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Towards An Electronic Analysis of Svan Dialectal Divergences

1. In comparison with the other Kartvelian languages, the most striking feature of Svan consists not in the abundance of formal categories characteristic for its verbal paradigms, but in the diversity of its dialects which has to be considered as the result of a long-lasting historical process of disintegration of a formerly homogeneous proto-language. Although we are still far from being able to establish the features of Proto-Svan in all details, we dispose of a large set of historical developments that can be held responsible for the divergences met with in today’s dialects, viz. processes such as apocopy, syncopy, vowel assimilations ("umlaut"), consonant assimilations, and metatheses, the conditions and effects of which were studied in detail by A. ŠANIȚE, V. TOPURIA, M. KALDANI, A. ONIANI and other scholars.

1.1. A few examples from verbal morphology may suffice to show in which way the processes in question took effect in the development of the four main dialects of Svan:

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<tbody>
<tr>
<td>he began</td>
<td>änbine</td>
<td>änbine</td>
<td>enbine</td>
<td>änbine</td>
<td>*an-i-bin-e-</td>
<td>Ú, S</td>
</tr>
<tr>
<td>he prepared us</td>
<td>ogwmäre</td>
<td>ogmare</td>
<td>ogmäre</td>
<td>agwamare</td>
<td>*an-gw-a-mär-e-</td>
<td>(U,) L, S</td>
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<tr>
<td>I annoyed him</td>
<td>otorm</td>
<td>otorm</td>
<td>otorm</td>
<td>aturm</td>
<td>*ad-x=w=0-rm-</td>
<td>(U,) C, A</td>
</tr>
<tr>
<td>I burnt myself</td>
<td>ätwšixän</td>
<td>otšixen</td>
<td>otšixen</td>
<td>ätwšixen</td>
<td>*ad-xw-i-sixen-</td>
<td>Ü/U, C, S, A</td>
</tr>
<tr>
<td>he is going</td>
<td>esgri</td>
<td>esgri</td>
<td>esgri</td>
<td>asxri</td>
<td>*es-gär-i-</td>
<td>S, (C, Ā)</td>
</tr>
<tr>
<td>we are going</td>
<td>elgrid</td>
<td>elgrid</td>
<td>elggrid</td>
<td>asxrid</td>
<td>*es-l-gär-i-d-</td>
<td>S, L/M, (Ā)</td>
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1.2. Considering the diversity thus illustrated, two questions arise immediately, viz. to what extent can the relationship between the present dialects be regarded as regular, and how can the divergences be accounted for in a historical perspective both with respect to the relative chronology of the changes that are involved in the emergence of the individual Svan dialects and with respect to the relationship of Svan with the other Kartvelian languages?

2. The "shewa" phoneme ọ (ridden), which appears in all Svan dialects, is a good example to illustrate the problems indicated above.

2.1. It is well known that for the Svan ọ vowel, several historical sources have to be assumed, which may still manifest themselves in innerparadigmatic alternations with other vowels. Such an alternation is, e.g., met with in the case of the Svan verb meaning "to look, check, regard, consider", the infinitive (masdar) of which is given as lisin’ząni besides

1 In this treatise, the following dialects will be considered: Upper Svan: Upper Bal (UBal.), Lower Bal (LBal.); Lower Svan: Lāšx (Lšx.), Lentex (Lenıt.); the question whether it is necessary to presume a fifth dialect is open to discussion. Symbols used for historical processes: Ù = palatal umlaut, U = labial umlaut, Ā = "back umlaut", S = syncopy, A = apocopy; M = consonant metathesis, C = consonant assimilation, L = consonant loss.

— Unless otherwise indicated, the following examples are taken from V. TOPURIA’s treatment of the Svan verb (Svanuri ena, I: Zmna; = Šromebi, I, Tbilisi 1967; herafter: VT).

lisonžawi for UBal. In the prose texts of this dialect published in the 1978 chrestomathy, we find the finite form evadsinžwi "he looks down" (83,16) and the derivative lasınžawte "to the look-out" (169,24) side by side, the former showing -i- instead of -a-. In the LBal. texts of the same collection, only forms with -a- are met with, viz. atsanžawex "they looked at it" (233,13), asınžawi "he is looking" (225,13), and lasınžawid "to the look-out" (203,7). In the Lenti. texts of SC, however, only forms with -i- seem to occur; cf. atasınžawi "he is looking at it" (295,37), adasinžavex "they looked" (311,33), and lasınžawid "to the look-out" (369,6). Yet another picture is provided by the Lâsh dialect where a long i appears in all forms; cp. ēav otsínžaw / ē'otsínžaw "I looked down at it" (252,32/33; similarly otsínžaw 256,21: 23; 262,22), lamsínžwe "he looked at me" (254,17), laxsinžwe "he looked at them" (288,21; 289,34), losínžaw "I looked at it" (255,37; 256,6) evadsinžwe "he looked down" (258,9), ēu .. ogsínžwxw "they are looking at us" (260,43), and lasínžawte "to the look-out" (252,33).

2.1.1. Considering the presumable prehistory of the word-forms in question, we first have to state that Svan -silnžaw- must be a borrowing of the Georgian verb (ga-, da-, mo-)sinžva "to check, to control, to try", which was borrowed from Persian sanj-idan, sinj-idan "to weigh, to consider" itself. To be more precise, the source of the Svan verb must have been the Georgian present stem, -sinž-av-, since -av- is a present stem suffix of Georgian only. Within Svan, this suffix was reintepreted as an integral part of a pseudo-root -sinž- and was thus extended to the whole paradigm; furthermore, the verb received the neutral version vowel, -a-, which is usual with secondary (derived or borrowed) verbs in Svan. A similar case is the Svan pseudo-root -xatav- ("to paint, draw") which reflects the Georgian present stem -xat-av-.

2.1.2. On this basis we may propose that the vowel alternation of UBal. might be a secondary effect of syncopy. Let us first consider the finite form, ēv-adsinžwi, in which syncopy affected the two "even" syllables of the underlying form, i.e., the syllable represented by the version vowel and the second "root" syllable, -žaw-, while the first "root" syllable (being in an "odd" position) remained unaltered (< *ēu + ad-a-sinžav-i-8>). In contrast to this, we should expect syncopy to have affected the first "root syllable" in the derivative, lasınžaw-te (< *la-sinžaw-i-te), as well as the masdar form, lisınžawi (< *li-sinžaw-i-). The a vowel we do find in this position might then be due to a process of resyllabification, the expected forms, lā-sinžaw- and lī-sinžaw-i, implying a phonotactically impossible consonant cluster, -sn져-. The shewa vowel must in this case be regarded as anaptyctical, not as the immediate reflex of a reduction -i- > -a-; the condition of its appearance must have been the given

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3 Thus according to the Svan-English Dictionary, compiled by Ch. Gudjedjiiani and L. Palmaítis, edited, with a Preface and Index by B.G. Hewitt, Delmar / N.Y. 1985 (hereafter: GP), 167 / 169; the meaning "to taste smith." given there hardly agrees with the use of the word in the text passages quoted below. The UBal. word list compiled by M. Zavadski in cooperation with Iv. Nizaraże (in: SMOMPK 10/1, 1890, LII-LXXIV; hereafter: MZ) contains but the form lisınžavi (lǐcvinžavi), with the meaning "посмотреть, узнать" (LVXIV). In the glossary which accompanies the Svan texts published in SMOMPK 10/2 (196-241); hereafter: ING), Iv. Nizaraże mentions lisınžavi (lǐcvinžavi) as the infinitive of loxisínžav (łɔxɔcɪⁿžaw) with the meaning "я позереть". In the same author’s Russian-Svan dictionary (Russko-svanskij slovar’, in: SMOMPK 41, 1919; hereafter: INR), the infinitive form lisınžavi is given as an equivalent of "попробовать".

