The aim of the presentation

➢ To present extensive data on Georgian reduplication
➢ To account for formal properties of reduplication:
  • Prosodic properties of base and reduplicant
  • Segmental properties of base and reduplicant
The main proposals

Prosodic
➢ Reduplicant, regardless of the shape/size of base, has disyllabic C(C)VC(C)V shape in Georgian.

Segmental
➢ Both reduplicant and base have unmarked segmental structure.
➢ Marked structures do not reduplicate.

Organization of presentation

I. Introduction

II. Reduplication data

III. Theoretical questions/problems

IV. Prosodic analysis of reduplication

V. Segmental analysis of reduplication

VI. Conclusions
I. Introduction

Function
- Verbal forms
  - reduplication occurs in verbal forms to mark continuative aspect or intensity.
- Nominal forms
  - to form the collective plural.
- Adverbs
  - to form words with another meaning
- Reduplication is widely used in onomatopoeia.

Place
- Reduplicant commonly attaches to a base as a suffix.

Type
- Total reduplication, which involves copying of a complete base, is quite common. Partial reduplication is also found.

II. Data

Source
- The extensive study of verbal and nominal reduplication by Ertelishvili (1970, 1980)
Verbal forms

panci-punci ‘quivering’
parti-purti ‘fuss’
lac’i-luc’i ‘crack’

bak’a-buk’i ‘to make a noise with heels’
lac’a-luc’i ‘crash, crack’
čxara-čxuri ‘tickling’
txlaša-txluši ‘to slap, smack’
baq’a-buq’i ‘buttering, mumbling’
k’ak’a-k’uk’i ‘to knock’
pacxa-pucxi ‘fuss, bustle’

Nominal forms

vak’e-vak’e ‘lowland, valley’
k’ona-k’ona ‘bunch of flowers’
kuča-kuča ‘street to street’
are-mare ‘environ, environment’
ačxa-bačxa ‘not clear, e.g. writing’

Adverbial forms

pirdapir ‘straight’
guldagul ‘diligently’
kardakar ‘door to door’
mxardamxar ‘shoulder to shoulder, together’
Onomatopoeia

sisini  ‘hissing’
t’at’ani  ‘speaking loudly’
c’ic’ini  ‘yelping’
č’ič’ini  ‘speaking piercingly’
q’iq’ini  ‘croaking’
šišini  ‘hissing, spitting’

Types of reduplication

Total/Full
kuča-kuča
vak’e-vak’e
k’ona-k’ona
puspusi

Partial
bak’a-buk’i
lac’a-luc’i
čxara-čxuri
taxlaša-txluši
III. Questions:

- What is the size/shape of reduplicant? Is it
  - morphological
  - prosodic/metrical
  i.e. is it word, root, stem, foot or syllable?
- What are segmental characteristics of reduplicant?
  - Does reduplicant present marked or unmarked segmental structure of Georgian?

General Question/Problem:

➢ To find a **unified account** for the diverse patterns of reduplication in Georgian?
Theoretical background
(based on cross-linguistic study of reduplication phenomena)

Shape invariance
- Reduplication tends to be defined in prosodic units independent of the base.

Unmarkedness
- Reduplicants tend to have phonologically unmarked structures vis-à-vis the phonotactics of the language.

(Kager, 1999:199)

Shape invariance
- The reduplicant tends to have an invariant prosodic shape that has no one-to-one relation with a prosodic unit in the base. The phenomena is also known as reduplicative template.
- This observation of shape invariance was first stated by Moravcsik (1978), and has become the basis of the 'template-and-association' theory of reduplication (e.g. Marantz 1982, Clements 1985, McCarthy and Prince 1986). The OT approach to reduplication is, to some extent, a continuation of templatic theory.

Nootka (σ): CV(V) či- čims-'i:č 'hunting bare'
Diyari (Ft): CVCV t'il.pa- t'il.par.ku 'bird species'
Unmarkedness

- The observation that reduplicants tend to have unmarked phonological structures was stated explicitly by Steriade (1988).
- Three possible types of simplifications are:
  a. Onset simplification
  b. Coda simplification
  c. Elimination of consonantal nuclei

Tagalog: CC>CV  ta-trabaho, bo-bloaut
Nootka: CVC>CV  wa:wa:s-čil
Sanskrit:  va-vrma

Predictions for Georgian

- Possible shapes of reduplicant in Georgian:
  - Disyllabic foot/minimal word?
  - Syllable?

- Possible markedness constraints/simplifications in reduplicant:
  - Onset simplification
  - Coda simplification
IV Prosodic analysis

Full
kuča-kuča  puspusi
vak’e-vak’e  c’ak’c’ak’i
k’ona-k’ona  čakčaki

Partial
panci-punci  čxara-čxuri
parti-purti  txlaša-txluši
lac’i-luc’i
bak’a-buk’i

Proposal: Invariant shape of reduplicant in Georgian is C(C)V

- Support for this claim outside reduplication is existence of the disyllabic minimal word constraint in Georgian (Butskhrikidze 2002).

- Evidence:
  - Accent assignment
  - Formation of inalienable construction
  - Monosyllabic lengthening in yes-no questions
Base and reduplicant match in shape, both have C(C)V(C)V structure

Full reduplication

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVCV</td>
<td>CVCV</td>
</tr>
<tr>
<td>kuča-kuča</td>
<td></td>
</tr>
<tr>
<td>vak’e-vak’e</td>
<td></td>
</tr>
<tr>
<td>k’ona-k’ona</td>
<td></td>
</tr>
</tbody>
</table>

Partial reduplication

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCVCV</td>
<td>CVCV</td>
</tr>
<tr>
<td>čxara-čxuri</td>
<td></td>
</tr>
<tr>
<td>txap’a-txup’i</td>
<td></td>
</tr>
<tr>
<td>Base</td>
<td>Reduplicant</td>
</tr>
<tr>
<td>CVCCV</td>
<td>CVCV</td>
</tr>
<tr>
<td>panci-punci</td>
<td></td>
</tr>
<tr>
<td>parti-purti</td>
<td></td>
</tr>
</tbody>
</table>

Base-reduplicant mismatch

What happens in the reduplicant when base is less than CVCV?, i.e. CVC, VCV or CV?

