbs that denote spontaneous events and do not have an interpretation with an external AGENT-like argument (CAUSER). These verbs typically include change of state and change of degree verbs, non-volitional verbs of manner of motion, and psych verbs (cf. Schäfer 2009: 649f.). Cross-linguistically, such verbs often include productive classes of deadjectival verbs, which is also the case of Old Armenian (see Section 2.4 on deadjectival nasal verbs).

This group includes: a) verbs that do not have a transitive counterpart expressed within the inflectional paradigm or by means of derivation, e.g. Arm. *linim* intr. ‘become’; b) verbs that follow the C transitivity marking pattern, cf. Arm. *heřjnum* intr. ‘choke’ vs. caus. *heřjuc’anem* tr. ‘suffocate’.

Some non-agentive verbs may take an external argument that corresponds to such semantic roles as STIMULUS and SOURCE. Whenever the external argument is marked by the accusative, the verb becomes syntactically transitive, cf. *řeranim* + instr. ‘suffer from so.’ / *řeranim* + acc. ‘experience so. (illness)’. Despite their transitive uses described by the A–O_E

formula, such verbs are classified as non-agentive. Structurally similar are the verbs in which the RECIPIENT-like subject of the intransitive construction corresponds to the THEME-like subject of the transitive construction with the RECIPIENT-like argument marked by an oblique case, cf. *otołanem* ‘inundate so.’ / *otołanim* ‘become obsessed with so.’.

b. Agentive verbs

- Intransitive verbs, e.g. *ořnam* intr. ‘yell’ (S_A).
- Transitive verbs, e.g. *stanam* tr. ‘acquire’ (A_E-O).
- Ambitransitive verbs, e.g. *erdnum* tr./intr. ‘swear’ (A-O/S_A).

This group includes two- and three-argument agentive verbs that do not have an interpretation without an external argument (CAUSER), be it expressed or not (in the passive or generic middle uses, respectively; see Levin 1993: 25f.; Schäfer 2009: 645–647). The passive and generic middle uses will be considered the transitivity alternations of agentive predicates and will be marked as S_O[-E_A] in the present study. The difference between the generic middle, passive, and anticausative readings are not always clear-cut, which may result in the conflation of agentive ambitransitive verbs and ambitransitive verbs unspecified for agentivity. Such ambiguity is determined by the lack of contexts to which the test of agency-cancelling adverbs could be applied.

Obviously, verbs with lexicalised agentivity cannot participate in the causative/anticausative alternation (cf. Hale & Keyser 1986). The morphological causative often derives a transitive verb from an intransitive one, and an extended transitive verb from a transitive one.

c. Verbs unspecified for agentivity

- Intransitive verbs: S_A/S_O (e.g. *anc’anem* ‘pass by (of human; of time)’).
- Ambitransitive verbs: A-O/S_O (e.g. *bekanem* tr. ‘break’, *bekanim* intr. ‘break’).

This group contains verbs that can take an agentive and a non-agentive subject depending on the context. These include intransitive and ambitransitive verbs. In intransitive verbs, one finds metaphorical uses of basically agentive verbs in contexts with non-volitional subjects, e.g. *anc’anem* ‘pass (of human)’ [+agentive] → ‘pass (of time)’ [-agentive].

The morphological causative can have several functions in verbs unspecified for agentivity. It either marks the passivisation of the S_A argument of a basic intransitive verb, or it marks the transitive member of a causative/anticausative pair. The morphological causative can be derived from the intransitive or transitive member of a causative/anticausative pair. Whenever the morphological causative is derived from the intransitive member, there is space for morphological variation between the active voice

form of the base verb and the morphological causative, both of which have the same structural relation to the intransitive verb, cf. *lnum* next to *lc'uc'anem* tr. 'fill up'.

Unlike the non-agentive verbs that participate in the causative/anticausative alternation, many verbs unspecified for agentivity use voice endings to mark the transitive and intransitive members of the opposition and follow the E transitivity marking pattern.

§ 1.3.2. Actionality and aspect

§ 1.3.2-1. Lexical aspectual features and the actional classification of predicates

In Chapter 2, the Old Armenian nasal verbs will be qualified with regard to their lexical aspectual features. It will allow comparing the nasal classes to each other in the synchrony of Old Armenian, on the one hand, and checking whether the values of specific aspectual features could be responsible for the analogical spread of paradigmatic types with the nasal suffixes in the course of the Proto-Armenian period, on the other hand.

The traditional aspectological classification of predicates has been adopted in the present study that distinguishes between the four basic actional classes each characterised by a unique set of values of the three lexical aspectual features — telicity [\pm telic], durativity [\pm durative], and dynamicity [\pm dynamic] (cf. an outline of the theoretical background in van Valin & LaPolla 1997: 90–129 among many others):

- ACHIEVEMENTS: [+ telic] / [– durative] / [+ dynamic];
- ACCOMPLISHMENTS: [+ telic] / [+ durative] / [+ dynamic];
- ACTIVITIES: [– telic] / [+ durative] / [+ dynamic];
- STATES: [– telic] / [+ durative] / [– dynamic].

The verbs of controlled states (cf. English *sit*, *stand*, etc.) constitute an intermediate type. Like STATES, they describe situations that not evolve in the course of their duration. Like ACTIVITIES, they imply subject's control that can be viewed as a kind of energy influx typical for dynamic verbs. Such verbs will be classified as ACTIVITIES in the present study. An additional study may be required in order to specify morpho-syntactic features of the given type of verbs in Old Armenian.

The value of each of the three lexical aspectual features can either be lexicalised (an inherent part of the lexical semantics largely independent of contextual uses of a verb) or not (a variable part of the lexical semantics dependent on contextual use of a verb). In the former case, a verb can be strictly attributed to one actional class (e.g. Eng. *He is asleep*. — STATE), while in the latter case, a verb can have several actional construals (e.g. Eng. *I am reading*. — ACTIVITY; *I am reading a letter*. — ACCOMPLISHMENT).

If a verb with variable values of the aspectual features is attested with different tense-aspect stems, a hypothesis can be proposed that the choice of the stems depends on the

values of the aspectual features. The approach will be applied to the analysis of the Old Armenian nasal verbs with competing stems.

Note that the aforementioned model of lexical aspectual features is a theoretical construct applied to describe the lexical semantics and compare aspectual meanings across the languages of the world; these parameters need not be significant for the morphology of a particular language. An attempt to describe the Old Armenian nasal verbs in terms of their lexical aspectual features should not be taken as an *a priori* claim that all or some of these features were responsible for the introduction, spread, or retention of nasal affixes in PIE, Proto-Armenian, and Old Armenian. Such an assumption will rather serve as a research hypothesis.

Descriptive grammars of living languages rely on diagnostic syntactic tests that allow determining the actional class of a verb or its contextual uses. For example, the compatibility of verbs with particular time phrases can set values of the durativity and telicity aspectual features, cf. Eng. *John has been working for three hours* [+ durative]/[± telic]; *John did the work in three hours* [– durative]/[+ telic].

The following tests were used when possible to determine the actionalities of verbal uses in Old Armenian (see Dowty 1979).

a) The [+ telic] aspectual feature (ACHIEVEMENT or ACCOMPLISHMENT) is compatible with adverbs and noun phrases denoting an exact time reference (e.g. ‘right before X’, ‘at once’, ‘suddenly’), time period of accomplishing an action (e.g. ‘in three days’, ‘before long’), measure of accomplishment (e.g. ‘completely’, ‘half-way’, ‘almost’) and mode of accomplishment (e.g. ‘gradually’); compatibility with phasal verbs (e.g. ‘begin’, ‘finish’).

b) The [– durative] aspectual feature (ACHIEVEMENT) is compatible with adverbs and noun phrases denoting an exact time reference (e.g. ‘right before X’, ‘at once’, ‘suddenly’).

c) The [+ durative] aspectual feature (ACCOMPLISHMENT, ACTIVITY or STATE) is compatible with adverbs and noun phrases denoting a time period (e.g. ‘for three days’, ‘for a long time’), measure of accomplishment (e.g. ‘completely’, ‘half-way’, ‘almost’, etc.) and mode of accomplishment (e.g. ‘gradually’); compatibility with phasal verbs (e.g. ‘begin’, ‘finish’).

d) The value of the [± dynamic] aspectual feature is largely determined by the context. It describes whether or not there is an influx of energy that make the process change over time. A clear example of the lexicalised [– dynamic] and [+ dynamic] aspectual features is provided by Arm. *em* ‘be’ and *linim* ‘become’, respectively, see (1) and (2) below.

- (1) *Mt.* 10, 10: <...> *zi aržani ē* [– dynamic] *mšakn kerakroy iwrum*. “<...> for the worker is worthy of his support.”
- (2) *Acts* 5, 41: <...> *anuann aržani eten* [+ dynamic] *anargeloy*. “<...> they had been considered worthy to suffer shame for His name.”

