Une perspective morphomique sur les marqueurs de personne du laze

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Introduction

- Laz has an intricate person marking system, with a variety of aspects calling for a purely morphological ('morphomic') analysis.
- Most notably, plain vs. inverse constructions:

(1) *me-g-o-x-e-n*
PV-CPL.2-VAL_O-sit-TH-SBJ.3SG
'it sits on you (sg)'

(2) *g-i-dzir-u-n*
SBJ.2-VAL_U-see-TH-CPL.3SG
SUJ.2-VAL_U-see-TH-CPL.3SG 'you (sg) have seen him'

- Goals:
  - Provide a detailed description of the system
  - Motivate the use of morphomic features, as a way of reducing the plain vs. inverse distinction to a morphological reversal
  - Explicit formal analysis in terms of Paradigm Function Morphology

The language Laz

- Belongs to the South Caucasian language family, which also includes Georgian, Mingrelian and Svan
- Spoken in North-East Turkey and South-West Georgia

- Approximately 250,000 speakers (Feurstein 1983).
- Endangered : speakers under the age of ca. 25 do not speak Laz.
- Four dialect areas. The data presented here are from the dialect of Arhavi. They are taken from published sources and from René Lacroix's fieldwork.

☞ A preliminary analysis of person marking in Arhavi Laz is provided in Lacroix (2009).

The structure of the finite verb

- As other South Caucasian languages, Laz has an intricate conjugation system
- Lacroix (2009): 11 derivational and/or inflectional position classes

preverbs	preverbs	person marking	valency/aspect	root	causative	causative	thematic suffix	TAM	TAM	person marking	TAM/evidentiality
–4	–3	–2	–1	0	1	2	3	4	5	6	7
ko-	*go-*	*m-*	*o-*	*k'untsx*	*-in*		*-am*	*-t'*	*-i*	*-t*	*-doe*
PV	PV	CPL.1	VAL1	wake_up	CAUS		TH	PST.IPFV	PST	SBJ.12PL	EVD

'you(pl.) were waking me up, I'm told'

- Some position classes host both derivational and inflectional affixes
- In this talk we will only be concerned with the person markers in red

Outline

Outline

The plain construction: case marking

- Monovalent verbs take an ergative or absolutive subject

(3) *K'oči-k* *čind-um-s*
man-ERG sneeze-TH-SBJ.3SG
'The man sneezes.' (field data)

- Divalent verbs may take:
  - An ergative subject and an absolutive complement
  - An ergative subject and a dative complement
  - An absolutive subject and a dative complement

(4) a. *Bere-k* *otsxodž* *me-tk'oč-u*
child-ERG comb[ABS] PV-throw-AOR.SBJ.3SG
'The boy threw the comb.' (Dumézil 1937, text 1)

b. *Bere-k* *bozo-s* *mend-o-tsk'e-s*
child-ERG girl-DAT PV-VAL_O-look_at-SBJ.3SG
'The boy looks at the girl.' (field data)

c. *Ha* *t'urva-s* *čkar mč'adži var* *n-o-xed-asen*
DEM bag-DAT no fly[ABS] NEG PV-VAL_O-sit-FUT.SBJ.3SG
'No fly will sit on this bag.' (Dumézil 1967, text XXXV)

The inverse construction: case marking

- Monovalent verbs take a dative subject

(5) *Bozo-s a-škurin-u*
girl-DAT VAL_A-get_afraid-AOR.SBJ.3SG
'The girl got afraid.' (Žghent'i 1938, text 50)

- Divalent verbs take a dative subject and an absolutive complement

(6) *K'oči-s čxomi va a-č'op-u*
man-DAT fish[ABS] NEG VAL_A-take-AOR.SBJ.3SG
'The man could not catch fish.' (field data)

Distribution of the two constructions

Most verbal lexemes are congruent:

- If the form is –PERFECT, the plain construction is used.
- If the form is +PERFECT, the inverse construction is used.

TAM	1PL>3SG form of *dzir* 'see'
present	bdziromt
past imperfective	bdziromt'it
aorist	bdzirit
future	bdziraten
present perfect	midzirunan
past perfect	midzirut'es
subjunctive	bdziromt'at
optative	bdzirat
past optative	bdzirat'it

Distribution of the two constructions

A few basic verbs are non-congruent: they use the inverse construction for –PERFECT forms (instead of the expected plain construction)

(7) *k'oči-s* *a-škuin-u*
man-DAT VAL_A-fear-AOR.CPL.3SG
'The man was scared.' (field data)

In addition, the potential derivation creates new non-congruent verbs

(8) *k'oči-s* *čxomi va* *a-č'op-u*
man-DAT fish NEG VAL_A-take-AOR.CPL.3SG
'The man could not catch fish.' (field data)

Outline

Person markers in the plain construction

- Verbs agree with both subjects and (direct or indirect) complements.