4 Svanuri enis krestomatia. Tekšebi šerbesi A. Şanžẹm, M. Kaldanma da Z. Ćumbrjẹm A. Şanžẹza da M. Kaldanis redaktei, Tbilisi 1978 (Čveli kartuli enis katedris šromebi, 21); hereafter: SC.

5 Cf. V. Topuria, IKE 1, 1946, 84: "ლოხქანზა — ღო-ლოხქანზა "ღაშღექი".", Note that gasinžwa was first given as the equivalent of lisınžavi (and попробовать) in Nizaraje’s dictionary (INR, 323).


7 This and other examples were dealt with by V. Topuria (VT, 72).

8 Here and in the following examples, vowels in syncoposy position are underlined. — It must be kept in mind that the four separable (or secondary) preverbs, ēu- "down", ēji- "up", sga- "in(to)", and ka- "out, away" do not count when the syncopy rule has to be applied; this means that they were not integrated in the verbal body at the time when the process of syncopy emerged.
constellation of consonants which emerged by syncopy, with a nasal standing between (at least) two other consonants. By extending it to liquids, this rule can be held responsible for all the cases of "reduction of (u →) i and a) in words of two and more syllables" as compiled by V. Topuria, viz. UBal. lä-mercei (vs. mercē), li-šoldānī (vs. šeldā), li-čäng-i (vs. čäng), li-honćw-i (vs. hāncw); In all these cases, ā appears in a second syllable that must have been syncopated first (*la-mercei > 1la-marčel > lā-marčel etc.), and there is no need to refer to the emergence of -ā in Abkhaz borrowings from Georgian such as a-mezz "reason, cause" < mizez-i as Topuria did.

2.1.3. The rule of "shewa anaptyxis" thus established seems to be restricted to UBal., however. We need not discuss the Lent. case here because in this dialect, syncopy never applied so that -sinĎ- remained unaltered in all environments; cf. esp. lāsinĎāwīd "to the look-out" < *la-sinĎaw-i-d (SC 336,9). As against this, LŠx. -sinĎ- and LBal. -snĎ- require different explanations. As to the Lāšx case, it seems as if the long vowel was here introduced just to avoid the effects of syncopy, given the rule that long vowels were not affectable by any type of reduction. In the present example, this might well have been due to a steady influence of Georgian, i.e., -sinĎaw- was continuously "restituted" by Georgian -sinĎav-. The case of LBal. is more difficult to account for. If it is true that in this dialect, the first "root" vowel is ā both in "syncopated" position (asnĎāwī < *a-sinĎaw-i, lasnĎāwīd < *la-sinĎaw-i-d) and in "unsyncopated" position (atsnĎawex < ad-x=a-sinĎaw-e-x)11, we might propose that in LBal., a secondary levelling might have taken place after the effects of syncopy and anaptyxis had applied in the same way as in UBal. In other words, we might assume that after the emergence of -ā in "syncopated" position, this spread analogically to those forms where -i- should have survived. We could then suppose a reverse analogy to be responsible for the unexpected infinitive form of UBal., līsinĎāwī, as against "regular" līsinĎāwī.

2.1.4. All this would presuppose that the two Upper Svan dialects once shared the anaptyxis rule as a common feature. Unfortunately, the archaic texts of folk poetry as collected in Svanuri Poezia12 do not give any hints as to this question because here, only forms with -i- unsyncopated in "odd" position are found, viz. ansinĎwe "she looked out" (SP 57:46) < *an-a-sinĎaw-e-, losvinĎaw "I looked" (32:29 a.o.) < *la-xv-a-sinĎaw-e, lamsinĎaw "look at me!" (41b:47) < *la-m=a-sinĎaw-e, and also laxasinĎwe "he looked" (41b:41) < *la-x=a-sinĎaw-e as a hybrid form where the second syllable vowel (i.e. the version vowel, -a-) was not syncopated while the fourth syllable vowel (-a- in -āv-) was.

2.2. A different case is provided by the Svan verb meaning "to lock, to close". This verb is also well attested in the poetic texts where we find the present forms micqanali / micqanalix "he / they close (them) for me" (SP 54b:17 / 54a:45; 54b:35) and xocqanlix / xocqanalix "they close (them) for him" (61:49; 52:10; 63:74) as well as the participle lacqane "closed" (62b:6) and the derivative noun laxqāns (dat.) "on the bolt" (41b:31). By contrasting the 3rd sg. perfect otcqānla "he is said to have closed" which appears in the proverb kor mekvšango qorar otcqānla "after the house is broken, somebody must have slammed the door"13, we

9 Note that exactly the same kind of anaptyxis refilling syllables lost by syncopy must have occurred in Old Irish; cf. R. Thurneysen, A Grammar of Old Irish, Dublin 1946, 70, § 112 with examples such as immainse "bound" < *immsne < *immsne < *imm-nasse etc.

10 IKE 1, 1946, 84-85.

11 To the examples given above, we may add asnĎāvīda "he used to look" (imperf.) < *a-sinĎaw-i-da and laymsnĎavek "they looked" (aor.) < *la-a-sinĎaw-e-x from the collection Svanuri prozauli tekstebi II: Balszmouri kîlo, tekstebi šekribe A. Davitjanma, V. Topuriam da M. Kaldanma, Tbilisi 1957 (hereafter: SPT 2), 65, 3 / 13.


13 Thus according to V. Niţaraţe’s collection edited in SMOMP K X/2, 1 (no. 3: Kör mekvšango, qorap otçqānala); a slightly different version was published by the same author (under his pseudonym, Tavisupali Svan) in Žyveli Šakartvelo 2/2, 1913, 98 (no. 6): kora mekvšango, qorar eser erees otçqānala.
arrive at a basic root structure -cəqan- the two vowels of which were alternately affectable
by syncopy, cp. xociqanlıtx < *xo=cəqan-āl-i-x- and xociqanla < *ad-x=ə-cəqan-āl-a-. The
same analysis is possible for the impf. xocəqanldax "they used to close" (<
*xo=ə-cəqan-āl-i-d-da-x-) and the simple derivative lacqanre "of the bolts" (< *la-cəqan-ar-e-),
appearing in UBal. prose texts (SC 30,15; 110,35) alongside lalceqanlıs (dat.) "the bolt" and
the present form ḥi:li:qanlı "he holds closed for you" (SC 110,35 / SC 56,13) which are
secondary derivations from an underlying deverbal noun, *la-cəqan-āl-i- (*la-la=ə-cəqan-āl-
i-s-, with a "double" noun prefix, and < *y=1-l=ə=cəqan-āl-i).