In the case of ancient languages with limited corpora, the application of syntactic tests is often problematic. Yet, like in the case of the agentivity lexical feature (see § 1.3.1-3), the shortage of evidence can be in part compensated by reasonable predictions about aspectual features of particular verbs based on the analysis of their lexical semantics and context, even when strict tests cannot be applied. And yet, no motivated choice is sometimes available. Such cases are reflected in the present study by ascribing several actionalities to a verb, e.g. ACHIEVEMENT/ACCOMPLISHMENT or ACCOMPLISHMENT/ACTIVITY. Such verbs are classified together with the verbs in which the lexical aspectual features have variable values.

In translations from Ancient Greek, such as the Bible, no attempt has been made to disambiguate the actionalities of the Old Armenian verbs based on the grammatical forms of the Ancient Greek original. Although this additional facet of analysis can potentially enhance the quality of the Old Armenian data, it must rely on the substantial research of translation strategies in regard to the used translated Old Armenian texts. Such research goes beyond the scope of the present study. Consequently, the original Ancient Greek passages will not be provided along with the cited Old Armenian translations.

§ 1.3.2-2. The aspectual profiles of Old Armenian IPFV stems

The Old Armenian verb has five synthetic tenses that can be used in the indicative mood (including the future indicative uses of the subjunctive forms of the present and aorist tenses): *present indicative*, *present subjunctive*, *imperfect*, *aorist indicative*, and *aorist subjunctive*.

These tenses are derived from two tense-aspect stems, the imperfective (IPFV) and the perfective (PFV):

- IPFV: present indicative, present subjunctive, imperfect;
- PFV: aorist indicative, aorist subjunctive.

When a verb describes an event localised in time (i.e. a process or state that takes place at a certain moment before, during or after the moment of speaking), its tenses can express the primary aspectual meanings that include the *inchoative* (the initial phase of a process or state), *durative* (the middle phase of a process or state), *completive* (the final phase of a process or state), *prospective* (the phase immediately preceding the process or state), and *resultative* (the phase immediately following the process or state). The aspectual meanings of tenses depend on the actional class (or classes) of a given verb. Thus, in ACHIEVEMENTS, the inchoative and completive meanings coincide, while the durative meaning is excluded; ACTIVITIES do not have a completive or resultative meaning, etc. The secondary aspectual meanings have no time localisation and include such meanings as *iterative*, *distributive* and *habitual*. The secondary aspectual meanings can be categorised as derivational when they change the actional class of a base verb and therefore, the range of its primary aspectual

meanings (see Plungian 2011: 280–316 and Tatevosov 2002 for a concise overview of the theory with further references as well as Kocharov 2016a and Kocharov 2018a in relation to the PIE verbal morphology).

The inchoative and completive meanings are typically expressed by the Old Armenian aorist indicative, cf. (1) below. The durative and secondary aspectual meanings are expressed by the present or imperfect indicative, cf. (2) and (3). The resultative and prospective meanings do not have a regular expression by means of synthetic verb forms in Old Armenian. Instead, the resultative is regularly expressed by periphrastic constructions. These essential ways to express aspectual meanings are complemented by many specific uses, such as the use of the present and imperfect tenses to express the narrative past (4), or the use of the present tense to express the immediate future (5), or the perdurative use of the aorist tense complemented by the prepositional phrase *minč'ew c' + acc.* 'until' (6).

- (1) *Gen. 4, 20: Ew cnaw Adda zYovbēl <...>. “Adah gave birth to Jabal <...>.”*
- (2) *Acts 8, 32: Ew glux groc'n zor ant'erñoyr ēr ays <...>. “Now the passage of Scripture which he was reading was this <...>.”*
- (3) *1Mac.11, 2: <...> ew nok'a duṛn banayin nma, ew ənd aṛaḡ ert'ayin nora <...>. “<...> and the people of the towns opened their gates to him and went to meet him <...>.”*
- (4) *Gen. 40, 11: Ew baḡakn p'arawoni i jeṛin imum, arñui [ipf.] zxaṭoṭn ew čmlēi [ipf.] i baḡakn p'arawoni, ew tayi [ipf.] zbaḡakn i jeṛs p'arawoni. “Now Pharaoh's cup was in my hand; so I took the grapes and squeezed them into Pharaoh's cup, and I put the cup into Pharaoh's hand.”*
- (5) *Ezek. 4, 16: Ew asē c'is Tēr: Ordī mardoy, ahawanik es bekanem zhastatut'iwn hac'i jErusatēm <...>. “Moreover, He said to me, «Son of man, behold, I am going to break the staff of bread in Jerusalem <...>».”*
- (6) *Gen. 32, 24: Ew mnac' Yakob miayn, ew marteaw ayr mi ənd nma minč'ew c'arawawt. “Then Jacob was left alone, and a man wrestled with him until daybreak.”*

The aforementioned aspectual meanings expressed by tense forms of Old Armenian verbs will be used as a reference for the identification of the actional class of each specific nasal verb and therefore, the grammatical content of the nasal suffixes. By consequence, the uses of nasal verbs provided in Chapter 2 will contain forms derived from both IPFV and PFV stems depending on the available attestations and characteristic uses.

Section 1.4. Issues of historical phonology

Much of the debate on the Proto-Armenian secondary nasal formations is based on the analysis of stem auslauts. The analysis of stem auslauts determines one's view on the etymological links between the Old Armenian and PIE stems and, therefore, on the reconstruction of Proto-Armenian paradigmatic classes. Thus, the root of Arm. *hecanim* 'ride' has been analysed as reflecting PIE IPFV **sed-ie/o-* or PFV **sed-s-*. In light of comparative evidence (cf. Gk. ἕζομαι 'sit' next to εἶσα 'make sit'), each of these two reconstructions may be considered a PIE archaism yielding different accounts of the morphological change in Proto-Armenian nasal verbs.

Unfortunately, Old Armenian has very limited evidence on sound changes relevant for the controversies of the diachronic morphological analysis. This often results in the circular argumentation, when a morphological solution is proposed for a verbal stem based on a sound change justified by other verbal stems. The purpose of the present section is to set a baseline of diachronic phonological analysis before turning to the discussion of the historical morphology in Chapter 2.

§ 1.4.1. Palatalisation of labiovelars

The palatalisation of velars is a much debated issue of the Armenian historical phonology (see an overview in de Lamberterie 1980: 25; Djahukian 1978: 119–129; Beekes 2003: 177f.; *EDAIL*: 711). According to the majority view, plain velars and labiovelars merged together and subsequently underwent palatalisation before front vowels with no contrast between these two series of velars. The attested diversity of reflexes is explained due to analogical restorations. But the source for the analogical restorations often evokes doubts. Thus, PIE **g^wi(e)h₃-* (*LIV*²: 215f.) does not offer a transparent source for the restoration of the initial labiovelar in Arm. *keam* 'live'.

An alternative which does not require so many analogical restorations, is to assume that only voiceless and voiced aspirated labiovelars underwent palatalisation while voiced labiovelars changed to voiceless plain velars; none of plain velars were palatalised (Pedersen 1906: 396; Pisani 1950: 165–169), cf. PIE **k^wetwores* > PArm. **k^wet(w)ores* (with a dissimilatory loss of **w*, cf. Godel 1975: 77) > Arm. č'ork' '4';⁹ PIE **g^werh₃-* 'eat' > Arm. aor. *keray* 'I ate' (*utem* 'eat'); PIE **g^{wh}er-* > Arm. *jernum* 'warm up'; PIE **kert-* 'cut' > Arm. *k'ert'em*

⁹ Meillet (1890 = 1977: 5; 1896 = 1977: 32; 1909 = 1977: 134) rejected that sound change in view of Arm. *-k'* of *ok'* 'someone' from **-k^we* (Lat. *-que*, etc.) and *elik'* 'he left' from **h₂e-lik^w-et* (Gk. ἕλιπε, Skt. *aricat*). Both examples can be explained by the early elimination of the final vowel in enclitic **-k^we* and by the analogical root levelling from the IPFV *lk'ane-* to that of *elik'* (see § 2.5.1-2.28).

‘graze’. The palatalisation was blocked by a preceding nasal, e.g. PIE **penk^we* > Arm. *hing* ‘5’. The palatalisation of labiovelars has also been suggested for Albanian; see Scala 2017 with a detailed discussion of the Armenian evidence, further references, and a typological parallel for the palatalisation of labiovelars in French dialects.

Although the latter solution is more straightforward in terms of the Proto-Armenian sound changes, both of the outlined possibilities will be taken into account within the morphological analysis of the relevant nasal verbs, namely, *ank-anim* ‘fall’ (§ 2.5.1-2.6), *ark-an-e/i-m* ‘cast down’ (§ 2.5.1-2.7), *awcan-e/i-m* ‘anoint’ (§ 2.5.1-2.8), *bek-anem* ‘break’ (§ 2.5.1-2.9), *hark-an-e/i-m* ‘strike’ (§ 2.5.1-2.20), and *lk^c-an-e/i-m* ‘abandon’ (§ 2.5.1-2.28).