(9) *m-dzir-om-an*
CPL.1-see-TH-3SG>PL
'He sees us.'

- Monovalent verbs in the plain construction use of a first set of affixes

1SG	blalum
2SG	lalum
3SG	lalums
1PL	blalumt
2PL	lalumt
3PL	laluman

Present of *lal* 'bark'

☞ From now on we will refer to these affixes as set 1 markers

Person marking on divalent verbs

- Divalent verbs use the same set of subject person markers as monovalent verbs.
- A second set of affixes serve as complement person markers.

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdziromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

NB: some affixes are cumulative Set 1 / Set 2 markers. Deciding what is cumulative and what is not is depends on theoretical decisions

Allomorphy in person suffixes

- *-an* alternates with two other suffixes:
  - *-an* is used with class I verbs in the indicative present
  - *-nan* is used with class II and class III verbs in the indicative present
  - *-n* is used elswhere

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdzиromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	megoxe	meboxe	—	megoxet	meboxe
	2SG	memoxe	—	noxe	memoxet	—	noxe
	3SG	memoxen	megoxen	noxen	memoxenan	megoxenan	noxen
	1PL	—	megoxet	meboxet	—	megoxet	meboxet
	2PL	memoxet	—	noxet	memoxet	—	noxet
	3PL	memoxenan	megoxenan	noxenan	memoxenan	megoxenan	noxenan

Present of *meox* 'sit'

Allomorphy in person suffixes

- *-an* alternates with two other suffixes:
  - *-an* is used with class I verbs in the indicative present
  - *-nan* is used with class II and class III verbs in the indicative present
  - *-n* is used elswhere

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdziromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzira	bdzira	—	gdzirat	bdzira
	2SG	mdzira	—	dzira	mdzirat	—	dzira
	3SG	mdziras	gdziras	dziras	mdziran	gdziran	dziras
	1PL	—	gdzirat	bdzirat	—	gdzirat	bdzirat
	2PL	mdzirat	—	dzirat	mdzirat	—	dzirat
	3PL	mdziran	gdziran	dziran	mdziran	gdziran	dziran

Optative of *dzir* 'see'

Allomorphy in person suffixes

- *-s* alternates with another suffix:
  - *-n* is used with class III verbs in the indicative present
  - *-s* is used elsewhere

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdzиromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	megoxe	meboxe	—	megoxet	meboxe
	2SG	memoxe	—	noxe	memoxet	—	noxe
	3SG	memoxen	megoxen	noxen	memoxenan	megoxenan	noxen
	1PL	—	megoxet	meboxet	—	megoxet	meboxet
	2PL	memoxet	—	noxet	memoxet	—	noxet
	3PL	memoxenan	megoxenan	noxenan	memoxenan	megoxenan	noxenan

Present of *meox* 'sit'

Allomorphy in person suffixes

- In the future, full set of suffixes cumulating tense and person marking

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdziromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirare	bdzirare	—	gdziraten	bdzirare
	2SG	mdzir are	—	dzirare	mdziraten	—	dzirare
	3SG	mdzirasen	gdzirasen	dzirasen	mdziranoren	gdziranoren	dzirasen
	1PL	—	gdziraten	bdziraten	—	gdziraten	bdziraten
	2PL	mdziraten	—	dziraten	mdziraten	—	dziraten
	3PL	m-dziranoren	gdziranoren	dziranoren	mdziranoren	gdziranoren	mdziranoren

Future of *dzir* 'see'

Portmanteau suffixes in the past

- In the past, two portmanteau suffixes corresponding to *-nan* and *-n*

SUBJECT \ COMPLEMENT	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	gdzirom	bdzirom	—	gdziromt	bdzirom
2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see'

SUBJECT \ COMPLEMENT	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	gdzir**i**	bdzir**i**	—	gdzir**it**	bdzir**i**
2SG	mdzir**i**	—	dzir**i**	mdzir**it**	—	dzir**i**
3SG	mdzir **u**	gdzir **u**	dzir **u**	mdzir **es**	gdzir **es**	dzir **u**
1PL	—	gdzir**it**	bdzir**it**	—	gdzir**it**	bdzir**it**
2PL	mdzir**it**	—	dzir**it**	mdzir**it**	—	dzir**it**
3PL	m-dzir **es**	gdzir **es**	dzir **es**	mdzir **es**	gdzir **es**	dzir **es**

Aorist of *dzir* 'see'

The distribution of suffix allomorphy

- Alternate person suffixes always occur in the same 4 zones of the paradigm; giving rise to systematic syncretism
- Two orthogonal dimensions of classification for suffixes: person marking, TAM+class

SUBJECT \ COMPLEMENT	1SG	2SG	3SG	1PL	2PL	3PL
1SG	A			D		A
2SG						
3SG	C			B		C
1PL	D					
2PL						
3PL	B					

A:
- *are* in the future
- ∅ elsewhere

B:
- *anoren* in the future
- portmanteau *es* in the past
- *nan* in the present, classes II and III
- *an* in the present, class I
- *n* elsewhere

C:
- *asen* in the future
- portmanteau *u* in the past
- *n* in the present, class III
- *s* elsewhere

D:
- *aten* in the future
- *t* elsewhere

Outline

Person markers in the inverse construction

- As in the plain construction, verbs agree with both subjects and complements.