2.2.1. On the basis of this evidence, there is good reason to distrust the masdar forms
licqone (li:qvne) and licqanlıali (li:qvna/alı) appearing in older glossaries ("MZ"=
SMOMPK X/1, LXV and "ING"= X/2,8, s.v. xociqanlıtx) with the meaning "запереть," for
they cannot be motivated by reference to the normal rules of syncopy. We should expect
*licqane and *licqanlıali instead, < *li-cəqan-e- and *li-cəqan-āl-i-. As the verb in question
seems not to be mentioned in later dictionaries, it remains unclear whether the given masdar
forms are at all reliable.

2.2.2. If we are right, then, to posit -cəqan- as the basic form of the root, the question arises
how to account for its -ə-. As it cannot be anaptyctic in the given constellation14, we are left
with a two syllable root which must be regarded as secondary. And indeed, we can identify
the -an-element contained in this "root" with the causative marker which is represented, e.g.,
in Old Georgian -ṣguan- "to send" as a derivative of -ṣgu- "to go ahead, proceed"; the Svan
equivalent of this is the root *-ṣegw.15 (thus in xo:ṣegw, "he goes ahead, leads". SP 52:19;
the later pronunciation16 is -ṣog(w)- as in xo:ṣog 61:45) with its derivative *-ṣegwan- (cp. the
forms xo:ṣgwâne "he sends", < *xo=ṣegw-ān-e-, and otızogwâne "he sent", < *ad-x=ə-
ṣegw-ān-e)17. But what, then, is the basic root contained in -cəq-an-? As a root 1-cəq- seems
not to exist as such in Svan, we may propose to take this as a variant of the root -ciq-
meaning "to be stuck, fixed"18; cp., e.g., the Lâšx sentence berži ke t lok xaciq i ečë: či lok
xâb amiran19 "a copper bolt is said to be fixed (there) and with this Amiran is said to be
bound", where xaciq is used in connection with ket "bolt" (< Georg. ḳetva "locking")? thus
indicating how the causative -cəq-an- could have received its meaning. If this analysis is
right, we have to deal with a vowel alternation of -i- vs. -ə- again, but as was stated above,
this cannot be due to anaptyxis as in the case of -sinzaw-. It seems not probable either to
assume original ablaut here, for there is no indication of ablaut in any other form of the root
-ciq- 19. It is therefore necessary to look for a different source of the -ə- in -cəqan-. This
might be found in the constellation of vowels in the given two-syllable "root": If the causative
was originally derived from -ciq- as *-ciq-an-, the substitution of -i- by -ə- might have been
caused by the -a- of the following syllable.

14 Note that -cəq- cannot represent a primary consonant cluster.
15 Cf., e.g., G.A. KLIMOV, Eti:mo:logi:českij slovar' kartvel'skij jazykov, Moskva 1964, 240-241 s.vv. ʒy:rw-
1990, 432 s.v. *q:ge:q:q:q:q:q:q:q:q:q:
16 From the archaic form xo:ṣegw, it is clear that -o- in -ṣogw- is due to a secondary umlaut process, not to
a special ablaut formation (cf. KLIMOV, l.c.: "огласовая").
n. 3.
18 KLIMOV, o.c., 224 identifies this with Megr. cik- and Laz. ciq- meaning "to push into".
19 Svanuri prozauli tekstebi IV: La:šxuri kilo, tekstebi şekribes Arsena ONIANma, Maksime KALDA:NA:Ma da
Aleksandre ONIANma, redakcija gau:te:ku Maksime KALDA:NA:Ma da Aleksandre ONIANma, Tbilisi 1979 (hereafter:
SPT 4), 46,4. The same content is reported in the Lâšx text no. 279 of SC where the form xociq is used
(257,17).
20 KLIMOV’s proposal to see a zero grade in the Svan infinitive form li-ciq-e ("в сван. форем налио
чередование ступеней огласовки") is misleading; instead we have to assume syncopy (< *li-ciq-e-) as in the
aor. form xociq (SC 257,21; < *x=o-ciq-e-).
2.3. There are indeed many other words which show that the assumption of a substitution of \(-i\) by \(-a\) caused by a following \(-a\) is justified. One of these is the adjective meaning "red" which appears as cērni (nom.sg.) in the Upper Svan dialects (UBal., e.g., SC 43,25; LBal., 187,6) and Läšx (247,35). While cērni is also the form met with in the archaic poetic texts (e.g., SP 32:15; adv. cernid 6:13 a.o.), the fourth Svan dialect, Lentex, which is peculiar by not showing the effects of syncopy, proves that the bisyllabic form emerged from an original trisyllabic one: here we find the unsyncopated nom.sg. cērni (SC 290,13 a.o.). The assumption that the underlying form contained an \(a\) vowel in its middle syllable (*cērani-) is further supported by various derivatives of the word appearing in other dialects; cf., e.g., the adjective mocran "reddish" (UBal.: SC 135,29; Lšx.: 267,38), *<mo-żcēr-an-\(a\)-, or the many forms of the UBal. verb "to become / make red" such as the presents ču ćıcrānix "they become red" (SC 134,36; < *ču \(+i\)-ćiran-i-x-) and ču xecrānī "it becomes red to him", (142,20; < *ću \(+x\)=ćær-an-\(i\)-), the imperfects ěvacrānā "he used to make red" (138,1, < *ć + a-ćær-an-\(i\)-d-\(a\)-) and xecrānōlda "he used to become red" (145,10, < *x=ćær-an-öl-d-\(a\)-), the aorist ču xocrāne(\(e\)) "it made him sth. red" (156,21, < *ću \(+x\)=o-ćær-an-\(e\)-) or the participles lcrāne (SPT 1,2,1321, < *l-ćær-an-\(e\)-) and ču lcrāna (SC 145,16, < *ću \(+l\)-ćær-an-\(a\)-) "having become red". Of course, forms showing syncopation of the \(-a\)- vowel occur as well in the paradigm of this verb; cf. čvalćernēli "is said to have become red" (< *ću + ad-\(l\)-ćær-an-\(ē\)=i-l, SPT 1,2,13) or ə lāmćerne "he made red for me" (< *ěl + la-m=i-ćær-an-\(e\)-, SP 102a:71).