§ 1.4.2. Reflexes of PIE **C_i*- and **Cs*-clusters

The development of the Proto-Armenian consonant clusters **C_i* and **Cs* has provoked an extensive debate which has not yet reached a consensus. In what follows, we shall give a concise overview of the problem. Further details can be found in Martirosyan frthc. § M 507.5 with ample references to the previous scholarship.¹⁰

The sound change **k^(w)_i* > č’ is secure, e.g. Arm. aor. *č’ogay* ‘I went’ < PIE **k^wieu-* (*LIV*²: 394); see Meillet 1890 = 1977: 3; 1909 = 1977: 136; 1936: 29; Pedersen 1906: 396; Djahukian 1978: 123f.; Beekes 2003: 200f. among others.¹¹

The development of PIE **g^(w)_i* can, perhaps, be found in PIE **lēg-ieh₂-* > Arm. *lič* ‘lake’, PGr. **lēkjōn-* ‘rivelet’, although the root *ē*-grade is poorly explained (*EDPG*: 331). More doubtful is Arm. *ačem* ‘grow’ from PArm. **ag-ie/o-*, perhaps, akin to Lith. *úoga* ‘berry’ (Djahukian 1978: 123; Klingenschmitt 1982: 148f.; *ALEW* 2: 115f.).

The evidence for **g^{(w)h}_i* consists of Arm. *lanjk^c* ‘breast; lungs’ and is problematic; while some derive it from PIE **h₁lng^{wh}-i(e)h₂-* (*EDAIL*: 304 with references) others prefer the dual form PIE **h₁lng^{wh}-ih₁*, (Beekes 2003: 190). Although the evidence is scanty, this sound change goes in line with the two previous ones and allows to reconstruct a series of structurally parallel sound changes given in (1a) below (cf. Djahukian 1982: 57f. among others).

The Old Armenian outcomes of PIE **k_i*, **g_i*, and **g^h_i* are unclear. Arm. *asem* ‘say’ has been analysed as a reflex of the IPFV **ie/o-* stem cognate to Lat. *aiō* ‘say’ from PIE **h₂ǵ-ie/o-*

¹⁰ See Viredaz 1993 on the development of **C_i*- and **Cs*-clusters in Greek with references.

¹¹ The sound change is relevant for the diachronic analysis of several verbal classes including verbs of sound performance in *-(a)(n)č^c* (Olsen 1988: 8; Greppin 1995; Kocharov 2012a), where *-č^c* can be derived from the IPFV **k^(w)-ie/o-* stem. Altogether, at least in one verb of that lexicogrammatical category, *-č^c* goes back to a root in a velar plus **-ie/o-*: Arm. *goč^cem* intr. ‘shout; call’ < PIE **uok^w-ie-* (see *EDAIL*: 225 with references).

(*LIV*²: 256). Within this etymology, one assumes a sound change *PArm. *ǵ_ǵ > *j (before the Armenian consonant shift) > c (after the Armenian consonant shift). The root shape *ac-* is attested in *ar-ac(-k')* ‘proverb’. The next step, *c > s, is not a regular sound change, but finds a parallel in *es* ‘T’ instead of the expected **ec* from PIE **h₂eǵ-* (Lat. *egō* ‘T’, etc.). This case is inconclusive, however, given that **h₂eǵ-e/o-* would also yield PArm. **ac-*. There are no clear cases for PIE **k_ǵ* and **ǵ^h_ǵ*. Given that PIE **ks* (> PArm. **t^s*) merged with **ts* in PArm. **c* > Arm. *c*, it seems likely that PIE **k_ǵ* (> PArm. **t_ǵ* > **t^s_ǵ*) yielded the same reflex as **t_ǵ*; see below in the expected outcome of PIE **t_ǵ*. The outcomes of PIE **k_ǵ*, **ǵ_ǵ* and **ǵ^h_ǵ* are postulated in (1b) below as hypothetical and are marked with an asterisk.

Presumably, the palatalisation of plain velars after **u* and **u*-diphthongs took place before the rise of fricatives and affricates from **C_ǵ*-clusters, and therefore plain velars could also be subject to the sound changes in (1b) in the specified environment. But there seem to be no clear examples.¹²

A special problem concerns the sound change PArm. **t^s_ǵ* > Arm. *č* which has been suggested to explain the origin of the IPFV *č'(i)*-stem. The PIE IPFV **ske/o-*stem¹³ yielded PArm. **t^s* (> Arm. *c*) as is made clear by *harc'anem* ‘ask’ from **pr(k)-ske/o-* (see § 2.5.1-2.19); altogether, the *č'(i)*-stem is best analysed as a recharacterisation of PArm. **t^s*- with **ie/o-*, cf. PIE **ǵnh₃-ske/o-* > PArm. **janac-* → **janac-ie/o-* > Arm. *čanač'em* ‘recognise’. If correct, this analysis suggests that **C_ǵ*-clusters turned into affricates later than **Cs*-clusters. Besides, it supports the sound changes outside brackets in (1b).

- | | | | |
|------|---|------|--|
| (1a) | PIE * <i>k^(w)_ǵ</i> > Arm. <i>č</i>
PIE * <i>ǵ^(w)_ǵ</i> > Arm. <i>č</i>
PIE * <i>ǵ^{(w)h}_ǵ</i> > Arm. * <i>č</i> | (1b) | PIE * <i>k_ǵ</i> > Arm. * <i>č</i> (less likely * <i>c</i>)
PIE * <i>ǵ_ǵ</i> > Arm. * <i>č</i> (less likely * <i>c</i>)
PIE * <i>ǵ^h_ǵ</i> > Arm. * <i>č</i> (less likely * <i>c</i>) |
|------|---|------|--|

Morphological reconstructions based on the sound changes in (1a) and (1b) will be considered probable in the present work.

In the case of **C_ǵ*-clusters with dentals, the sound change PIE **d^h_ǵ* > Arm. *č* is secure, e.g. PIE **med^h-io-* > Arm. *mēč* ‘middle’ (Skt. *mādhyā-*, Lat. *medius*, etc.; see *EDAIL*: 467 on the source of *-ē-*); PIE **ǵ^{wh}eid^h-io-* > Arm. *gēč* ‘moist’ (Russ. *židkij* ‘liquid’, *EDAIL*: 210f.); see Greppin 1993; Kortlandt 1994 = 2003: 104–106.

The development of PIE **t_ǵ* is more problematic. PIE **ǵ^wot-ie-* > Arm. *koč'em* ‘call’ (Go. *qipan* ‘say’; Meillet 1936: 108; Godel 1965 = 1982: 22; *LIV*²: 212f.; *EDPG*: 319) is possible, but verbs of sound performance often have a stem in *-č-* or *-(a)(n)č-*, so that one may be

¹² Djahukian (1978: 123f.; 1982: 57f.) claimed that all velar series + **ǵ* yielded *č*, *č*, and *č*. However, he did not cite examples for the palatal series. Arm. *p'č'em* ‘blow’ (next to *p'uk* ‘wind; bellows’) is unreliable in view of its onomatopoeic nature, the initial *p'*, and the final *-k'* after *u* in *p'uk*.

¹³ Here and below the suffix is reconstructed with a plain velar (see Lubotsky 2001).

dealing here with an analogical adjustment of the root auslaut in *-c- (see fn. 11). By contrast, the Old Armenian suffix of abstract nouns *-t'iwñ-* most probably comes from PIE **-tiōn-*, cf. Lat. *-tiō-*, *-tiōnis-*, etc. (Meillet 1890 = 1977: 5). A way out of this controversy would be to assume PArm. **-tiHōn-* as an intermediate reconstruction with the syllabic **i* which was not sufficient for palatalisation. The reconstruction of the laryngeal in the suffix allows to explain the instr. *-teamb* from **-tiHn-b^hi-* (Olsen 1999: 551).¹⁴

Neither is there good evidence for the outcome of PIE **d_ǵ*. In my opinion, Arm. *oročam* (next to *oročem*) ‘chew’ can be formally derived from neither PIE **Hreh₂d-* nor **Hreh₃d-* which would yield PArm. **VraC-* and **VruC-* respectively (see *EDIAL*: 542 with ample references and an attempt to save the etymology by assuming an inner-Armenian lowering of the root vowel under the influence of the initial **a-* which turned into **o-* under the influence of the adjusted root vowel).¹⁵ The prehistory of Arm. *mačar* ‘young wine’ is unclear since it may be an Iranian loanword, cf. *mačaraks kat'n* ‘cheeses’ next to MPers. *m'st'* ‘curds’, NPers. *maskah* ‘fresh butter’ (Olsen 1999: 247).

Thus, the reconstruction of sound changes in (2) relies mostly on structural reasons for PIE **t_ǵ* > Arm. *č'* and PIE **d_ǵ* > Arm. *č* in relation to PIE **d^h_ǵ* > Arm. *ǰ* (cf. *EDAIL*: 718f.)