(10) *b-u-dzir-u-t*
3>1-SUBJ.3.VAL_U-see-TH-CPL.PL
'He has seen us'

- Monovalent verbs recycle Set 2 person markers from the plain construction

1SG	maškurinen
2SG	gaškurinen
3SG	aškurinen
1PL	maškurinenan
2PL	gaškurinenan
3PL	aškurinenan

Present of *aškurin* 'get afraid'

Person marking on divalent verbs

- Set 2 markers register subject agreement, set 1 markers complement agreement

plain construction

—	megoxe	meboxe	—	megoxet	meboxe	
2SG	memoxe	—	noxe	memoxet	—	noxe
3SG	memoxen	megoxen	noxen	memoxenan	megoxenan	noxen
1PL	—	megoxet	meboxet	—	megoxet	meboxet
2PL	memoxet	—	noxet	memoxet	—	noxet
3PL	memoxenan	megoxenan	noxenan	memoxenan	megoxenan	noxenan

inverse construction

1SG	—	midziu	midziun	—	midziut	midziun
2SG	gidziu	—	gidziun	gidziut	—	gidziun
3SG	budziu	udziu	udziun	budziut	udziut	udziun
1PL	—	midziut	midziunan	—	midzi-ut	midziunan
2PL	gidziut	—	gidziunan	gidziut	—	gidziunan
3PL	budziu	udziu	udziunan	budziut	udziut	udziunan

Comparing the two constructions

- Observation: the table is symmetrical, except for the greyed out area

☞ This is almost a morphological reversal (Baerman 2007)

plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

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plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

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- Observation: the table is symmetrical, except for the greyed out area

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plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Comparing the two constructions

- Observation: the table is symmetrical, except for the greyed out area

☞ This is almost a morphological reversal (Baerman 2007)

plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Comparing the two constructions

- Observation: the table is symmetrical, except for the greyed out area

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plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Comparing the two constructions

- Systematic syncretism between 3SG and 3PL complements
- Both look like SG forms
- Analysis: no number agreement; remove a column

plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Comparing the two constructions

- Systematic syncretism between 3SG and 3PL complements
- Both look like SG forms
- Analysis: no number agreement; remove a column

plain construction

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-(∅)	b-(∅)	—	g-t	b-(∅)
2SG	m-(∅)	—	∅-(∅)	m-t	—	∅-(∅)
3SG	m-(n)	g-(n)	∅-(n)	m-nan	g-nan	∅-(n)
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction

1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Comparing the two constructions

- Systematic syncretism between 3SG and 3PL complements
- Both look like SG forms
- Analysis: no number agreement; remove a column

plain construction

	1SG	2SG	3SG	1PL	2PL
1SG	—	g-∅	b-∅	—	g-t
2SG	m-∅	—	∅-∅	m-t	—
3SG	m-n	g-n	∅-n	m-nan	g-nan
1PL	—	g-t	b-t	—	g-t
2PL	m-t	—	∅-t	m-t	—
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan

inverse construction

1SG	—	m-∅	m-n	—	m-t
2SG	g-∅	—	g-n	g-t	—
3SG	b-∅	∅-∅	∅-n	b-t	-t
1PL	—	m-t	m-nan	—	m-t
2PL	g-t	—	g-nan	g-t	—
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t

Summing up

- We have three phenomena to account for:
  - Plain vs. inverse opposition, construed as a morphological reversal
  - Syncretism between 3PL and 3SG complement agreement affixes, construed as a failure of agreement
  - Intricate distribution of person markers
- A number of solutions have been proposed for related phenomena in Georgian (e.g. Harris, 1981; Anderson, 1984, 1986, 1992; Halle & Marantz, 1993; Stump, 2001; Stewart 2001)
  - none of these is fully satisfactory
  - the Laz facts are subtly different
- We attempt a new approach:
  - Person markers do not realize directly agreement features; rather, they realize morphomic features related to agreement features by FCRs.
  - As a result, no heterodox formal apparatus is needed to account for the distribution of person markers...
  - ...and inversion can be implemented with a simple rule of referral.