2.3.1. *cērani can thus be established with certainty as the underlying form of cērni. At the same time, it enables us to trace cognates of the word outside Svan. It has for long been proposed that Svan. cērni might be historically identical with the Armenian adjective meaning "purple red", cirani22. This identification is now strongly supported by the fact that the Svan word must once have had a third vowel, \(-a\)-, in its middle. Although the etymology of Armenian cirani is far from being clear itself, it is hardly possible that it might have been borrowed from some kind of Proto-Svan; the opposite case, however, may well be true, all the more since this would easily explain the peculiar structure of the Svan word23. In this connection it may be interesting to note that a homophonous word ciran-\(i\) is attested for Georgian as well, as the name of a "sort of apricot"24; this may as well be a borrowing from Armenian, but of the noun cirani denoting prunus armeniaca rather than the adjective cirani.

2.3.2. By deducing Svan. cērani- from an older *cirani-, we may indeed take this word as another example of the rule proposed above, according to which the shewa vowel must have

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21 Svanuri prozaauli tekstebi, I: Balszemoouri kīlo, tekstebi ʂekrībes A. Sandeem da V. Topuriam, Tbilisi 1939 (hereafter: PUB).
22 Cf. N.Ja. MARR, IAN 6/9, 1915, 778-779; Hr. AČARYAN, Hayeren armatakan baɾaran, B, Erevan 1973, 460; K.H. SCHMIDT, Studien zur Rekonstruktion des Lautsystems der südkaukasischen Grundsprache, Wiesbaden 1962, 38. It is by no means certain that the meaning ‘Purpur’ given here is primary as against the adjectival usage. And as the nom.sg. form of the word ends in -\(i\) in all Svan dialects, SCHMIDT was not justified to posit “cērani” as its basic form; cf. also case forms such as the dat.sg. čorns (UBal.: SC 44,7; LBal.: 213,35) or the dat.pl. cormats (UBal.: SC 44,31). A stem cēran- can only be assumed as the basis of derivatives (cf. the examples given above).
23 As to the word-final non-apocopated -\(i\) cf. E. Osițe, IKEK 9, 1982, 47 according to whom this is frequently met with in adjectives. In the present case, however, it might be an immediate reflex of the word-final -\(i\) of the Armenian word, all the more since this bears the accent. — A root etymology connecting Svan cērni- with Georgian citel-\(i\) "red" and other Caucasian words meaning "fire" or "blood" or the like such as Avar. čar, Axvax. čari, Chechen. ce or, within Kartvelian, Georgian čida "menstrual blood", as proposed by N. Ardoteli on the occasion of the present paper during the Kutaisi conference, has nothing in its favour if the structure of the Svan word is considered.
24 Cf. D. Čubinavili, Kartul-rusuli leksišoni, Sankt peterburg 1887 / Tbilisi 1984, 1687 who refers to ge-datege as to its meaning. AČARYAN (l.c.) proposed that Georg. ciran-\(i\) might be homonymous (and historically identical with) čerani-\(i\), a more usual name of the apricot prunus armeniaca vulgaris or prunus vulgaris; this identification is also suggested by Sulxan-Saba Orbeliani who referred to ge-datege for čerani-\(i\) in his dictionary (Txzulebani, ţ. IV/2, Tbilisi 1966, 399).
replaced a former -i- in the position before a following -a-.

2.4. As was noted above, the Svan word meaning "foot" belongs to the nouns that show the alternation of i and ə in their stem. Different from the cases discussed so far, the forms met with in the published texts give a rather chaotical impression.

2.4.1. In UBal., e.g., we find -i- in the nom.sg čiš (SPT 1, 67,1 a.o.), the dat.sg. čišš (62,9), the gen. čišši (SC 33,10 a.o.), and the erg. čiššed (92,25), while ə is met with in the instr.sg. čišššw (SC 120,12 a.o.), the postpositional dat. (?) čišš-žiš (SC 57,27) and the plural forms nom. čiššär (SPT 1, 1,11 a.o.), dat. čiššärš (61,8 a.o.), erg. čiššärđ (36,34), instr. čiššaršw (SC 129,37 a.o.), and gen. čiššaxe (33,13 a.o.). In quite the same way, LBal. has the nom.sg. čiš (SC 174,19 a.o.) and the gen.sg. čiššiš (216,30) besides the gen.sg. čišxe (176,22), the instr.sg. čišššw (224,39), the dat.sg. (?) čišš (227,18), and the nom.pl. čiššär (SC 210,35 a.o.). In Lent., we note i in most singular and plural case forms such as the nom.sg. čiš (SC 296,6 a.o.), the dat.sg. čišš (332,13), the gen.sg. čišxe (295,35 a.o.), the instr.sg. čišššw (334,31 a.o.) and the nom.pl. čiššär (307,38 a.o.), but also a dat.pl. čišššars (345,35 a.o.) with shewa. Only Lāš seems to be consistent in that all case forms show i; cp. the nom.sg. čiš (SC 249,30 a.o.), the gen.sg. čišxe (259,3 a.o.) besides čišš (262,23 a.o.), but also the nom.pl. čiššar (240,35 a.o.), the dat.pl. čiššars (240,27) and the gen.sg. čiššare (251,10 a.o.).

2.4.2. A similar picture is provided by the archaic poetic texts. Here we have i in most singular forms such as the nom. čiš (SP 14:72 a.o.) with its archaic variant čišsi (10:25), the dat. čiššs (14:60 a.o.), the gen. čišši (94a:9), čiššiš (32:32 a.o.), čiššmiš (8:8 a.o.) and (arch.) čiššše (97a:61), but also ə in the (arch.) dat. čiššas (1a:8 a.o.), the postpositional dat. (?) čišš-ži (67:6), and the instr. čišššw (94b:20). In the plural forms, however, ə prevails as in the nom. čiššär (8:207 a.o.), the dat. forms čiššärš (41b:16) and čiššärş (65:59), the instr. čiššarš (27a:63), and the gen. čiššräš (51: 164,61 a.o.), but a nom.pl. čiššär occurs as well (63b:145).

2.4.3. The off-hand impression that there are no rules involved seems to be further supported if we look at derivatives of the word. Among them, we find i in the UBal. diminutive
čišxilar-ži (SC 243,2) "on the little feet" and the adjective lačišx "having ... feet" met with in identical form in UBal. (SC 158,23 a.o.), Lšx. (SC 243,5 a.o.), and Lent. (SC 314,28). Both the diminutive and the adjective occur in the poetic texts as well; cp. nom.sg. čišxild (SP 46:33), nom.pl. čišxildür (8:162), and lačišx (62c:20 a.o.). As against this, ṣ is characteristic for čašxši "square dance" as appearing in UBal. (SC 59,11 a.o.) and the poetic texts (nom. čašxši: SP 30:25; dat. čašxašš: 52:19 a.o.; erg. čašxšed: 30:29); in this word, it is only Lāšx again which has i (čišxaš: SC 260,15 a.o.).

