

Morphomic properties and the interface of syntacticosemantic content with morphological form

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**Morphosyntactic
properties:**

grammatical properties to which
morphology and syntax are both
sensitive

**Morphomic
properties:**

grammatical properties to which
only morphology is sensitive

Morphosyntactic properties: grammatical properties to which morphology and syntax are both sensitive

Morphomic properties: grammatical properties to which only morphology is sensitive

What is the logical conclusion to which this distinction should be taken in linguistic theory?

Morphosyntactic properties: grammatical properties to which morphology and syntax are both sensitive

Morphomic properties: grammatical properties to which only morphology is sensitive

I shall argue that this distinction implies a grammatical architecture in which **inflectional paradigms function as the interface of syntacticosemantic content and morphological form.**

Talk outline

1. Syntagmatic compositionality
2. Paradigmatic compositionality
3. The dual role of cells in paradigm-based theories of morphology
4. The cell interface model of semantic interpretation
5. Kashmiri conjugations
6. The paradigm linkage model
7. Hua verb agreement
8. Summary

1. Syntagmatic compositionality

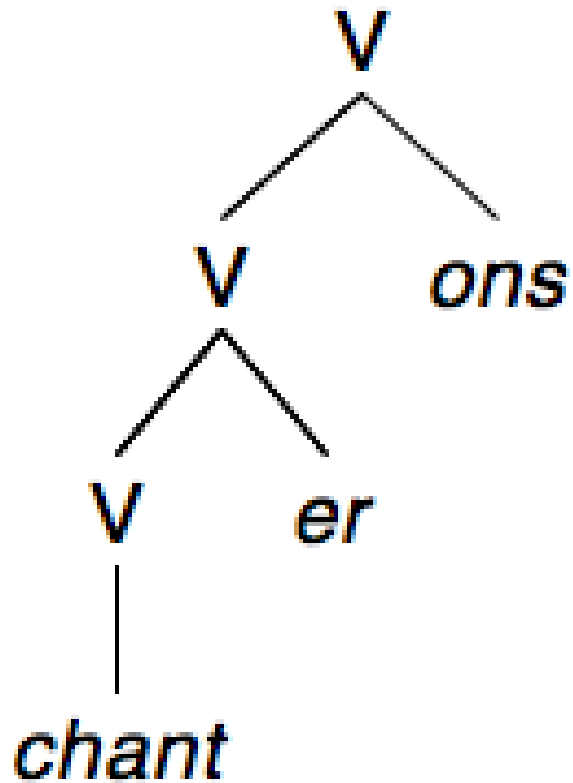
Traditionally, compositionality is a syntagmatic notion.

A complex expression is compositional if its content can be deduced from that of its parts and the manner of their syntagmatic combination.

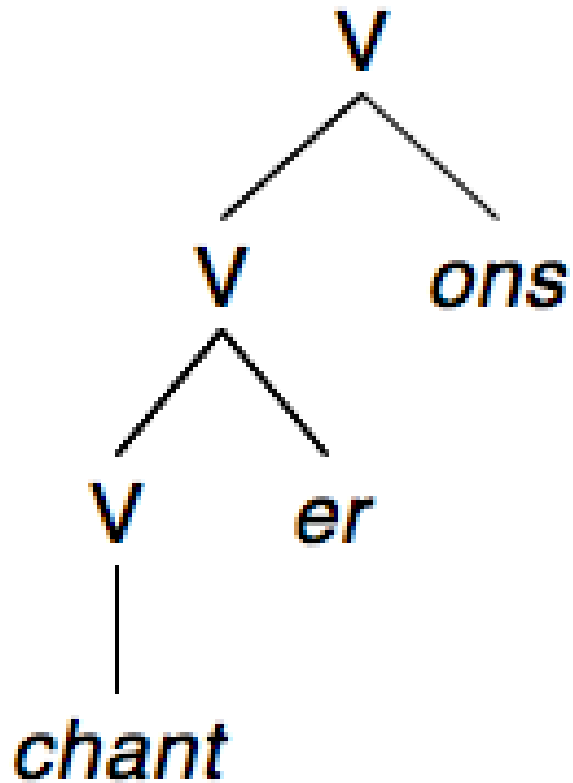
Many word forms seem to exhibit this sort of compositionality.