- (2) PIE **t_ǵ* > Arm. **č'*
 PIE **d_ǵ* > Arm. **č*
 PIE **d^h_ǵ* > Arm. *ǰ*

An alternative analysis has been suggested, according to which PIE **t_ǵ*, **d_ǵ* and **d^h_ǵ* yielded Arm. *c'*, *c*, and *j* respectively (Scheftelowitz 1905: 29f.; Godel 1965 = 1982: 22–24, 1975: 82; Olsen 1988: 11; Ravnæs 1991: 168f. among others). Nasal verbs aside, Greppin (1993) mentioned *atceal* ‘salty’, *ginj* ‘coriander’, and *mic* ‘mud’ as strong examples of the sound changes PIE **d_ǵ* > Arm. *c* and PIE **d^h_ǵ* > Arm. *j*.

The case of *atc-eal*, undoubtedly cognate to *att* ‘salt’ and derived from PIE **sh₂(e)ld-* (Goth. *salt*, etc.; *EDAIL*: 37, 40f.), is ambiguous since *atc-* is a verbal stem, which in theory could contain the **ie/o-* or **s-* suffix (cf. Klingenschmitt 1982: 149 on the rarity of the PFV **s-* stem in denominal verbs). Moreover, *atc-eal* is poorly attested and may be a post-classical

¹⁴ Klingenschmitt (1982: 100) supported the reconstruction of the laryngeal in **-ti-H-on-* by comparing it to Lat. *festināre* ‘hurry’ with *-tīn-* from **-ti-H-n-*. Olsen (1992; 1999: 551) argued in favour of the reconstruction of a PIE inflectional type with nom. sg. **-ti-h₃ōn-*, gen. sg. **-ti-h₃n-os* in which the “Hoffmann” suffix had been added to the abstract noun suffix.

¹⁵ Djahukian (1982: 62) mentions a solution based on **d_ǵ* > *č* for *oročem*. However, this is the only example and it is cited as a deviation from the default sound law **d_ǵ* > *c*, postulated in Djahukian 1978: 125f.; 1982: 60f.

innovation (the only attestation in *NBHL* 1: 41 is from Eusebius of Caesarea, an undated early classical author).

Arm. *mic* ‘mud’ has been compared to PGrm. **smit(t)ōn-* ‘strike; smudge’, cf. OE *smitte* ‘stain’, etc. (see *EDPG*: 459 for Germanic cognates) and OCS *smědz* ‘dark’ (see *EDAIL*: 469 with references). The **io*-stem, suggested for the Proto-Armenian noun, has no external support and is introduced into the reconstruction with the only purpose to explain the root-final affricate, which renders the analysis circular. And yet, a **io*-stem seems to be more in place in a Proto-Armenian noun than an **s*-stem.¹⁶

Arm. *ginj* ‘coriander’ (*o*-stem, Bible+) has been derived from PArm. **uend^h-io-* ‘twisted’ next to *gind* ‘earring’ and *gnd-ak* ‘vine’ from PArm. **uend^h-eh₂-* ‘id.’, all from PIE **uend^h-* ‘wind’, cf. OHG *winda* ‘bindweed’, Skt. *vandhūr-* ‘seat of carriage’ (cf. Djahukian 1982: 61; *EDAIL*: 213f.). While the etymology of *gind* is rather convincing, that of *ginj* requires the reconstruction of the nominal **ie/o*-suffix without external support, and the semantic change ‘intertwined’ > ‘coriander’ is gratuitous. Moreover, Henning (1963) rather convincingly demonstrated that Arm. *ginj* may be an Iranian loanword with the “Median” metathesis *-zn-* > *-nz-* (as opposed to MPers. *gišnīč* ‘coriander’ (with the diminutive *-īč*) from *gišn* without the metathesis; for Arm. *j*, MPers. *z*, Parth. *ǰ*, cf. Arm. *anjuk*, Man. MPers. *hnzwwg* /hanzūg/, Parth. *’njwg-* /anǰūg/).¹⁷ Olsen (1999: 936) classifies the word as belonging to the lexicon of unknown origin.

A few words were adduced in support of the sound change PIE **t_ǵ* > Arm. *c’*: Arm. *xuc* ‘room’ has been derived from PIE **k^(h)uh₁t-i-eh₂-* (cf. Grm. *Hütte* ‘hut’). This etymology is doubtful since the Old Armenian word can be a Semitic loanword, cf. Assy. *ḥuṣṣu* ‘hedge’, Aram. *ḥūṣ-* ‘hut, cell’ (*EDAIL*: 335). Olsen (1988: 7f.) suggested to derive Arm. *erkic*’s ‘twice’ and Arm. *eric*’s ‘thrice’ from PIE **duitio-* ‘second’ (Skt. *dvitīya-*) and **tritio-* ‘third’ (Skt. *trītiya-*, OPers. *šritiya-*, Lat. *tertius*, Lith. *trėčias*). There are alternative possible reconstructions — PIE **duisko-* and **trisko-* (cf. OHG *zwisk* ‘twice’; see de Lamberterie 1998: 887); see further discussion and up-to-date references in *EDAIL*: 718f.

It should be stressed that there seems to be no substantial evidence in favour of PIE **d_ǵ* > Arm. *č*, which would contradict PIE **d_ǵ* > Arm. *c*. Thus, although the conclusive evidence is missing for PIE **t_ǵ* > Arm. *c’* and PIE **d^h_ǵ* > Arm. *j*, a series of sound changes in (3) can be postulated. Note that these sound changes cannot be invalidated by proving that **Cs*-clusters yielded the same results (see below), since **Ci*-clusters and **Cs*-clusters could merge into one series of affricates, as postulated in Djahukian 1978: 125f.; 1982: 60f.

¹⁶ The zero-grade of the suffix **s-* is not found in the Proto-Armenian continuants of PIE neuter **s*-stems, cf. *get* ‘river’ from **uéd-os-* (cf. Skt. *útsah* ‘spring’), or as *a*-stems *mit(-)k’* ‘mind’ from **méd-es-* (cf. Gk. *μήδεα* ‘plans’); see Olsen 1999: 44, 69.

¹⁷ See Perixanjan 1993 on the Median layer of Iranian loanwords in Old Armenian.

- (3) PIE $*t_i > \text{Arm. } *c'$
 PIE $*d_i > \text{Arm. } c$
 PIE $*d^h_i > \text{Arm. } *j$

On the structural level, the set of sound changes in (2) is stronger than that in (3). In Greek, the deaspiration of voiceless dentals took place in front of *yod* after the devoicing of the voiced aspirates, so that the reflex of $*d^h_i$ merged with that of $*t_i$ into $*t^{(h)}_i$ (PGk. $*ts > \text{Hom. } \sigma\sigma, \text{Att. } \tau\tau, \text{etc.}$), while the voiced obstruent plus *yod* yielded a separate reflex ($*d_i > *dz > \text{Att. } \zeta$); see Lejeune 1955: 146f.; Rix 1976: 90–93. In Proto-Armenian, the devoicing of the voiced aspirates did not take place, so one should expect three separate series of sound changes for the three series of dentals. In particular, the difference in the development of voiced and voiced aspirated obstruents can be illustrated by the development of PIE $*g$ and $*g^h$ which yielded PArm. $*d' > *d^z > *t^s > \text{Arm. } c$ and $*d^h > *d^zh > *d^z > \text{Arm. } j$ respectively. Similarly, one expects the changes PIE $*d_i > *d^z > \text{Arm. } \check{c}$ next to PIE $*d^h_i > *d^zh > \text{Arm. } \check{c}$ assumed in (2).¹⁸ The suggested phonetic explanation is illustrated by the diagram below.

$*g^{19}$	$*gr^{20}$	$*g_i$	$*g_i$	$*d_i$	
↓	↓	↓	↓	↓	(palatalisation of velars)
$*d'$	$*d'r$	$*d'_i$	$*d_i$	↓	
↓	↓	↓	↓	↓	(depalatalisation before $*r$)
$*d^z$	$*dr$	$*d^z_i$	$*d_i$	$*d_i$	
↓	↓	↓	↓	↓	
$*d^z$	$*dr$	$*d^z$	d^z	d^z	
↓	↓	↓	↓	↓	($*Cr > *rC$; consonant shift)
c	rt	\check{c}	\check{c}	\check{c}	

Morphological solutions that rely on sound changes in (2) will consequently be counted as probable, while those based on the sound changes in (3) will be considered doubtful.

¹⁸ According to Kortlandt (2016: 118), the inherited PIE contrast between the voiceless, glottalic and voiced obstruents was retained in early Proto-Armenian. This phonetic specification does not seem to preclude that the latter series of obstruents could yield, when followed by $*s$, affricates of different place of articulation than the former two series.

¹⁹ Cf. Kümmel 2007: 371f. with an outline of a similar evolution of the three series of palatovelars in Phrygian with references.