2.4.4. Nevertheless, this latter word may conceal a clue to the problem. We first have to assume that it is derived from čišx not with a plain suffix but as a hypostatic paradigm built upon a genitive case form, just as perx-isa which we find as a synonym of Georgian perx-ulı in the Pshav and Khevsurian dialects26; its basic meaning can thus be established as "that (sc. dance) of the foot". Contrasting it with the actual genitive forms of čišx as appearing in the Svan dialects (e.g., UBal. and Lšx. čišxi, LBal. čišmiš and češxe, Lšx. čišxe, Lent. čišxe and čišxi, as well as the forms čišxi, čišxiš, čišmiš and čišxiše of the poetic texts), we may further state that as against these forms, čašxši- has to be considered as more archaic because its second vowel cannot be due to an analogical levelling while all the genitive forms can29. The question then remains what to posit as the basic shape of the derivative. There seem to be two possibilities: Either we have to deal with an underlying *čišxeša-, with an "emphatic" genitive case ending as in Georgian perxisa, or čašxši- goes back to an older *čišxaš-ı, with a non-extended ending as in Megrelian kučxiši, a derivative of kučč-i "foot" used in the word pair kučxiši oibreši "dancing place"30. In the former case, the -a- would have emerged from a stem-final -e- via KALDANI's "back umlaut", in the latter, by palatal umlaut of a stem-final -a-. In this case, we would have the constellation of -i- followed by -a- again, which in its turn might be responsible for the shewa appearing in the (poetic and modern) UBal. forms31.

2.4.5. To a certain degree, the assumption that the rule i > ṣ / a plays a rôle in the emergence of shewa in the paradigm of Svan čišx is also supported by the case forms proper of this word. According to the examples listed above, ṣ is most frequently met with in plural forms such as čašxšär, the basic element of which is the suffix -ar (< *-are). If we accept that this suffix was always added to the last consonant of a given noun stem, irrespective of stem final vowels appearing elsewhere in the paradigm, the underlying form must have been *čišx-are in any case; here, again, we find -i- followed by -a-32.

2.4.6. It is true, of course, that Lāšx where we find -i- in the root syllable throughout seems to speak against the assumption of shewa resulting from "back umlaut". For this dialect, however, we may claim a peculiar tendency towards a levelling of vowel alternations within paradigms, just as in the case of the verb -sinxious- which was dealt with above. The tendency towards levelling is not restricted to Lāšx, though; it is more or less characteristic for all modern dialects of Svan, as the competing case forms show right from the beginning. Given this overall tendency, the question arises whether we can at all expect to prove or disprove a sound change the conditions of which could be obscured in certain environments by the

29 This view was first expressed by N.Ja. MARR (IAN 6/6, 1912, 1094): "сущь по Р. ṣoPHo-đā, основа слова гласная — тишка ... В сванском Р. падежъ ṣoPHo-đā тишка (у, ини ṣoPHo тишка, тр ṣoPHo žobē la-tiшка) значитъ хорошихъ ..."
30 Cf. MARR, l.c., and I. KIPŠIDZE, Grammatika mingrel’skago (iverskago) jazyka s xrestomatieju i slovarem, S.-Peterburg 1914, 263 / 324.
31 Since MARR’s times, several authors have adopted the view that Svan čišx might be a borrowing of the Zan word (cf., e.g., V. TOPURIA, TUM 8, 1928, 342; GAMQRELZE / MACAVARIANI, o.c., 49). If the stem final -a- concealed in the derivative is primary, this is hardly plausible, however, for neither Megrelian kučči nor Laz kučče show a stem-final -a-. FÄHNRICHT / SARJVELIAZE (o.c., 195) now regard Svan čišx as inherited.
32 Even if the verbal form žaččexxex we meet in SP (7:53) with the meaning "they knocked (or trod?) you down" (žiwa žaččexxex gimusugi žoPHo žoPHo žoPHo) is derived from čišx-, it cannot prove that i was "umlauted" to ṣ before e as well; for in the given constellation, ṣ might be anaptyctical again (in "syncopy" position: < ža-ččex-e-x).
effects of innerparadigmatic analogy. It seems a necessary conclusion indeed that we should rely upon such cases first where secondary levelling can be excluded. The adjective ˙cerni may be a good example of this principle — note that it is here that the result of the assumed "back umlaut" is found in Lāšx as well.

2.5. The same principle must be kept in mind with a view to another possible source of shewa in Svan. This can be seen in the case of the word meaning "saddle", which appears as hängir in UBal. Besides this nom.sg. (SC 156,32; SP 1c:17 a.o.), we find a dat. hängirs and an adv. hängird in prose as well as poetic texts (SC 156,33 / 156,18; 102a:16 / 77c:17), contrasting with the gen.sg. hängri (SC 156,34) and plural forms such as dat.pl. hängrärs (SP 74:20), but also derivatives of the type hängrid (dim.; SP 1a:11). Taking all these forms together, we should arrive at an underlying *hängir-i or the like (with normal syncopy leading from *hängirär- to hängrär- etc.).

2.5.1. This assumption, however, does not agree with what we have in the Lentex dialect. Here, the nom.sg. is unägir (SC 320,4.7.8), which immediately recalls Georgian unagir-i. The question arises whether the Svan word is a borrowing from Georgian and whether *unagir-i might be the underlying form of the UBal. word as well. In this case, we should have to assume, on the one hand, that the word received a prothetic h- in UBal.33; on the other hand, forms such as the dat.pl. hängrärs would have to be regarded as secondary because they would presuppose a "double syncopy", starting from an underlying *(h)öngirär-s. It is well conceivable, however, that such an irregular "double syncopy" could easily emerge on the basis of the internal morphological rules of Upper Svan, given that a nom.sg. hängir, even if it represented a tetrasyllabic *höngir-i originally, could be taken as representing a trisyllabic *höngir-i right from the beginning. In this way, an analogue pl. *höngär- could develop alongside the regularly expected hängir-är- (< *höngirär-).

2.5.2. If the Svan forms can represent Georg. unagir-i, then, the proposal suggests itself that the shewa vowel appearing in UBal. might represent a former u, derounded by influence of the following -a-. If this is right, we arrive at a third variant of "back umlaut" (u > ø l-a), and indeed, both "new" types thus established support each other in that they can be described as reflecting the same phonetic principle, viz. centralization. And in the sense of an assimilation caused by the central vowel -a-, this process seems much more plausible off-hand than, e.g., KALDANI’s assumption of a change i > ø l-w34.

3. It goes without saying that the assumption of "umlauts" and similar changes requires a verification on the basis of as much linguistic material of Svan as possible. Considering the dialectal divergences as noted above and the possibility of secondary levelling characteristic for all spoken varieties of the language, we are forced to look for heuristic procedures that permit to establish a reliable basis of argumentation whenever different explanations are feasible. In my view, such a basis can only be built upon an exhaustive computational analysis of the Svan language material, and there are at least two distinct approaches that must be envisaged in this connection.