French *chanterons* 'we shall sing'

French *chanterons* 'we shall sing'

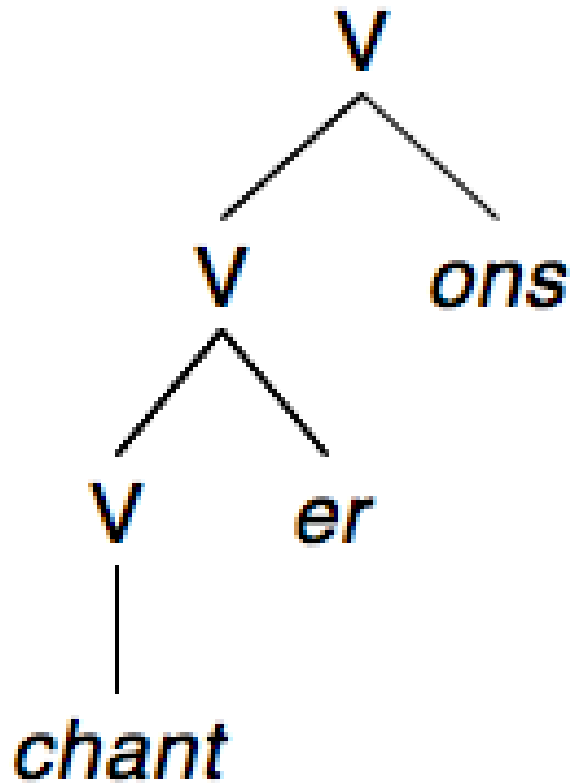


French *chanterons* 'we shall sing'



→ $\lambda Y \lambda X[\text{sing}'(X, Y)]$

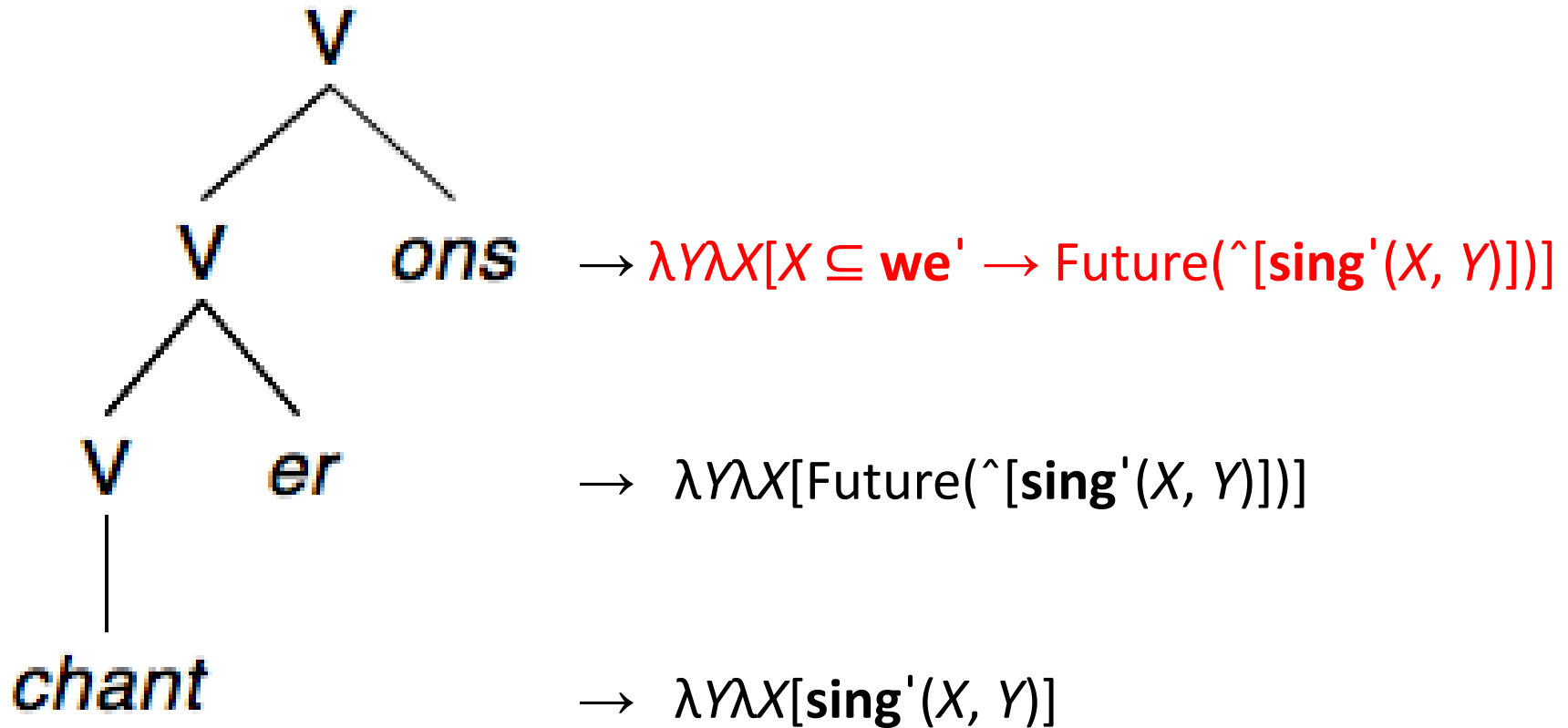
French *chanterons* 'we shall sing'