Outline

Morphomic features

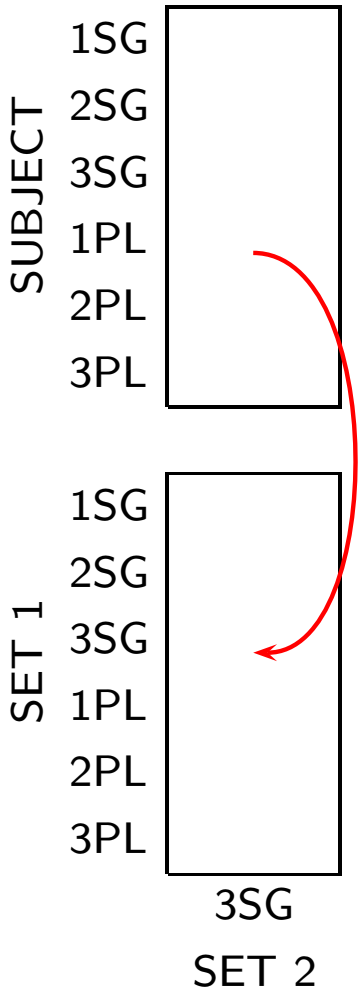
- We assume there is a discrepancy between the actual features of subjects and complements and the features realized by morphology
- We postulate two auxiliary features SETI and SETII
- These features mediate the relationship between true morphosyntactic properties and morphological exponents

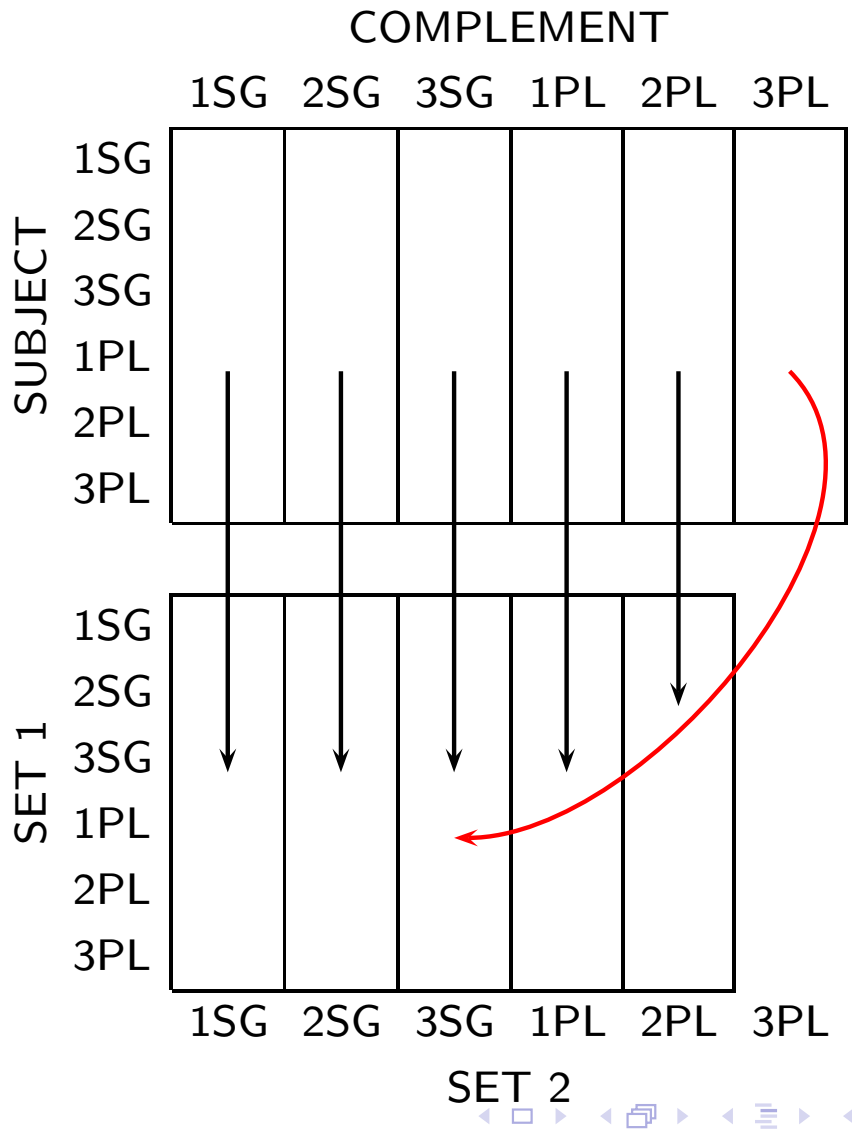
☞ They are purely morphological, or morphomic features (Stump, 2005; Corbett & Baerman, 2006; Bonami & Boyé, 2008).

- Technically:
  - The list-valued ARG-ST feature registers morphosyntactic properties of arguments, in obliqueness order.
  - This list is related to SET-I and SET-II by Feature Cooccurrence Restrictions (Gazdar *et al.* 1985).
  - Realization rules realize SET-I and SET-II, not ARG-ST.