3.1. A first approach of preparing a computational analysis of Svan consists in establishing a plain lexicographical data base. As we are dealing with questions of historical change, it will not suffice in this respect to collect and classify the lexical material of today’s usage; instead, all the older material available since GÜLDENSTÄDT’s enquiries of the 1790ies has as

33 Alternatively, Georgian unagir-i could have had an initial h- itself originally; in this case, we might presume a relationship with Old Georg. hune- "horse”. We have to consider, however, that the Old Georgian sources suggest a meaning "draught horse" rather than "riding horse" for hune- (as against cxen-i; cf. J. GIPPERT, Hippologica caucasica, in: Man and the Animal World, Budapest 1998, 613-622) so that a derivation of the word meaning "saddle" becomes less probable.

34 M. KALDANI, o.c., 114.
well be taken into account. It is a pity that among the dictionaries and glossaries published so far most are concerned with the UBal. dialect only; it is to be hoped that lexical material of the other dialects will be published soon.

3.1.1. Of course, the building of a lexical data base of Svan requires several important preconsiderations. First, we need a clear separation of "source" and "target" languages, with a unique treatment of different graphic properties. The impact of this requirement may well be illustrated by looking at the Svan primer, Lušnu Anban, as an example. Here we find Svan words contrasted with their Georgian and Russian equivalents, Svan (i.e., UBal.) being written in Cyrillic letters (with additional marks); cp. the reproduction of p. 85:

<table>
<thead>
<tr>
<th>Svan</th>
<th>Georgian</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>გერბეთ</td>
<td>გერბეთი</td>
<td>Богъ</td>
</tr>
<tr>
<td>ქარილან</td>
<td>ქარილანი</td>
<td>Святой</td>
</tr>
<tr>
<td>ანგლოზ</td>
<td>ანგლოზი</td>
<td>Ангель</td>
</tr>
<tr>
<td>გატოზებიკისგ</td>
<td>გატოზებიკისგ</td>
<td>Пророкь</td>
</tr>
<tr>
<td>ვახ, ვორია</td>
<td>ვახ, ვორია</td>
<td>Дьяволъ</td>
</tr>
<tr>
<td>ჰელი</td>
<td>ჰელი ორი</td>
<td>Вера</td>
</tr>
<tr>
<td>ლოც</td>
<td>ლოცი</td>
<td>Молитва</td>
</tr>
<tr>
<td>საბარ</td>
<td>საბარი</td>
<td>Кресть</td>
</tr>
<tr>
<td>ლაქუამ (v)</td>
<td>ლაქუამი (k)</td>
<td>Церковь христианск.</td>
</tr>
<tr>
<td>ბან (v)</td>
<td>ბანი (k)</td>
<td>Священник христиан.</td>
</tr>
</tbody>
</table>

For being usable in a data base, the information contained in this list must be interpreted in terms of modern linguistics; cp the following renderings:

<table>
<thead>
<tr>
<th>Svan</th>
<th>Georgian</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>გერბეთ</td>
<td>დედოფალი</td>
<td>Богъ</td>
</tr>
<tr>
<td>ქარილან</td>
<td>ქარილანი</td>
<td>Святой</td>
</tr>
<tr>
<td>ანგლოზ</td>
<td>ანგლოზი</td>
<td>Ангель</td>
</tr>
<tr>
<td>გატოზებიკისგ</td>
<td>გატოზებიკისგ</td>
<td>Пророкь</td>
</tr>
<tr>
<td>ვახ, ვორია</td>
<td>ვახ, ვორია</td>
<td>Дьяволъ</td>
</tr>
<tr>
<td>ჰელი</td>
<td>ჰელი ორი</td>
<td>Вера</td>
</tr>
<tr>
<td>ლოც</td>
<td>ლოცი</td>
<td>Молитва</td>
</tr>
<tr>
<td>საბარ</td>
<td>საბარი</td>
<td>Кресть</td>
</tr>
<tr>
<td>ლაქუამ (v)</td>
<td>ლაქუამი (k)</td>
<td>Церковь христианск.</td>
</tr>
<tr>
<td>ბან (v)</td>
<td>ბანი (k)</td>
<td>Священник христианский</td>
</tr>
</tbody>
</table>

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35 Cf. B. Outtier, Bedi Kartlisa 40, 1982, 200-211 for a survey of Svan dictionaries and glossaries, where the "Сборник слов" (Svan-Georgian-Russian) contained in the first Svan primer, Lušnu Anban / Сванетская Азбука (Tbilis 1864), pp. 85-147 was omitted though (ca. 1350 words). The most comprehensive collections that have been published so far are the Сванетско-русский сходить слово ("MZ", cf. above; ca. 1200 words), the Русско-сванскийсловарь ("INR", cf. above; ca. 15000 words), the index of word forms contained in V. Topuria’s ბედი ქართლისა, 295-375 ("VT", ca. 12000 word forms) and the Svan-English Dictionary compiled by Ch. Guidijediani and L. Palmatis ("GP", ca. 10000 word forms).

36 Hitherto unpublished lexical sources I know of are: a complete computer index of word forms as appearing in Svanuri Poezia, compiled by J. Gipert (1st edition Berlin 1988, 2nd revised edition Frankfurt 1995), a Svan-Georgian-Russian Dictionary compiled by Karpe Dondua (ca. 2700 words) and an extensive dictionary of Svan to be published by the Linguistics Institute of the Georgian Academy of Sciences. The latter has not been accessible to me so far.

37 (v) = "Вольная или Верхне-Ингурская Сванетия", (k) = "Княжеская Сванетия".
3.1.2. Second, there must be a clear distinction of linguistic material and elements of grammatical analysis as the ones we find in GUDJEDJIANI’s and PALMAITIS’s UBal. dictionary; cp. the following list of entries:

<table>
<thead>
<tr>
<th>Entry (english)</th>
<th>Reference (georgian)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>a (dem.ptc.)</td>
<td>ž’an kid a qän i adje</td>
<td>&quot;he-took this ox and took-it-away&quot;</td>
</tr>
<tr>
<td>abēla</td>
<td>vid. libēle t, 2</td>
<td></td>
</tr>
<tr>
<td>-a, a</td>
<td>abērga</td>
<td>vid. libērge, 2</td>
</tr>
<tr>
<td>abāba</td>
<td>vid. libābē t, 2</td>
<td></td>
</tr>
<tr>
<td>a (ptc.irg.)</td>
<td>abēčks</td>
<td>vid. libēčkw 1v, 12</td>
</tr>
<tr>
<td>ababajja</td>
<td>(L.B.) vid. ababāj</td>
<td></td>
</tr>
<tr>
<td>abâluni</td>
<td>vid. libēle t, 4</td>
<td></td>
</tr>
<tr>
<td>abâmda</td>
<td>vid. libem, 2</td>
<td></td>
</tr>
<tr>
<td>abānda</td>
<td>vid. libānbe, 2</td>
<td></td>
</tr>
<tr>
<td>abāka</td>
<td>vid. libākē t, 2</td>
<td></td>
</tr>
<tr>
<td>abâčkwe</td>
<td>vid. libāčkw 1v, 11³</td>
<td></td>
</tr>
<tr>
<td>abaga 7</td>
<td>knapsack, saddle-bag</td>
<td></td>
</tr>
<tr>
<td>abga</td>
<td>vid. libge t, 2</td>
<td></td>
</tr>
<tr>
<td>abge</td>
<td>vid. libge t, 1</td>
<td></td>
</tr>
<tr>
<td>abāde</td>
<td>vid. libde 2v, 5</td>
<td></td>
</tr>
</tbody>
</table>