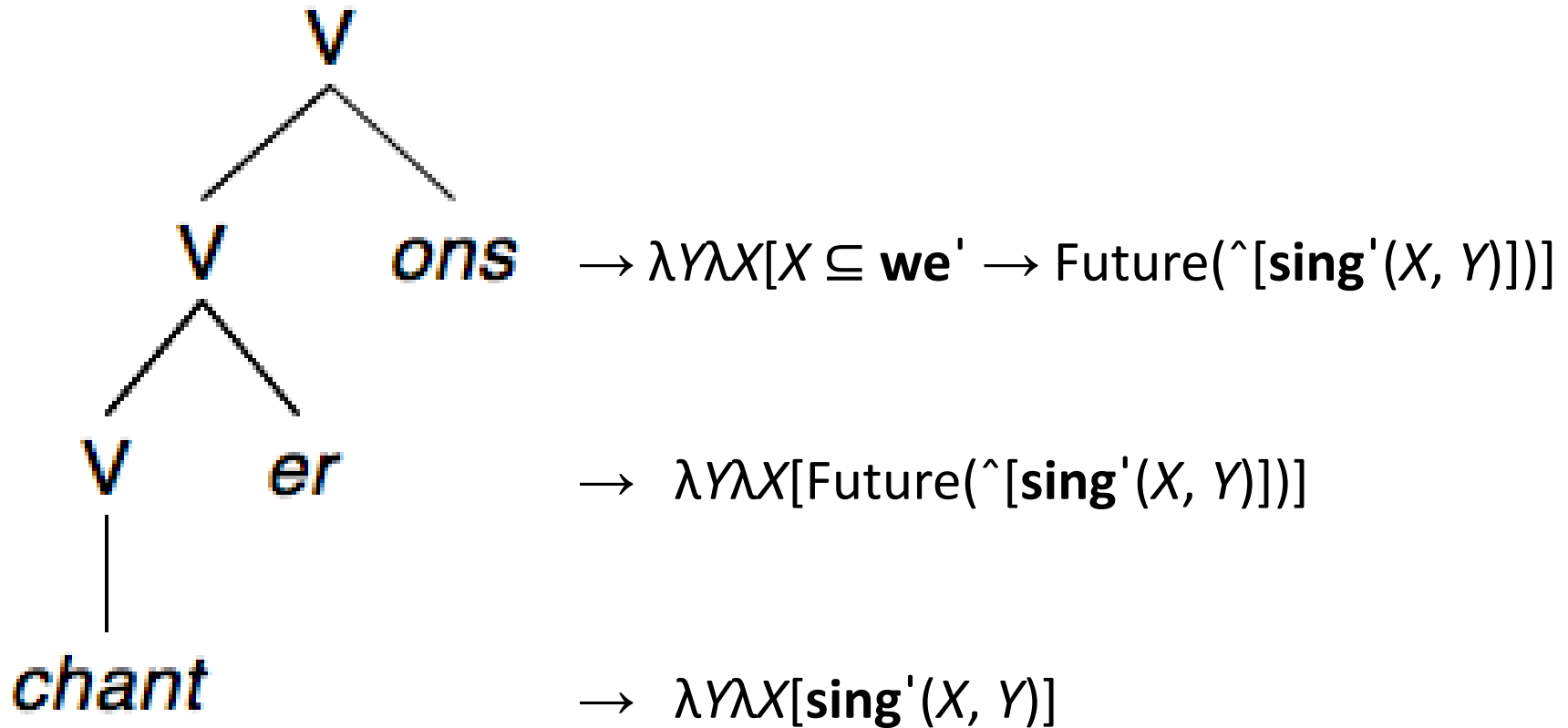
→ $\lambda Y \lambda X [\text{Future}(\hat{[\text{sing}'(X, Y)]})]$