Relating features

- Morphosyntactic and morphological features are related by Feature Cooccurrence Restrictions

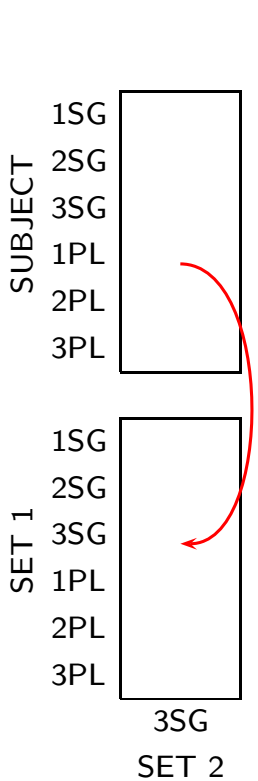


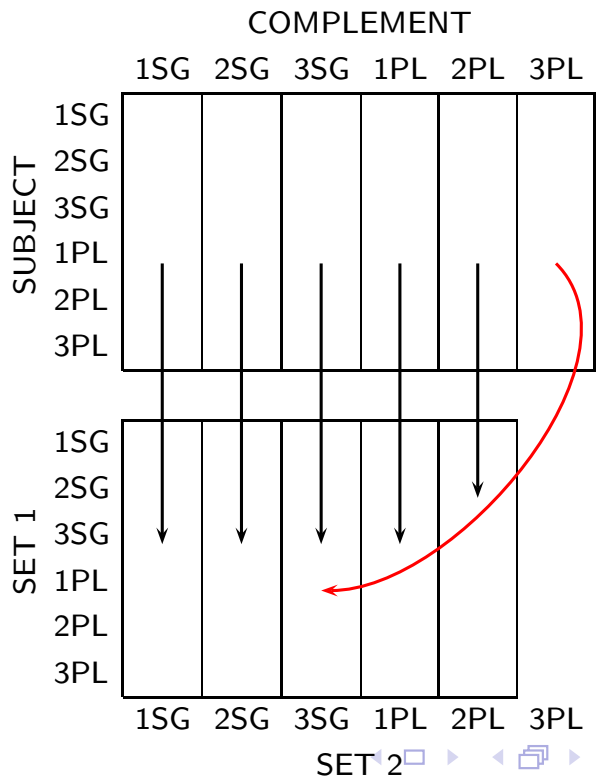


Relating features

- Morphosyntactic and morphological features are related by Feature Cooccurrence Restrictions
- Technically:

$$\begin{cases} \text{ARG-ST } \langle \phi, \ldots \rangle \Rightarrow \text{SET1 } \phi \\ \text{ARG-ST } \langle \phi \rangle \Rightarrow \text{SET2 } \{\text{PER } 3, \text{NB } sg\} \\ \text{ARG-ST } \langle \phi, \{\text{PER } \tau\}, \ldots \rangle \Rightarrow \text{SET2 } \{\text{PER } \tau\} \\ \text{ARG-ST } \langle \phi, \{\text{PER } 3\}, \ldots \rangle \Rightarrow \text{SET2 } \{\text{NB } sg\} \\ \neg\text{ARG-ST } \langle \phi, \{\text{PER } 3\}, \ldots \rangle \Rightarrow (\text{ARG-ST } \langle \phi, \{\text{NB } pl\}, \ldots \rangle \Leftrightarrow \text{SET2 } \{\text{NB } pl\}) \end{cases}$$





Outline

Accounting for person prefixes

- The situation is analogous to that in Georgian (Anderson 1992):
  - m is the exponent of 1st person complement agreement
  - g is the exponent of 2nd person complement agreement
  - b is the exponent of 1st person subject agreement

⇒ extrinsic rule ordering (Anderson 1992, Halle & Marantz 1993) or multiple modes of rule application (Stump, 2001)

- Under our assumptions, this is not necessary: intransitives have no complement, but they have a SET2 specification.
  - $X_{\textbf{verb}}, \sigma : \{\text{SET2 } \textit{1}\} \longrightarrow$ mX
  - $X_{\textbf{verb}}, \sigma : \{\text{SET2 } \textit{2}\} \longrightarrow$ gX
  - $X_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{1}, \text{SET2 } \textit{3}\} \longrightarrow$ bX

		SET 2				
		1SG	2SG	3SG	1PL	2PL
SET 1	1SG	—	gdzirom	bdzirom	—	gdziromt
	2SG	mdzirom	—	dzirom	mdziromt	—
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman
	1PL	—	gdziromt	bdziromt	—	gdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman

Present of *dzir* 'see'

Accounting for person suffixes

- When we look at the future, a clear Pāninian pattern is apparent:

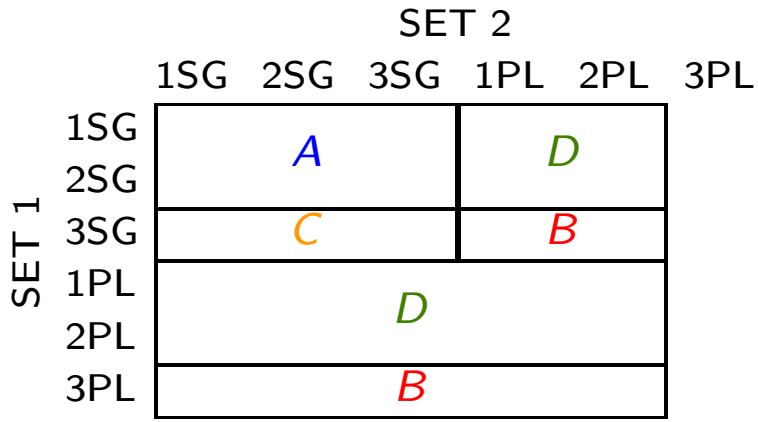
SET 1 \ SET 2	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	gdzirare	bdzirare	—	gdziraten	
2SG	mdzir are	—	dzir are	mdziraten	—	
3SG	mdziraasen	gdziraasen	dziraasen	mdziranoren	gdziranoren	
1PL	—	gdziraten	bdziraten	—	gdziraten	
2PL	mdziraten	—	dziraten	mdziraten	—	
3PL	m-dziranoren	gdziranoren	dziranoren	mdziranoren	gdziranoren	

Future of *dzir* 'see'

- $X_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}, \text{TNS } \textit{fut}\} \longrightarrow X\text{are}$
- $X_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3}, \text{TNS } \textit{fut}\} \longrightarrow X\text{anoren}$
- $X_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}, \text{TNS } \textit{fut}\} \longrightarrow X\text{asen}$
- $X_{\textbf{verb}}, \sigma : \{\text{TNS } \textit{fut}\} \longrightarrow X\text{aten}$

Accounting for person suffixes

- Other subparadigms have the exact same structure:



- However this structure is masked by the fact that zone *A* is characterized by an absence of suffix
  - Candidate sets of rules for the present of class I verbs:

$X_{\textbf{verb}}, \sigma : \{\text{SET1 } sg, \text{SET2 } sg\} \longrightarrow X$
$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 3\} \longrightarrow X\text{an}$
$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 3sg, \text{SET2 } sg\} \longrightarrow X\text{s}$
$X_{\textbf{verb}}, \sigma : \{\} \longrightarrow X\text{t}$

$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 3\} \longrightarrow X\text{an}$
$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 3sg, \text{SET2 } sg\} \longrightarrow X\text{s}$
$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 12pl\} \longrightarrow X\text{s}$
$X_{\textbf{verb}}, \sigma : \{\text{SET1 } 12sg, \text{SET2 } 12pl\} \longrightarrow X\text{s}$

☞ Tension between
  - the presumption that the null suffix is the default
  - the presumption that rule competition should be Pāninian

A solution: gangs of rules

- Our solution: group rules affecting the same zone in gangs, modelled as unordered rule blocks (Stump 2001, chap. 5)

SET 1 \ SET 2	1SG	2SG	3SG	1PL	2PL	3PL	
1SG							
2SG			A		D		D
3SG			C		B		B
1PL				D			D
2PL							
3PL				B			B

$X_{verb}, \sigma : \{SET1\ sg, SET2\ sg\} \longrightarrow \langle X, \sigma \rangle : A$
$X_{verb}, \sigma : \{SET1\ 3\} \longrightarrow \langle X, \sigma \rangle : B$
$X_{verb}, \sigma : \{SET1\ 3sg, SET2\ sg\} \longrightarrow \langle X, \sigma \rangle : C$
$X_{verb}, \sigma : \{\} \longrightarrow \langle X, \sigma \rangle : D$

$$A : \begin{cases} X_{verb}, \sigma : \{TNS\ fut\} \longrightarrow Xare \\ \text{Identity function default} \end{cases}$$

$$B : \begin{cases} X_{verb}, \sigma : \{TNS\ fut\} \longrightarrow Xanoren \\ X_{verb}, \sigma : \{TNS\ prs\} \longrightarrow Xnan \\ X_{I}, \sigma : \{TNS\ prs\} \longrightarrow Xan \\ X_{verb}, \sigma : \{\} \longrightarrow Xn \end{cases}$$

$$C : \begin{cases} X_{verb}, \sigma : \{TNS\ fut\} \longrightarrow Xasen \\ X_{III}, \sigma : \{TNS\ prs\} \longrightarrow Xn \\ X_{verb}, \sigma : \{\} \longrightarrow Xs \end{cases}$$

$$D : \begin{cases} X_{verb}, \sigma : \{TNS\ fut\} \longrightarrow Xaten \\ X_{verb}, \sigma : \{\} \longrightarrow Xt \end{cases}$$

- Evaluation
  - We need a few more rules; but
  - We capture directly the recurrent structure of subparadigms
  - We avoid the use of a non-default identity function