3.1.3. Third, the data base must be designed to contain not only lemmatic entries (nominatives, masdars) but also all kinds of inflected word forms as these are a most important factor of historical-comparative analyses of the kind illustrated above. In fact, the dictionaries and glossaries published so far contain lots of inflectional variants, but it is not always easy to find out according to what criteria these were selected; cp., e.g., the following list of verbal forms pertaining to UBal. libqwe "to cleave smth. in two parts" as appearing in GUDJEDJIANI’s and PALMAITIS’s dictionary again:

<table>
<thead>
<tr>
<th>Entry (english)</th>
<th>Reference (georgian)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>abiqw</td>
<td>vid. libqw, 11:3</td>
<td>[i.e. aor.act., 3.ps.sg.subj.]</td>
</tr>
<tr>
<td>abugw</td>
<td>vid. libqwe, 2v, 11:2</td>
<td>[i.e. aor.act., 2.ps.sg.subj.]</td>
</tr>
<tr>
<td>ābqwe</td>
<td>vid. libqwe, 2v, 5</td>
<td>[i.e. fut.pfv.act. (3.ps.sg.subj.)]</td>
</tr>
<tr>
<td>biqwa</td>
<td>vid. libqwe, 2v, 1</td>
<td>[i.e. impf. (3.ps.sg.subj.)]</td>
</tr>
<tr>
<td>biqwe</td>
<td>vid. libqwe, 1v</td>
<td>[i.e. pres. (3.ps.sg.subj.)]</td>
</tr>
<tr>
<td>libqwe</td>
<td>(m.) t, 2v: to cleave smth. (Od) in two parts</td>
<td>[masd.]</td>
</tr>
<tr>
<td>mebqwe 3</td>
<td>(n.r.) cleft in two parts vid. libqwe</td>
<td>[nom.res.]</td>
</tr>
<tr>
<td>obiqwa</td>
<td>vid. libqw, 13</td>
<td>[i.e. perf. (3.ps.subject)]</td>
</tr>
</tbody>
</table>

For the data base to be exhaustive, it will be desirable, of course, to collect complete paradigms of given words, not only what is represented in the published lexical material, and it may well be necessary to provide a more detailed subdivision of dialects according to the linguistic differences met with in them.

3.2. Alternatively, the lexical material of Svan can be digitised directly on the basis of published texts. The first step to be undertaken in this direction consists in mere data entry which can be done in two ways, either manually or by using an optical scanner. The latter case presupposes the adaptation of so-called "OCR" (Optical character recognition) programs to the special requirements of Svan, and its results depend a lot on the printing quality of the original. It may be sufficient here to contrast a few plain images of printed texts and the result of their automatical "recognition" to show what problems are involved in this task.
3. ხალხის ეთნო ხალხ

ხალხი თანამდებობით გამოყოფილი უთხრის, რომ უარი რამდენიმე ბჟათი მათთან სიზომისათვის. ხალხი ეძავა უარზე ლაიმში ჩაწერა ნება, რომ ეძავა უთხრის ამ ადამიანთა ხალხი დღეთა ურთიერთობით ყოველ საუკუნეში. ხალხი მხოლოდ ზოგიერთი ბიბლიოთეკა მიიწვის ადამიანებზე. ხალხმა ჯერ ლამაზი გამოხმავს მსურველი, ესხმენი სწავლა ესხმენი ბიბლიოთეკა. ხალხმა მარადიო და კარგია, ალამი გმირი ესხმენი ბიბლიოთეკა, რომ ხარობს სხვა დამოკიდებული ურთიერთობით თანამდებობა. თუმცა მასა გმირი მსურველი, ესხმენი სწავლა ესხმენი ბიბლიოთეკა, რომ ხარობს სხვა დამოკიდებული ურთიერთობით თანამდებობა.

Svanuri enis krestomatia, p. 9, Text 3 (plain image)
3. ხვალმი სოლგვა იყურა

ხვალმი ლადაგ სამპარვი ჭამალადაგ ლი ე ჯ ლადაგ ლიმზარხ ჩი კი კორისგა. ხვალმი მეგემ ჭვება ლეკვანჩუნ ლაგ. ხოჭა გაჭიბ ლი ი ამის ჭვექცირ, ჭვავა ოშაქ ხარხ. ხოჭამ მუჭვად პატრონს თი ჭვესაის ამ ლადაგი ერს მამილვ ხორგ ნამზურნ ი ერს ლაგრალ. ალ ნამზურნ მოჭლა ნათორ ხარხ. ხვალმმ

ლადაგ კა ნარბულანგო ლემჯარას ანაჯალიქ. ეჭვანგ ჭვავა ხვალმი მამილვ ი ედ ლაგრალ ხაგად, ეჭვარს მამზართ ჟი სამზარ ი ხაქიქ ხვალმი, ერე მიჯ მესი ძივით ამი მურგვნის. ხოჭამ მეკვალი ჭვავა ოსხამ ძაღი ესო მესამილვ ლეურა მამილვ ი ედ ლაგრალ მურგვნის. ეჭვანგ მამილმა ჭვაურენი ესო იგი იყურალხ. მოჯანგ მამილი ი ედ ლაგრალ ლექზუმდ ხარ ლედი მუჯახეშ მაგ ჟი კორისგა. ეჭვანგ ქალხმი მაჭხიმიმის ჟი ქურჩალას იტაქ სამ. ეჭვარს ჰამოფირს საქვეწ ი ქამ ჭილას ჭახქინენ. ალ ქურჩალას მარ დემ იზხი ი მუჯაშტალას ჭუგვექ ლეზობდი ი ლეკრენტალ.

ჭვავი აგაბ ლეთ მანქვი ჭვავს ჭაგემს მაგ ი ეჭონვა ჟუ იყურალხ. ჭიჭყარს ი გამომარაზას ჟამ კოჭანგ ძაღი გელვა ლაგაჩაკდ. ნადიარაგი პეტრად ი განგი აყან ი ეჭვარ პარლაქ ძაღი ი ხერჯაგა. გვანა ი ყარელ ჟარგი გელურ, ზოგ

საქულგა იყჟა ჟარგული ხარეოქ. სონწუენი გზემ აგჟელ თუ სურვალ. მოჯანგ შექმა ჟარგული გელურ, სომაგ ჩიკო თოხა გლამერ ჟარგული გელურ, როგორთ გზემ აგჟელ თუ სურვალ. საქულგა იყჟა ჟარგული გელურ, სომაგ ჩიკო თოხა გლამერ ჟარგული გელურ.