→ $\lambda Y \lambda X [\text{sing}'(X, Y)]$

French *chanterons* 'we shall sing'



French *chanterons* 'we shall sing'



BUT: Inflected word forms are not invariably compositional in the syntagmatic sense.

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1ST PLURAL
chantions

BUT: Inflected word forms are not invariably compositional in the syntagmatic sense.

1ST PLURAL
chantions

IMPERFECT
INDICATIVE
'we sang'

BUT: Inflected word forms are not invariably compositional in the syntagmatic sense.

1ST PLURAL
chantions

IMPERFECT
INDICATIVE
'we sang'

PRESENT
SUBJUNCTIVE
'that we sing'

2. Paradigmatic compositionality

Paradigm-based approaches to inflectional morphology afford a different, paradigmatic conception of compositionality.

According to this conception, a word form is compositional if its content can be deduced from the paradigm cell that it realizes.

On this conception, *chanterons* is compositional because it realizes the first-person plural cell in the future-tense paradigm of the lexeme CHANTER.

Partial paradigm of French CHANGER 'sing'				
		Imperfect indicative	Present subjunctive	Future indicative
Singular	1	<i>chantais</i>	<i>chante</i>	<i>chanterai</i>
	2	<i>chantais</i>	<i>chantes</i>	<i>chanteras</i>
	3	<i>chantait</i>	<i>chante</i>	<i>chantera</i>
Plural	1	<i>chantions</i>	<i>chantions</i>	<i>chanterons</i>
	2	<i>chantiez</i>	<i>chantiez</i>	<i>chanterez</i>
	3	<i>chantaient</i>	<i>chantent</i>	<i>chanteront</i>

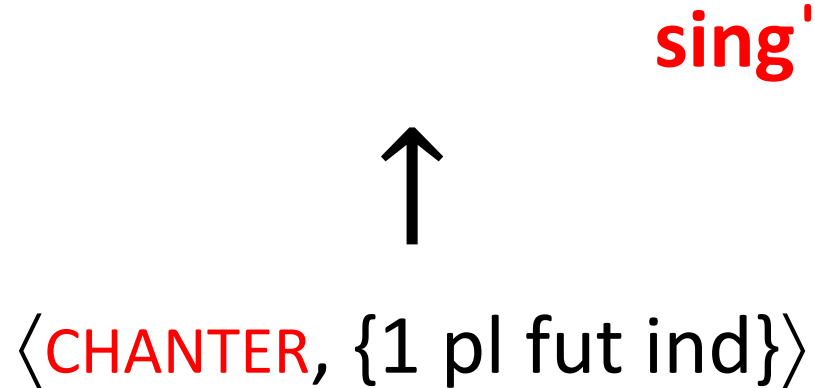
Each of the cells in a lexeme L's paradigm might be conceived of as the pairing of L with a morphosyntactic property set of an appropriate sort, e.g.