²⁰ Cf. PIE $*h_2egros$ 'field' > Arm. *art* 'field'. This change does not concern the alternation of c/t in the root auslaut of *bucanem* 'feed' and *but* 'food', cf. § 2.5.1-2.10. De Lamberterie (1982a: 62–64) argued that PIE $*g$ and $*g^h$ changed to Arm. t and d after $*r$, based on *art* and Arm. $(-)\textit{berj}$ 'high' next to *berd* 'fortress'. While $(-)\textit{berj}$ faithfully continues PIE $*b^herg^h-$, *berd* may be a Semitic loanword, cf. Syr. *bīrtā*, Akk. *birtu* 'palace, citadel, fortress' (see EDAIL: 176).

As we turn to *Cs-clusters, the only clear example for the development of such clusters is PIE **sueks* ‘six’ > Arm. *vec*’ (Beekes 2003: 201).²¹ No evidence is available for **ǵs* and **ǵʰs*. The outcome of PIE **ks* allows for two logical possibilities of analysis.

Firstly, the palatals could be devoiced and deaspirated in front of **s* yielding a unified Proto-Armenian reflex **c*, whence Arm. *c*’ (4a). Cf. the devoicing of all velars in front of **s* in Greek and Sanskrit (Lejeune 1955: 99–101; Rix 1976: 94f.). The devoicing cannot be of PIE date since it would block Bartholomae’s law, cf. *RV* 3 sg. mid. aor. *gdha* ‘swallowed’ < **gzdʰa* (Bartholomae’s law) < **ǵʰs-ta* (Sihler 1995: 201, 204), unless one assumes an analogical restoration of voiced obstruents in Indo-Iranian before the operation of Bartholomae’s law. One might also assume that the devoicing took place at the common source of the Greek and Armenian branches.

Secondly, one can assume a set of sound changes represented in (4b). Verbal stems apart, the evidence in support of these changes is virtually non-existent. It seems to be supported by Arm. *merj* ‘near’ < PArm. **meǰʰri* < PIE **me-ǵʰsri* ‘at hand’ (Beekes 2003: 207; *EDG*: 940f.; cf. fn. 20). Yet, one may be dealing here with a simplification of the three-consonant cluster in dial. PIE common for Greek and Armenian yielding **me-ǵʰ(s)ri* as an immediate protoform of Gk. *μέχρι* and Arm. *merj*.

The choice between (4a) and (4b) entirely depends on one’s view on devoicing of obstruents before **s* in other **Cs*-clusters and on the morphological arguments considered in Chapter 2. Given that devoicing is unlikely in the case of **Cs*-clusters with dentals (see below), the set of sound changes in (4b) must be considered preferable.

²¹ Although the etymology is commonly accepted, it contains an enigmatic change **sue-* > *ve-* (*EDAIL*: 594). The expected outcome of PIE **sue-* is Arm. *k’e-*, and that of PIE **ue-* is Arm. *ge-* (the latter sound change hinders the derivation of the Old Armenian numeral from a protoform without an initial **s*-). Lubotsky (2000) demonstrated that the word for ‘six’ must be reconstructed as PIIr. **šuećš* with the assimilation of **s...š* to **š...š* at least in the Proto-Indo-Iranian stage. The question arises whether a comparable phenomenon could take place in early Proto-Armenian. If one starts from dial. PIE **sueks-dkmt* ‘sixteen’ one may assume that a dissimilation of **k...k* to **k...k* took place yielding **sueks-dkmt* (as opposed to the change PIE **ksd* > PArm. **kšd* > **(s)št* > *št* suggested in Beekes 2003: 201) > **suekš-dkmt* (see *EDAIL*: 709f. on the vestiges of the RUKI-rule in Proto-Armenian), whence **suekš-dkmt* with **s...š* > **š...š* as in (or together with) Indo-Iranian, and, with the subsequent dissimilatory loss of the initial **š-* and the loss of **k* in front of a cluster, one arrives at PArm. **ueš-dasam(t)* > Arm. *veštasan* ‘sixteen’. After the sound change **suV-* > **kV-* (*k’V-*) took place and PIE **sueks* turned to PArm. **kec*, the initial consonant was adjusted to that of PArm. **ueš-dasam(t)*.

Another possibility consists in assuming a Lindeman variant **su(w)ekš* with the loss of **w* after **u*, cf. Arm. *aluēs* from PArm. **aluwis-* < **h₂lōpēk-*, cf. Gk. *άλώπηξ* ‘fox’ (Beekes 2003: 165).

- | | |
|---|--|
| (4a) PIE $*k_s > \text{Arm. } c'$
PIE $*g_s > \text{Arm. } *c'$
PIE $*g^h_s > \text{Arm. } *c'$ | (4b) PIE $*k_s > \text{Arm. } c'$
PIE $*g_s > \text{Arm. } *c'$
PIE $*g^h_s > \text{Arm. } *j/z$ |
|---|--|

In what follows, morphological solutions that rely on the sound changes in (4b) will be considered possible, whereas those that depend on (4a) will be counted as doubtful.

There is no proof that the PIE clusters $*k^{(w)}s$, $*g^{(w)}s$, and $*g^{(w)h}s$ developed in the same way as their respective clusters with palatals. Yet, some scholars have found it possible to operate with the set of sound changes in (5a); see Beekes 2003: 201. Moreover, Beekes assumed the palatalisation of $*k^{(w)}s$ to \check{s} in front of $*e$, $*i$, seen in Arm. *gišer* ‘evening’ < PArm. **uek^wseros*, with the loss of $*p$ in a three-consonant cluster, from PIE **uek^wsperos* (Gk. ἔσπερος, Lat. *vesper*, Lith. *vākaras*, OCS *večerz* ‘evening’; cf. Meillet 1898 = 1977: 45f.; Hamp 1966: 13–15; Beekes 2004; 2003: 201; *EDG*: 470f.).

And yet, an example of a plain voiceless velar + $*s$ yielding \check{c}' is provided by Arm. $\check{c}'or$ ‘dry’, $\check{c}'ir$ ‘dried fruit’ next to Gk. ξηρός ‘dry’ and ξερών ‘dry land’ from PIE **ksero-* (Pedersen 1905: 209; *EDAIL*: 546, 709f.; see also *EDG*: 1035 on the Greek word with no mention of the Old Armenian words; the etymology is not mentioned for the Old Armenian words in Beekes 2003). It seems plausible that PIE $*ks$ yielded $*k\check{s}$ following the RUKI-rule, and that the following chain of sound changes can be reconstructed (as a parallel to $*k_s > c'$): $*ks > *k\check{s} > *t\check{s} > \check{c}'$. This sound change is supported by the analysis of *veštasan* ‘sixteen’ mentioned in fn. 21. The only thing that remains obscure is the loss of a velar in *gišer* (instead of $^xgi\check{c}'er$ predicted by the sound change $*k^{(w)}s > \check{c}'$).²²

Given that $*s > *š$ took place only after voiceless velars according to the RUKI-rule, one could assume that the rise of *alveolar* affricates did not occur when $*s$ followed $*g^{(w)}$ and $*g^{(w)h}$, and thus reconstruct a series of sound changes in (5b). PArm. $*g^{(w)}s$ would either change to $*dz > c$ or get devoiced in front of $*s$ and undergo the RUKI-rule yielding \check{c}' , as in (5c); the same reasoning applies to $*g^{(w)h}s$.

- | | | |
|--|---|---|
| (5a) PIE $*k^{(w)}s > \text{Arm. } *c'$
PIE $*g^{(w)}s > \text{Arm. } *c$
PIE $*g^{(w)h}s > \text{Arm. } *j$ | (5b) PIE $*k^{(w)}s > \text{Arm. } \check{c}'$
PIE $*g^{(w)}s > \text{Arm. } *c$
PIE $*g^{(w)h}s > \text{Arm. } *j$ | (5c) PIE $*k^{(w)}s > \text{Arm. } \check{c}'$
PIE $*g^{(w)}s > \text{Arm. } *c'$
PIE $*g^{(w)h}s > \text{Arm. } *c'$ |
|--|---|---|

Morphological solutions that rely on the sound changes in (5b) and (5c) will consequently be given preference, whereas the sound changes in (5a) will be left out of consideration. Note, in particular, that one need not assume the palatalisation of $*g^w$ in *awcan-e/i-m* within the sound changes listed in (5b).

²² Martirosyan (*EDAIL*: 709f.) argued that PIE $*ks-$ > Arm. \check{c}' operated only in the word-initial position with PIE $*-ks-$ > Arm. $-\check{s}$ in the word middle-position as part of the RUKI-rule against the sound changes in (5a), (5b), and (5c); cf. Arm. *uši* ‘storax-tree’ next to Gk. ὀξύα ‘beech’.

In the case of *Cs-clusters with dentals, one can assume the devoicing of dentals in front of *s with PArm. *c > Arm. c' (6a)²³ or reconstruct the sound changes in (6b).