- Vowel insertion?
- Consonant epenthesis?
- Syllable insertion?
Vowel Insertion

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVC</td>
<td>CVCV</td>
</tr>
<tr>
<td>pus-pusi</td>
<td></td>
</tr>
<tr>
<td>c’ak’c’ak’i</td>
<td></td>
</tr>
<tr>
<td>čakčaki</td>
<td></td>
</tr>
</tbody>
</table>

Note: -i is inserted in reduplicant to meet disyllabic constraint! -i is the nominative case marker, the default vowel ending any CVC stem/root in Georgian outside reduplication. Thus, CVC-CVC reduplication construction is ill-formed.

Consonant epenthesis

<table>
<thead>
<tr>
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<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCV</td>
<td>CVCV</td>
</tr>
<tr>
<td>are-mare</td>
<td></td>
</tr>
<tr>
<td>ača-bača</td>
<td></td>
</tr>
<tr>
<td>ačxa-bačxa</td>
<td></td>
</tr>
</tbody>
</table>

Note: the consonants m and b are inserted in the reduplicant. Obviously the consonants are inserted to avoid the hiatus, otherwise marked environment in Georgian. Outside reduplication b-epenthesis (to resolve a hiatus) is attested in the derived form m-eko-b-eli “neighbor”.
### Syllable insertion

<table>
<thead>
<tr>
<th>Base</th>
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</tr>
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<tbody>
<tr>
<td>CVC</td>
<td>CVCVC</td>
</tr>
<tr>
<td>pirdapir</td>
<td></td>
</tr>
<tr>
<td>guldagul</td>
<td></td>
</tr>
<tr>
<td>kardakar</td>
<td></td>
</tr>
<tr>
<td>mxardamxar</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The conjunction *da* is added to the reduplicant to make it disyllabic. Cases of *da* insertion to the base of the CVCV type are not known to me.

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### Syllable insertion

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CV</td>
<td>CVCV</td>
</tr>
<tr>
<td>sisini</td>
<td></td>
</tr>
<tr>
<td>t'at'ani</td>
<td></td>
</tr>
<tr>
<td>c'i'c'ini</td>
<td></td>
</tr>
<tr>
<td>č'i'č'ini</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** These are onomatopoetic forms. *si, t'a, ci* or *č'i* do not exist as independent morphemes in Georgian. The syllable *ni* is inserted to form the disyllabic reduplicants. Outside reduplication *ni* is attested in infinitival forms, e.g. *lac'ani, bak'uni*, etc.
Conclusions
(Prosodic analysis)

- As proposed, reduplicant seems to have invariant C(C)VC(C)V shape in Georgian.
- When base has C(C)VC(C)V structure, full or partial (with a vowel alternation) reduplication constructions are formed.
- When base is less than C(C)VC(C)V, several phonological processes take place in the reduplicant: vowel insertion, consonant epenthesis or syllable insertion, depending on the base type.

V Segmental analysis

- Vowel alternation
- Consonant alternation
- Complex segment formation (harmonic clusters and C+/v/) in reduplicant
Vowel alternation

panci-punci
parti-purti
lac'i-luc'i

račxa-nučxi
pacxa-pucxi
razya-ruzxi
txlaša-txluši
k'ak'a-k'uk'i
pacxa-pucxi

Note: alternation of low and high vowels in reduplication is cross-linguistically well attested.

Consonant alternations

r/l
bar-bali
t'ar-t'ali
kir-kili
gur-guli
čur-čuli

Note: r/l dissimilation is known outside reduplication in Georgian, e.g. kart-ul-i, megr-ul-i, but k'ax-ur-i, svan-ur-i.

n/l,r
san-sali tkon-tkori
sun-suli tan-tari
k'un-k'uli

Note: the sonorant n in CVC base is always changed by another sonorant r or l in reduplicant.
Complex segment formation
(Harmonic clusters and C + /v/ (labialized complex segments) are created in the reduplicant)

Harmonic clusters  C + /v/ sequences
zurz'uli          sirsvali
du'dyuni          cercveli
tantkari          čirčvali
c'inc'k'ili       γirγvali

CCVC-CCVCV
CC=harmonic clusters or C+/v/
tkontkori          k'vink'vili
sk'up'sk'up'i      γvanγvali
txap'txap'i        xvarxvari
dgandgari          xvanxvali
t'q'up't'q'up'i    q'vanq'vali
CCVC-CCVCV
CC=obstruent + sonorant

tlaxtlaxi
c’rup’c’rup’i
kniškniši

- Harmonic clusters and C+/v/ sequences are considered as complex segments (Butskhrikidze 2002).
- Obstruent + sonorant sequences are the most unmarked consonant clusters in Georgian (Butskhrikidze 2002).

Conclusions
(Segmental analysis)

- Unlike predictions made for reduplicant:
  - Onset simplification
  - Coda simplification
  We find complex segment formation in reduplicant.
- Nevertheless the clusters created in reduplicant (harmonic clusters and C+/v/) are unmarked in Georgian.
- Marked structures simply do not participate in reduplication process.
VI General Conclusions

- Reduplicant, regardless of the shape/size of base, has disyllabic C(C)VC (C)V shape in Georgian.
- Both reduplicant and base have unmarked segmental structure.
- Marked structures do not reduplicate.