⟨CHANTER, {1 pl fut ind}⟩

This cell may be seen as determining the semantic interpretation of the word form that realizes it:
chanterons.

⟨CHANTER, {1 pl fut ind}⟩

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chanterons.



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chanterons.

$\lambda Y \lambda X [X \subseteq \mathbf{we}' \rightarrow \text{Future}(\wedge [\mathbf{sing}'(X, Y)])]$



$\langle \text{CHANTER}, \{1 \text{ pl fut ind}\} \rangle$

Even syncretic word forms may be compositional in this sense: imperfect *chantions* and subjunctive *chantions* realize distinct cells in the paradigm of CHANTER.

Partial paradigm of French CHANTER 'sing'				
		Imperfect indicative	Present subjunctive	Future indicative
Singular	1	<i>chantais</i>	<i>chante</i>	<i>chanterai</i>
	2	<i>chantais</i>	<i>chantes</i>	<i>chanteras</i>
	3	<i>chantait</i>	<i>chante</i>	<i>chantera</i>
Plural	1	<i>chantions</i>	<i>chantions</i>	<i>chanterons</i>
	2	<i>chantiez</i>	<i>chantiez</i>	<i>chanterez</i>
	3	<i>chantaient</i>	<i>chantent</i>	<i>chanteront</i>

⟨CHANTER, {1pl impf ind}⟩

⟨CHANTER, {1pl prs sbjv}⟩

sing'



⟨**CHANTER**, {1pl impf ind}⟩

sing'



⟨**CHANTER**, {1pl prs sbjv}⟩

$\lambda Y \lambda X [X \subseteq \text{we}' \rightarrow$
Imperfect($\hat{}$ [sing'(X, Y)])]



$\langle \text{CHANTER}, \{1\text{pl impf ind}\} \rangle$

$\lambda Y \lambda X [X \subseteq \text{we}' \rightarrow$
Subjunctive($\hat{}$ [sing'(X, Y)])]



$\langle \text{CHANTER}, \{1\text{pl prs subjv}\} \rangle$

3. The dual role of cells in paradigm-based theories of morphology

In paradigm-based theories of morphology, the morphosyntactic property set associated with a cell is assumed to determine the word form realizing that cell.

⟨CHANTER, {1 pl fut ind}⟩

⟨CHANTER, {1 pl fut ind}⟩



chanterons

⟨**CHANTER**, {1 pl fut ind}⟩



chant -er -ons

The dual role of paradigm cells

⟨CHANTER, {1 pl fut ind}⟩



chant -er -ons

The dual role of paradigm cells

⟨CHANTER, {1 pl fut ind}⟩



chant -er -ons

4. The **cell interface model** of the interface of semantic interpretation with inflectional morphology:

The cells of a lexeme's paradigm are the basis for both the semantic interpretation and the inflectional realization of its word forms.

⟨CHANTER, {1 pl fut ind}⟩

$$\lambda Y \lambda X [X \subseteq \mathbf{we}' \rightarrow \text{Future}(\hat{[\mathbf{sing}'(X, Y)])}]$$

**SEMANTIC
INTERPRETATION**



$\langle \text{CHANTER}, \{1 \text{ pl fut ind}\} \rangle$

$\lambda Y \lambda X [X \subseteq \mathbf{we}' \rightarrow \text{Future}(\hat{[\mathbf{sing}'(X, Y)])}]$

**SEMANTIC
INTERPRETATION**



$\langle \text{CHANTER}, \{1 \text{ pl fut ind}\} \rangle$

**MORPHOLOGICAL
REALIZATION**



chant-er-ons

Evidence against the cell interface model

5. Kashmiri conjugations

George A. Grierson (1911) *A Manual of the Kāshmirī Language*. Oxford: Clarendon Press.