- | | |
|----------------------------------|---------------------------------|
| (6a) PIE *ts > Arm. *c' | (6b) PIE *ts > Arm. *c' |
| PIE *ds > Arm. *c' | PIE *ds > Arm. *c |
| PIE *d ^h s > Arm. *c' | PIE *d ^h s > Arm. *j |

According to Pedersen (1906: 429), one must distinguish between two layers of *Cs clusters within the Proto-Armenian period with distinct outcomes in Old Armenian. The first layer resulted in the following changes: 1) PIE palatals and dentals + *s merged to PArm. *c (whence Arm. c') according to sound changes listed in (4a) and (6a); PIE velars + *s merged to PArm. *č (whence Arm. č') according to sound changes in (5c). These sound changes were supported by the etymology of Arm. č'or 'dry' discussed above.

The second layer of *Cs clusters, conditioned by the inner-Armenian spread of the PFV *s-suffix over the inherited root stems, yielded the following outcomes: PArm. *t-s, *k^(w)-s, *k'-s > Arm. c'; PArm. *d-s, *g^(w)-s, *g'-s > Arm. c; PArm. *d^h-s, *g^{(w)h}-s, *g^h-s > Arm. z (j after l and r) in compliance with the sound changes in (4b), (5a), and (6b). Pedersen's solution with its two layers of *Cs-clusters, was accepted by Kortlandt (most explicitly in 1994 = 2003: 105f.; see also 1987 = 2003: 80–82; 1995 = 2003: 107–109; 1996a = 2003: 110–119) and Viredaz 2018: 202. Currently, Kortlandt (*p. c.*) prefers the solution based on one layer of *Cs-clusters that developed for dentals according to the sound changes in (6b).²⁴

Pedersen's view on two layers of *Cs-clusters is difficult to maintain primarily because it requires the premise that a substantial amount of PFV *s-stems was retained after the rise of root-final affricates from the first layer of *Cs-clusters. However, independent evidence on the PFV *s-stem productivity after the loss of *s in clusters will probably never be found.

Within an alternative view, a specific outcome is postulated for each cluster as represented in (6b); see Pedersen's own earlier account (1905: 206). Verbal stems aside, only very uncertain evidence can be offered in support of PIE *ds > Arm. c and PIE *d^hs > Arm. j. Perhaps, the best one can find is *anic* 'nit, louse egg' < PIE *knids (cf. Gk. κονίς, -ίδος 'id.', etc.). The precise reconstruction of this word is a matter of dispute (see a detailed discussion in *EDAIL*: 87). The comparison of Gk. κονίς (*koníd-s) to Alb. thëri (*kōnidā) allows to reconstruct the dial. PIE nom. *kōnid-s (Kortlandt 1986 = 2003: 69). The expected Old Armenian outcome must have been ^xsanic. In order to arrive at *anic*, one has to start

²³ Cf. the devoicing of dentals in front of *s in Greek and Sanskrit.

²⁴ In particular, Kortlandt rejects his earlier opinion (1994 = 2003: 105f.) that PIE *ds, *d^hs, *gs, *g^hs merged into PArm. *c (Arm. c') and that, in verbal stems, PArm. *c was "disambiguated on the basis of the root-final obstruent which was found elsewhere in the paradigm, so that we end up with -c', -c-, -z-, (-j-) reflecting *-ts-, *-ds-, *-dhs-."

with the root shape **kníd-s*, as if levelled from the oblique case stem of the same word **kníd-*, attested e.g. in OE *hnitu*. But the sound change PIE **kn-* > Arm. *an-* is unsupported. An assumption that at the time of the split of the Greek and Armenian branches, the word, with its unusual root structure, had the ablaut nom. **konid-s*, gen. **knid-os* may be doubted as well (cf. Gk. gen. *κονίδος*). It is not impossible that *anic* and *κονίς* were indirectly borrowed from a common source (cf. Beekes 1969: 290).

Even less secure are such pairs as *xawarci* ‘tendril, offshoot’ / *xawart* ‘vegetables; greens’ and *xaycem* ‘ripen (of grapes)’ / *xayt* ‘spotted’ (Pedersen 1905: 206). It should be noted however that neither *xawarci* nor *xawart* are attested in the securely dated early classical texts (according to *NBHL* 1: 935, the former is attested in Movsēs Xorenac’i, Basil of Caesarea, John Chrysostom, while the latter is attested in Movsēs Xorenac’i, Cyril of Jerusalem, Evagrius of Pontus, *Paterica*). This pair has no good etymology and is unreliable (see *EDAIL*: 125). Nothing speaks in favour of the reconstruction of an **s*-stem in *xaycem*, as opposed to a **ie/o*-stem, even if the word is inherited. The pair of *xaycem* and *xayt* does not seem to be cognate at all. The former verb is found in the Biblical context referring to ripening grapes (*Amos* 9, 13), while the latter is found as the compound *xayt-axariw* ‘spotted’ referring to cattle in the Bible (e.g. *Gen.* 31, 12). Neither has an established etymology (see Olsen 1999: 963 on *xayt*).

I conclude that neither (6a) nor (6b) is supported by solid evidence. However, an apparent advantage of the sound changes in (6b) is that they allow to explain the verbal stems in dental affricates where a **Cj*-cluster would yield an alveolar affricate with sound changes in (2). The phonetic development is illustrated by a diagram below.

<i>*ǵ</i>	<i>*ǵs</i>	<i>*gs</i>	<i>*ks</i>	<i>*sk</i>	<i>*ds</i>	
↓	↓	↓	↓	↓	↓	(RUKI-rule)
<i>*ǵ</i>	<i>*ǵz</i>	<i>*gz</i>	<i>*kš</i>	<i>*ks</i>	<i>*dz</i>	
↓	↓	↓	↓	↓	↓	(palatalisation of velars)
<i>*dʲ</i>	<i>*dʲz</i>	<i>*dz</i>	<i>*tš</i>	<i>*ts</i>	<i>*dz</i>	
↓	↓	↓	↓	↓	↓	
<i>*dʲ</i>	<i>*dʲz</i>	<i>*dz</i>	<i>tš</i>	<i>*ts</i>	<i>dz</i>	
↓	↓	↓	↓	↓	↓	(consonant shift)
<i>c</i>	<i>c</i>	<i>c</i>	<i>č</i>	<i>c</i>	<i>c</i>	

Within the aforementioned analysis, **ǵʰ*, **ǵʰs*, and **dʰs* must have merged in a Proto-Armenian affricate **dzʰ*, which yielded **dz* after the consonant shift. Of these sound changes, only PIE **ǵʰ* > Arm. *z* relies on secure evidence, cf. Arm. *ezr* ‘edge’ < PIE **h₁eǵʰer-* ‘edge (of water); lake’, Arm. *ozni* ‘hedgehog’ < PIE **h₁oǵʰi-*, etc. (Clackson 1994: 107; Schmitt 2007: 62).

Morphological solutions that rely on the sound changes in (6b) will consequently be given preference and considered possible, while those in (6a) will be counted as doubtful.

§ 1.4.3. Intervocalic reflexes of PIE **dʰ*

The outcome of PIE **VdʰV* is puzzling. Unlike the case of PIE **VǵʰV* > Arm. *VzV*, one cannot reconstruct the dental affricate **dz* as an intermediate stage in the intervocalic development of PIE **dʰ*, since the non-conditioned outcome of PIE **dʰ* is Arm. *d*, cf. PIE **dʰur-* > Arm. *durk* ‘doors’. In view of the intervocalic lenition of PIE **VbʰV* > PArm. **-VbV-* (consonant shift) > Arm. *VwV*, one may assume that the voiced dental also underwent lenition in the intervocalic position. The question arises what would the result of such lenition be. Some scholars expect *VzV* (e.g. Normier 1980: 19; Olsen 1999: 782), while others expect *VrV* with the *Paradebeispiel* Arm. *gerem* ‘enslave’ from PIE **(H)uedʰ-* ‘lead away’ (Praust 2005; Martzloff 2016). But *gerem* can be alternatively compared to Skt. *hárati* ‘take’ from PIE **ǵʰer-* (Martzloff 2016: 127 with hesitation) or Gk. *αίρω* ‘bind’ from PIE **h₂uer-* ‘bind’ (Olsen 1999: 439; *EDAIL*: 210).²⁵ Both options will be taken into account as possible. If one accepts PIE **VdʰV* > Arm. *VrV*, Arm. *VzV* can only go back to **VdʰsV* with PIE roots in a dental. Altogether, no decisive evidence is available to justify such a distribution. Both options will be considered possible in the analysis of the relevant nasal verbs.