Same text converted into standard transcription, with adaptation of line format

Svanuri prozauli tekšebi I: Balszemouri kilo, p. 27, text 29 (plain image)
"katušē~i korā liqdi
a ~m~e~v kors nēsgāšār espusnēnax. ma~
~a ež ~e mēbgeri ~mārlix. nēsgāšārs kaušērd otiqida,
..n ~e~vva xoš~ls atx~rēnax ašxv ladāg ēnār anqādx ešxx
x.~~~ zel. ~ä~x~x ~o~ v kašušē , länn~nxlei nāqčul ćukvān
~y~xx i ~. ~i~v~e~~ a-go al kor ~elqvmd āms tēl
~v~ ~v ~x~v ~i~k~a va~ame lā'sv, p r sd.āv te~n-x i ta~rśa.
\i-\a m~ v vr~ eaśvi~. anxx la-āg āxnār\ain x bāpūr, lagv~\āči
i ~v~ ~ i ~., x-~v~. e~v~v kvi ašir i usgām̱ tvmīem ātvīq̱dd
\v~ ~\v~ ~. ~i~v~e~~ \k i eka-ti tamānīšēṟvm ānīnex lītorkev̱d~va~. a~v~
~~~ a~.e ~i~ i ~v~\v ovimentežin acăd p:~s. tamānīšēṟ
\i~.a ~..~. i ~x~r n~.~d. l p:~s l’e-de. ešdeš~x qān ankvād,
\a ~ ~āč~l i ī\q̱gān gānz. kōr s yor
~~~ ~.~. n~.~d qană. ~.~l~venid te\q̱gīz i bāpū ṟ lāsv̱x yori~.~v
~.~.~ ~ s:\u̱t ~.~. sv̱v~. l~x~ ~ nişgvey gvažārs.

3.2.1. It goes without saying that an electronic text thus achieved requires further treatment
before the lexical material contained in it can be used for any kind of linguistic analysis.
First, it will need manual correction which can only partially be supported by an automatical
process, viz. the so-called "spell-checking". Second, the digital text will have to be structured
so that it can be used for retrieval; cp. the following example from Svanuri Poezia which
shows a minimum of "markup" consisting in the indication of page numbers, line numbers,
and text numbers (with a variant containing a German translation which was added manually):
3.2.2. A first result of computational analysis that can be achieved on this basis is a "book-style index" containing all the word forms that appear in the digitised text; cp. the following example which is taken from a complete index of Svanuri Poezia produced with the WordCruncher program:

| xoba ........ (1) . 51:162a,20 |
| xobaža .... (3) . 4:14,38; 27b:96,31; 29:102,34 |
| xobažax .... (2) . 3:8,18; 94c:302,6 |
| xobadu .... (1) . 13:46,15 |
| xobemax .... (1) . 39b:128,93 |
| xobida .... (1) . 39a:124,71 |
| xobica .... (1) . 94a:294,102 |
| xobina .... (20) . 3:8,23, 29, 14:52,27, 54,46; 24:74,38; 26:86,43; 88,74; 39b:126,53; 41a:134,33; 51:164a,48; 55a:180,36; 44, 53; 63a:121,27; 214,13; 67:244,32, 33; 94a:290,38; 94b:296,5; 95:306,12 |
| xobinax .... (3) . 54a:174a,52; 93b:282,23; 102a:322,32 |
| xobinax .... (2) . 42c:146,15, 24 |
| xobina .... (14) . 8:36,214; 9:36,16; 11:42,7; 14:52,28; 26:84,25; 27b:94,14; 39a:120,12; 43a:148,7; 11:51:162a,24; 55a:178,14; 57:190,43; 192,83; 94b:300,79 |

3.2.3. More detailed analyses require the word-forms to be defined with respect to their morphological and syntactical status. This has to be done by a so-called "tagging", i.e., the addition of the particulars of the word-forms in quite the same way as indicated in the example from GUDJEDJIANI’s and PALMAITIS’s dictionary given in 3.1.3. It goes without saying that for a highly inflective language as Svan, this can only partially be achieved by automatical procedures.
3.3. Once this preparatory work has been done, a final step for building up a reliable and exhaustive data base of word forms will consist in the collation of the data compiled on the basis of both lexical collections and texts. It is to be expected that in the course of this step, all kinds of inconsistencies that are characteristic for the actual state of the morphology of Svan will easily come to light, thus offering themselves for special investigations into the mutual relationship of dialect forms, the sound laws involved, their relative chronology and similar questions. This task may be supported by or even be left to computer programs which can be designed to serve the purpose of a comparative "parsing" of Svan word structures with a view to the consistency of the sound correspondences involved; but this must remain a future aim which requires the cooperation of various specialists.

1. 1. 

2. 2.1. 2.2. 2.3.
2.4. გვარისთვის სომეხურის ქართულწმენდი ჭიდაულება ჭორში ფუძი ფუძი განკარგულება. დამოკიდებულება ბუდობით ამ ფუძით ქართულმა გაძლიერებულმა თეოლოგიურმა. საუკეთესოდ, თუმცა, როგორც დიპლომატიური ოფიციალური ჭორში- "ფუძით", ფუძი ახალგაზრდული აღსანათლებლმა და განკარგად გაამართა.

2.5. საქართველო, ქართული და ამ არის ოლქი ქართული ზომები ან ქართულ გამოქვაბულ ფუძთან მატვის პრობლემები. როგორც გვარისთვის ჭორში გამოყოფა მაგრამ გამოხატავით ქართულმა. აქამდე, ქართული განლაგების სამართლო ქართულ გამოქვაბულ გახდება.

3. ბალამუში, თუმცა მე მოგზაური გამოქვაბულმა, რომ ქართულყოფილობის საპორტალზე საქართველოს ფალთქი და ჭრელ კავშირში შედგება კავშირი.

3.1. საბრძოლო ზომები, არსებობა და ამ ღრმუად შეიძლება გამოქვაბული ქართულმა. აერთა ორ ზომები განლაგები მატვის გამოქვაბულ ქართულმა.

3.1.1. ლექსიკონების კომპიუტერული შესახებ პროფილი, გამოქვაბულმა ქართულმა, საქართველო სახელწმინდო მქონე გამოქვაბულ ქართულმა.

3.1.2. ზომების დასვა საკმაოდ, განათლების შიდა ფონით შერთებულმა, თუ როგორც გამოქვაბულ ქართულმა და გამოქვაბულმა ქართულმა.

3.2. ზემოქალაქი მონაწილე გამოქვაბულ ქართულმა.

3.2.1. სქესის კომპიუტერული აგენტობის თავის შესახებ გარემო კაშხლით საბრძოლო და გამოქვაბულ ქართულმა.

3.2.2. ზომები განლაგება ხელოვნურ არის გამოქვაბულ ქართულმა.

3.2.3. ზომები განლაგება ხელოვნურ არის გამოქვაბულ ქართულმა.