Sample analyses

To be realized:

$\left\langle \text{LAL}, \left\{ \text{PRF } -, \text{TNS } \textit{prs}, \text{ARG-ST } \langle \textit{1pl} \rangle \right\} \right\rangle$

Consequences of FCRs:

$\left\langle \text{LAL}, \left\{ \text{INV } -, \text{ SET1 } \textit{1pl}, \text{SET2 } \textit{3sg}, \ldots \right\} \right\rangle$

Applicable prefix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{1}, \text{SET2 } \textit{3}\} \longrightarrow \text{bX}$

Applicable suffix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : A$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3}\} \longrightarrow \langle \text{X}, \sigma \rangle : B$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : C$

$\text{X}_{\textbf{verb}}, \sigma : \{\} \longrightarrow \langle \text{X}, \sigma \rangle : D$

Referred to:

$\text{X}_{\textbf{verb}}, \sigma : \{\} \longrightarrow \text{Xt}$

Final form: blalumt

To be realized:

$\left\langle \text{DZIR}, \left\{ \text{PRF } -, \text{TNS } \textit{prs}, \text{ARG-ST } \langle \textit{3sg}, \textit{3pl} \rangle \right\} \right\rangle$

Consequences of FCRs:

$\left\langle \text{DZIR}, \left\{ \text{INV } -, \text{ SET1 } \textit{3sg}, \text{SET2 } \textit{3sg}, \ldots \right\} \right\rangle$

Applicable prefix rules:

none

Applicable suffix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : A$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3}\} \longrightarrow \langle \text{X}, \sigma \rangle : B$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : C$

$\text{X}_{\textbf{verb}}, \sigma : \{\} \longrightarrow \langle \text{X}, \sigma \rangle : D$

Referred to:

$\text{X}, \sigma : \{\} \longrightarrow \text{Xs}$

Final form: dziroms

Outline

Almost a reversal...

- Remember the situation: in terms of subjects and complements, almost a morphological reversal.

plain construction (subject/complement)

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-n
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction (subject/complement)

1SG	—	m-∅	m-n	—	m-t	m-n
2SG	g-∅	—	g-n	g-t	—	g-n
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-n
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

Almost a reversal...

- We dealt with this by discarding the last column at the interface:

☞ {CPL *3pl*} forms correspond to {SET2 *3sg*} cells, not {SET2 *3pl*} cells.

plain construction (interface)

	1SG	2SG	3SG	1PL	2PL
1SG	—	g-∅	b-∅	—	g-t
2SG	m-∅	—	∅-∅	m-t	—
3SG	m-n	g-n	∅-n	m-nan	g-nan
1PL	—	g-t	b-t	—	g-t
2PL	m-t	—	∅-t	m-t	—
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan

inverse construction (interface)

1SG	—	m-∅	m-n	—	m-t
2SG	g-∅	—	g-n	g-t	—
3SG	b-∅	∅-∅	∅-n	b-t	-t
1PL	—	m-t	m-nan	—	m-t
2PL	g-t	—	g-nan	g-t	—
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t

?

. . . really a reversal

- But in fact, the rule system given above **does** generate {SET2 *3pl*}, although these are not used in plain constructions.

plain construction (set1/set2)

	1SG	2SG	3SG	1PL	2PL	3PL
1SG	—	g-∅	b-∅	—	g-t	b-∅
2SG	m-∅	—	∅-∅	m-t	—	∅-∅
3SG	m-n	g-n	∅-n	m-nan	g-nan	∅-nan
1PL	—	g-t	b-t	—	g-t	b-t
2PL	m-t	—	∅-t	m-t	—	∅-t
3PL	m-nan	g-nan	∅-nan	m-nan	g-nan	∅-nan

inverse construction (set1/set2)

1SG	—	m-∅	m-n	—	m-t	m-nan
2SG	g-∅	—	g-n	g-t	—	g-nan
3SG	b-∅	∅-∅	∅-n	b-t	-t	∅-nan
1PL	—	m-t	m-nan	—	m-t	m-nan
2PL	g-t	—	g-nan	g-t	—	g-nan
3PL	b-∅	∅-∅	∅-nan	b-t	∅-t	∅-nan

The solution

- Thus inversion can be modelled as a full morphological reversal
- Global portmanteau rule (all rule blocks):

$$\mathrm{X}_{\mathbf{verb}}, \sigma : \{\mathsf{INV}\ +, \mathsf{SET1}\ \phi, \mathsf{SET2}\ \psi\} \longrightarrow$$
$$\langle \mathrm{X}, \sigma / \{\mathsf{INV}\ -, \mathsf{SET1}\ \psi, \mathsf{SET2}\ \phi\} \rangle : \textbf{all blocks}$$

- Crucially, the reversal be formulated in terms of SET1 and SET2, not in terms of ARG-ST.