§ 1.4.4. Reflexes of PIE **ln* and **rn*

The change PIE **ln* > Arm. *t* was first proposed by Pedersen (1906: 354f.) in order to explain *hetum* and *t’otum* (see Meillet 1936: 48; Clackson 1994: 219, fn. 27; Klingenschmitt 1982: 242; *EDAIL*: 722 with further references). Meillet suggested the following chain of phonetic developments: PIE **-ln-* > PArm. **-tn-* (as part of the general change **-lC-* > **-tC-*) > PArm. **-tt-* (assimilation) > Arm. *-t-*. It should be noted, however, that *t* occurs in the intervocalic position without any relation to a nasal (e.g. Arm. *atawni* ‘pigeon’ < PArm. **(h)alawn-* or **(h)atawn-* < PIE **plh₂bh-n-*), and Old Armenian has non-nasal verbs of the *a-* and *u-* conjugations. Thus, the nasal suffix can be postulated for *atam* ‘grind’, *hetum* ‘pour out’, and *t’otum* ‘let’ only on etymological grounds.

Arm. *atam* can be derived from PIE **h₂leh₁-* or **h₂elh₁-* tr. ‘grind’ (Gk. *ἀλέω*, Khot. *ārr-* ‘grind’; see Klingenschmitt 1982: 93; *EWAia* 1: 108; *LIV*²: 277; Cheung 2007: 166; *EDAIL*: 26f.

²⁵ Note that no weakening occurred in Arm. *awd* ‘footwear’, from PIE **h₂eu-dʰo-s* (Av. *aoθra-* ‘footwear’, parallel to Gk. *ἔσθος* ‘clothing’ from PIE **ues-dʰo-s*). It can be explained by the difference in the development of the Proto-Armenian diphthongs **eu* and **ou* (whence Arm. *oy/u*), as opposed to **aw* (whence Arm. *aw*). Since **aw* had not monophthongised in Proto-Armenian, it did not provide the conditions for the weakening of the occlusion.

with references).²⁶ The following possibilities can explain *ata-*: 1) the IPFV root stem **h₂elh₁-* (on the assumption that **h₁* vocalised to **a*, and the antevocalic **h₂-* need not result in Arm. *h-*) or **h₂lh₁-* (given that every PIE **CRHC* yielded Arm. *CaRaC*, and that the zero-grade was generalised from the active plural part of the paradigm throughout the paradigm); 2) an IPFV infixed stem **h₂l-n(e)-h₁-* (cf. Meillet 1924 = 1977: 212–214); 3) an IPFV **ie/o*-stem **h₂lh₁-ie-* (given the vocalisation of **h₁* in that environment, see Normier 1980: 20; Barton 1990–1991: 45, fn. 58); 4) a sigmatic PFV stem PIE **h₂elh₁-s-* (Gk. aor. ἄλεσσας) > **at-*, which was secondarily introduced to the *a*-conjugation (cf. Kortlandt 1995 = 2003: 107–109).

Only (2) has external etymological support in Ir. **arnā-* (Khot. *ārr-* and Pashto *aṇəl*; see Bailey 1979: 22). Unlike the Iranian words, Arm. *ata-* cannot continue the full grade of the infixed stem: PIE **h₂l-ne-h₁-* would yield Arm. *^xati-* (had **ln* > *t* operated). In the plural, 3 pl. **h₂l-n-h₁-enti* would yield **alanin*. Thus, as noticed by Klingenschmitt (1982: 93), PArm. **al-nā-* could only be expected in 1pl. **h₂lnh₁-me-* and 2pl. **h₂lnh₁-te-* given that **h₁* vocalised to **a* in that position and **n* did not vocalise. Even here, the expected vocalisation is controversial, cf. *haraw* ‘south’ from PIE **prHuo-* (Skt. *pūrva-* ‘eastern’) with **CRHC* yielding Arm. *aRa*; thus, PIE **h₂lnh₁-me-* might yield Arm. *^xalana-*. Therefore, it is difficult to tell which form of the paradigm could serve as the source for *t*. As the last resort, one can think of a secondary PArm. **al-nā-* that would replace the archaic IPFV athematic root stem (Lindeman 1982: 40).

Arm. *hetum* can be derived from **pelh₁-u-* or **pelh₁-nu-* depending on the acceptance of the sound change PIE **ln* > Arm. *t*. There is no comparative evidence for the PIE nasal stem **pelh₁-nu-* (cf. Meillet 1915 = 1977: 162–164; *EDAIL*: 402f. with further references). Unless independent support is found in favour of the sound change, it is more economical to reconstruct **pelh₁-u-*. In this particular case, the *-t-* may be explained by aor. *het-* from **pelh₁-s-*, or from 3 sg. act. **pelh₁-et* > **het* (with the word-final hardening of **l* in the 3 sg. form). Without external comparative support, the choice between morphological reconstructions must depend on the economy of the sound changes.

Arm. *t’otum* and its inner-Armenian cognate adj. *t’oyl* (*t’oyt*) ‘weak, soft’ point to the inherited root *o*-grade. There is no evidence for the Proto-Armenian derivational model, characterised by the root *o*-grade and **n(e)u*-suffix.²⁷ The IPFV stem may be derived from

²⁶ The place of the root vowel is not clear: **h₂leh₁-* in *LIV*² and, hesitantly, Clackson 1994: 92; against **h₂elh₁-* in *EDG* and **HalH-* in Cheung 2007.

²⁷ It should be noted that *t’ot(an)am*, aor. *t’otac’ay* (Bible+) is not derived from *t’oyl*, unlike *t’ulanam* (Bible) and its caus. *t’ulac’uc’anem* (Bible; Philo 1892: 183); *t’ot(an)am* is best explained as a blend of *t’ulanam* and *t’otum* (de Lamberterie 1978: 266). Inf. *t’otanin* (Cyril of Alexandria,

**tot-u-* or **tot-nu-* (< **tol-nu-*). The root final *t* may be explained by a relatively recent word-final hardening of **l* in the frequent adverbialised imperative form *t'ot* 'let alone, besides', or by the influence of adj. *t'oyt* found in the oldest manuscripts (cf. Meillet 1896 = 1977: 29, against Meillet 1936: 48; de Lamberterie 1978: 268). The root etymology is disputed. While some scholars derive it from PIE **telh₂-* 'rise; support' (Klingenschmitt 1982: 243f.; Olsen 1999: 205; LIV²: 622f.)²⁸ others reject this connection on semantic grounds and leave the verb without an etymology (de Lamberterie 1978: 266–269).

Much of the discussion of the aforementioned etymologies concerns the question of the distribution of *-l-* and *-t-* in the intervocalic position; cf. *atawni* 'pigeon' against *aliwr* 'flour', *teli* 'elm' against *ul* 'kid', etc. (cf. Ravnæs 1991: 90–93 and de Lamberterie 2005: 352 with further references). The distribution between *-l-* and *-t-* has been explained by a phonotactic rule that favoured the rise of the palatalised *l* next to front vowels and the velar *t* in other environments. A rather recent age of that phenomenon may be assumed on the evidence of Greek loanwords that often have such a distribution, cf. Arm. *balistr* 'catapult' and Arm. *delp'in* 'dolphin', although this may reflect the phonetics of Ancient Greek and not that of Old Armenian (Clackson 1994: 94f.). De Lamberterie (2005: 352) noticed that monosyllables with the root vocalism *-e-* tended to generalise *t* in the word final position, cf. *get* 'beauty', *met* 'sin', *tel* 'place', etc. In fact, most of these words had *o-* and *a-* stems, which requires further investigation on whether the [\pm front] feature of the following vowel played any role in the distribution of *-l-* and *-t-*.

Arm. *yli*, *ea*-stem 'pregnant' is often cited as proof of **ln-* > *-t-*. Meillet (1936: 48) suggested to derive Arm. *yli* 'pregnant' from PIE **i-polniyā*. Although the root etymology is rather convincing, the nasal suffix is not necessary. One can easily explain *-t-* by the adjacent *-y-*, cf. *gayt* 'wolf', *nšoyt* 'ray' (see Godel 1975: 10).²⁹

Arm. *k'atem* tr. 'gather (of people), collect (so. from somewhere)' has been compared to *σάλλω* tr. 'mellow (of arable land)' (Herodotus+) and derived from PIE *(*s*)*kl-ne/o-* (EDAIL: 113; Martirosyan 2013: 110, 113). Yet, the meaning of the Greek verb better fits Lith. *skélti* tr. 'split', for which one has to reconstruct the root-final laryngeal in PIE **skelh_{2/3-}* (EDBIL: 402; EDG: 134of.). Moreover, there are certain formal complications. Thus, *σάλλω* can be explained as a thematicised infixed stem **skl-n-H-e/o-*. Even if one assumes

undated, and Nerses Lambronac'i, 12th century apud NBHL 1: 817) is a post-classical replacement of *t'otum* motivated by the PFV root stem.

²⁸ Klingenschmitt assumed that the root *t'ot-* shows the analogical introduction of **o* to **tat-* (from the PIE infixed stem **tl-n-h₂₋*; cf. Lat. *tollere* 'elevate; support', etc.); the source of **o* was either **tolh₂-i-*, the prototype of *t'oyl*, or PIE perfect stem **te-tolh₂₋* (cf. Lat. *tetuli*).

²⁹ Although the prefix of *yli* is a morphological parallel to Lat. *im-pleō* 'fill' (EDAIL: 494), the stem **h₂en-pleh₂₋* cannot be projected onto PIE; the Old Armenian form would be **am(p)li*.

PArm. **kl-n-H-e/o-*, without an initial **s-*, it would yield Arm. *^xlane-* and not *k'ate-* (cf. *linim* 'become' from PIE **klei-n(H)e/o-* on the simplification of the word-initial **Kl-* cluster; see § 2.3.1-1.3). Thus, the lack of the initial **s-*, the unexpected vocalization of two interconsonantal resonants, the problematic sound law Arm. *-t-* < PIE **-ln-* (see § 1.4.4), and, above all, the loose semantic correspondence between the meanings 'collect' and 'mellow' do not allow to accept *k'atem* as a secure evidence of the inherited infixed stem. On the contrary, the Greco-Baltic correspondence agrees in form and meaning with Arm. *c'elum* tr. 'split, tear'.

Insofar as the sound change PIE **rn* > Arm. *rn* / Arm. *r̄* is concerned, there is a difference of opinions on whether the nasal was retained or it was lost (in parallel to the alleged sound change PIE **ln* > Arm. *l*) and then restored, e.g. on the model of *hefjnum* intr. 'choke' and *erdnum* intr., tr. 'swear' (cf. de Lamberterie 2013: 16). Most of the examples are nasal verbs (e.g. *ar̄num* 'take'), which makes the explanation based on the analogy rather appropriate albeit not obligatory. Within the latter possibility, *yerum* 'fasten together' is taken as a result of the nasal loss without restoration (EDAIL: 492f.). But *yerum* may be alternatively derived from **ser-s-* (Gk. εἴρω 'knit together', Lat. *serō* 'string together'), which leaves the sound change PIE **rn* > Arm. *r̄* without actual support. PIE gen. sg. **h₂nrós* 'of man' > Arm. *ar̄n* also proves that the sound change PArm. **rn* > Arm. *rn* took place after the metathesis PIE **-nr-* > PArm. **-rn-*, and that the nasal did not disappear. The restoration of **-n-* was impossible in the genitive given that there were no conditions for the metathesis in the direct cases (PIE nom. sg. **h₂nēr* > PArm. **anir* > Arm. *ayr*).

Pairs like *ar̄num* (see § 2.1.1-1.1) and *kornč'im* 'be lost' from **kori-nč'* (see § 2.6.1-1.2) show that the sound change **rn* > **r̄n* ceased to operate before the weakening of unstressed **i* and **u*. Thus, nom. sg. *garun* 'spring', gen. sg. *garnan* are regular forms. In nom. sg. *gar̄n* 'lamb', gen. sg. *gar̄in*, the root shape analogically levelled on the analogy of the direct cases.

The weakening of **i* and **u* is observable in Parthian loanwords, but not in Sassanian loanwords (Ravnæs 1991: 61f.). It follows that **rn* > **r̄n* ceased to operate during the period when Parthian loanwords entered the Armenian language. This chronology is supported by the fact that early Parthian loanwords did undergo the sound change, cf. Arm. *xar̄nak* 'common, defiled' and *xotornaki* 'contrary' (Olsen 1999: 884f.). According to Dressler 1976: 311, this phonetic process was still going on in the time (or was posterior to) the early borrowings from Ancient Greek, cf. Arm. *pořnik* 'adulterer' from Gk. adj. πορνικός, πορνική 'adulterous'. Olsen (1999: 457) argues that *pořnik* was derived within Armenian by means of the Iranian loan suffix *-ik, -kac'* from the borrowed Gk. πόρνη, πόρνος. Whatever was the age of the Ancient Greek borrowing, that would mean that the sound change **-rn-* > **-r̄n-* was posterior to the weakening of the initial **p-* > **h-* > *ø-* in the word onset.

Section 1.5. Source material

The present study is based on the following principal early Old Armenian texts (see *RADCA*:1–4 and Thomson 1995: 117–121 with an overview of the texts and selected bibliography on their editions, translations, and secondary literature):

- The Bible. The Old Testament is cited after the 1895 Constantinople edition, while the New Testament is cited after Künzle 1982.³⁰ On several occasions, the variant readings are taken into account from the Zohrapian's 1805 Venetian edition (the so-called Zorhab Bible; cf. the facsimile reproduction in 1984, edited by C. Cox, Delmar, NJ: Caravan Books). The *Book of Sirah* and *Epistle of Jeremia* are cited after Bargatuni's 1860 edition (see Hambardzumyan 2016 on the Old Armenian translations). See Anassian 1976, Thomson 1995: 239–249, Nersessian 2001 for details concerning the Bible editions and their manuscript support.

The New American Standard Bible (NASB) has been used for the English translation of the canonical books, while *The New Revised Standard Version* (NRSV) has been used for the Apocryphal books. Whenever the grammatical nuances required a word-by-word translation of the Biblical contexts, an alternative (marked as “NASB” or “NRSV”, respectively) or my own translation (marked as “PK”) is cited.

- Koriwn's *The Life of Mashtots*. 5th century. Source: Koriwn 2003; English translation: Norehad 1981.
- Eznik Kolbac'i's *Against the Sects*. 5th century. Source: Eznik Kolbac'i 2003; English translation: Blanchard & Young 1998.
- Agat'angelos' *The History of Armenia*. 5th century. Source: Agat'angelos 2003; English translation: Thomson 1976 (*The History of Armenia*) and Thomson 2001 (*The Teaching of Saint Gregory*).
- Łazar P'arpec'i. The 5th century. Source: Łazar P'arpec'i 2003; English translation: Thomson 1991.
- Grigor Lusaworič'. 5th century. Source: Grigor Lusaworič' 2003.
- P'awstos Buzand's *Buzandaran*. 5th century. Source: P'awstos Buzand 2003; English translation: Garsoïan 1989.
- Elišē's *The History of Vardan and the Armenian War*. The late 5th – early 6th centuries. Source: Elišē 2003; English translation: Thomson 1982.
- Movsēs Xorenac'i's *The History of the Armenians*. Disputed dating, ranging from the 5th to 9th centuries. (cf. *RADCA*: 7). Source: Movsēs Xorenac'i 2003; English translation: Thomson 2006.

³⁰ Künzle's transliteration is cited with several systematic normalisations: <ow> is rendered as <u>; <e> is rendered as <ē> in *et'ē* and *t'ē* as well as in the imperfect tense endings.

Needless to say, the remaining corpus of the Old Armenian literature and the evidence of later Armenian idioms may contain relevant archaisms. The scope of the present study has allowed to systematically investigate only a selection of texts.

The early Old Armenian translations of the following ecclesiastical authors have been occasionally consulted: Basil of Caesarea (apud *NBHL*), Cyril of Jerusalem (apud *NBHL*), Ephrem (2001), Eusebius Pamphilius (1877), Hesychius of Jerusalem (1983), Gregory Nazianzenus (apud *NBHL*), Severian of Gabala (1827) as well as the later Hellenising translations of Philo (1826, 1892), Iraeneus (1910), and *The Book of Chries* (1865). References to translations are given in text.

The selection of nasal verbs, attested in the specified early Old Armenian texts, is based on *A Reverse Analytical Dictionary of Old Armenian* by P. Jungmann, J. J. S. Weitenberg (*RADCA*). Firstly, complete lists of nasal verbs with different nasal suffixes, indicated in *RADCA*, were restricted with regard to the selected corpus of texts. Then, the attestations were controlled according to the aforementioned critical editions. In some cases, the nasal verbs or their imperfective nasal stems proved to be non-existent in the indicated texts.

The description of the semantics of the selected verbal vocabulary owes a lot to the traditional lexicographic sources taken into account in *The Leiden Armenian Lexical Textbase* (*LALT*, edited by J. J. S. Weitenberg), including *The New Dictionary Armenian—English* by M. Bedrossian (first published in 1879), *Nor baḡirk' haykazean lezui* (*NBHL*; first published in 1836), and *Hayerēn armatakan baḡaran* by Hṛ. Ačāryan (*HAB*; first published in 1926–1935). The general issue of these dictionaries is that they are not restrictive to the early classical period of Old Armenian. That shortcoming has been overcome in two ways: firstly, by using complete lexicons of specific Old Armenian texts (Künzle 1982, 2 for the Gospels and Zeilfelder 2004 for Eznik Koḡbac'i's *Against the Sects*), and, secondly, by providing contextual meanings for nasal verbs with a few attestations in the selected corpus of texts. Given that most of the frequently used nasal verbs are attested in the Gospels and Eznik Koḡbac'i, it has been possible to control the meanings of the infrequent verbs outside these two sources manually.

All of the attested nasal verbs, except denominal *a*-verbs and morphological causatives, are illustrated by their contextual uses. Only significance of such illustrations decreases with the increase of frequency of a verb in the examined corpus. In the case of the frequently used and polysemous verbs, no attempt was made to illustrate specific lexical meanings and the preference was given to the most generic meanings.