Sample analyses

To be realized:

$\left\langle \text{DZIR}, \left\{ \text{PRF } +, \text{TNS } \textit{prs}, \text{ARG-ST } \langle \textit{2sg}, \textit{3sg} \rangle \right\} \right\rangle$

Consequences of FCRs:

$\left\langle \text{DZIR}, \left\{ \text{INV } +, \text{ SET1 } \textit{2sg}, \text{SET2 } \textit{3sg}, \ldots \right\} \right\rangle$

Referred to (by inversion):

$\left\langle \text{DZIR}, \left\{ \text{INV } -, \text{ SET1 } \textit{3sg}, \text{SET2 } \textit{2sg}, \ldots \right\} \right\rangle$

Applicable prefix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET2 } \textit{2}\} \longrightarrow \text{gX}$

Applicable suffix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : A$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3}\} \longrightarrow \langle \text{X}, \sigma \rangle : B$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : C$

$\text{X}_{\textbf{verb}}, \sigma : \{\} \longrightarrow \langle \text{X}, \sigma \rangle : D$

Referred to:

$\text{X}_{\textbf{III}}, \sigma : \{\text{TNS } \textit{prs}\} \longrightarrow \text{Xn}$

Final form: gidziun

To be realized:

$\left\langle \text{DZIR}, \left\{ \text{PRF } +, \text{TNS } \textit{prs}, \text{ARG-ST } \langle \textit{3pl}, \textit{3sg} \rangle \right\} \right\rangle$

Consequences of FCRs:

$\left\langle \text{DZIR}, \left\{ \text{INV } +, \text{ SET1 } \textit{3pl}, \text{SET2 } \textit{3sg}, \ldots \right\} \right\rangle$

Referred to (by inversion):

$\left\langle \text{DZIR}, \left\{ \text{INV } -, \text{ SET1 } \textit{3sg}, \text{SET2 } \textit{3pl}, \ldots \right\} \right\rangle$

Applicable prefix rules:

none

Applicable suffix rules:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : A$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3}\} \longrightarrow \langle \text{X}, \sigma \rangle : B$

$\text{X}_{\textbf{verb}}, \sigma : \{\text{SET1 } \textit{3sg}, \text{SET2 } \textit{sg}\} \longrightarrow \langle \text{X}, \sigma \rangle : C$

$\text{X}_{\textbf{verb}}, \sigma : \{\} \longrightarrow \langle \text{X}, \sigma \rangle : D$

Referred to:

$\text{X}_{\textbf{verb}}, \sigma : \{\text{TNS } \textit{prs}\} \longrightarrow \text{Xnan}$

Final form: udziunan

Conclusions

- To account for the Laz plain/inverse relationship, we postulate Morphomic features (see also Bonami & Boyé, 2008):
  - features that mediate the relation between morphosyntax and realization
  - can not be reduced to morphosyntactic features with multiple interpretations (Stump 2005)
  - are a distinct type of morphological features (Corbett & Baerman, 2006):
    - Distinct from lexeme classes: correspond to collections of forms
    - Distinct from form classes: the current features help specify the overall organization of the paradigm rather than local syncretisms
- Benefits:
  - No need for disjunctive rule ordering (Anderson, 1992), expanded mode for rule application (Stump 2001)
  - The whole system can be described in a formally conservative, streamlined version of PFM
  - Interfaces directly with a strongly lexicalist (e.g. LFG or HPSG) syntactic analysis
  - Straightforward DATR implementation (available on demand)

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Laz vs. Georgian

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	gdzirom	bdzirom	—	gdziromt	bdzirom
	2SG	mdzirom	—	dzirom	mdziromt	—	dzirom
	3SG	mdziroms	gdziroms	dziroms	mdziroman	gdziroman	dziroms
	1PL	—	gdziromt	bdziromt	—	gdziromt	bdziromt
	2PL	mdziromt	—	dziromt	mdziromt	—	dziromt
	3PL	mdziroman	gdziroman	dziroman	mdziroman	gdziroman	dziroman

Present of *dzir* 'see' in Laz

		COMPLEMENT					
		1SG	2SG	3SG	1PL	2PL	3PL
SUBJECT	1SG	—	mogk'lav	movk'lav	—	mogk'lavt	movklav
	2SG	momk'lav	—	mok'lav	mogvk'lav	—	mok'lav
	3SG	momk'lavs	mogk'lavs	mok'lavs	mogvk'lavs	mogk'lavt	mok'lavs
	1PL	—	mogk'lavt	movk'lavt	—	mogk'lavt	movk'lavt
	2PL	momk'lavt	—	mok'lavt	mogvk'lavt	—	mok'lavt
	3PL	momk'laven	mogk'laven	mok'laven	mogvk'laven	mogk'laven	mok'laven

Future of Georgian *mo-k'lav* 'kill' (Aronson 1990: 171)