(Śrīnagar dialect)

Kashmiri conjugations

Kashmiri verbs fall into three conjugations, exemplified here by

GUP

‘conceal’
(Conj. I),

WUP

‘burn inside’
(Conj. II),

WUPH

‘fly’
(Conj. III).

Kashmiri conjugations

Kashmiri verbs fall into three conjugations, exemplified here by

GUP

'conceal'

(Conj. I),

[transitives]

WUP

'burn inside'

(Conj. II),

WUPH

'fly'

(Conj. III).

Kashmiri conjugations

Kashmiri verbs fall into three conjugations, exemplified here by

GUP 'conceal' (Conj. I), [transitives]	WUP 'burn inside' (Conj. II), [intransitives]	WUPH 'fly' (Conj. III).
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Kashmiri conjugations

Kashmiri verbs fall into three conjugations, exemplified here by

GUP 'conceal' (Conj. I), [transitives]	WUP 'burn inside' (Conj. II), [intransitives]	WUPH 'fly' (Conj. III).
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The differences between the three conjugations are restricted to the preterite tenses.

Present-tense forms of three Kashmiri verbs

Person, number, gender of subject		GUP 'conceal' (Conj. I)	WUP 'burn inside' (Conj. II)	WUPH 'fly' (Conj. III)	
Masc	Sg	1	<i>chus gupān</i>	<i>chus wupān</i>	<i>chus wuphān</i>
		2	<i>chukh gupān</i>	<i>chukh wupān</i>	<i>chukh wuphān</i>
		3	<i>chuh gupān</i>	<i>chuh wupān</i>	<i>chuh wuphān</i>
	Pl	1	<i>chih gupān</i>	<i>chih wupān</i>	<i>chih wuphān</i>
		2	<i>chiwa gupān</i>	<i>chiwa wupān</i>	<i>chiwa wuphān</i>
		3	<i>chih gupān</i>	<i>chih wupān</i>	<i>chih wuphān</i>
Fem	Sg	1	<i>ches gupān</i>	<i>ches wupān</i>	<i>ches wuphān</i>
		2	<i>chekh gupān</i>	<i>chekh wupān</i>	<i>chekh wuphān</i>
		3	<i>chesh gupān</i>	<i>chesh wupān</i>	<i>chesh wuphān</i>
	Pl	1	<i>chesh gupān</i>	<i>chesh wupān</i>	<i>chesh wuphān</i>
		2	<i>chewa gupān</i>	<i>chewa wupān</i>	<i>chewa wuphān</i>
		3	<i>chesh gupān</i>	<i>chesh wupān</i>	<i>chesh wuphān</i>

In Kashmiri, verbs have three past tenses:

- recent past
- indefinite past
- remote past.

The preterite inflection of WUP 'burn inside', Conj. II

			Masc	Fem
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyεs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyεs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>

The preterite inflection of WUP 'burn inside', Conj. II

			Masc	Fem
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyεs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyεs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>

Recent past inflection of GUP 'conceal', Conj. I

Subject person and number (B)		Object number and gender							
		Singular				Plural			
		A (overt subject required)		B (overt subject optional)		A (overt subject required)		B (overt subject optional)	
		Masc	Fem	Masc	Fem	Masc	Fem	Masc	Fem
Sg	1	<i>gup^u</i>	<i>gup^ü</i>	<i>gupum</i>	<i>gup^üm</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupim</i>	<i>gupεm</i>
	2			<i>guputh</i>	<i>gup^üth</i>			<i>gupith</i>	<i>gupεth</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupun</i>	<i>gup^ün</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupin</i>	<i>gupεn</i>
Pl	1	<i>gup^u</i>	<i>gup^ü</i>			<i>gupⁱ</i>	<i>gup^ε</i>		
	2			<i>gup^uwa</i>	<i>gup^üwa</i>			<i>gupⁱwa</i>	<i>gupεwa</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupukh</i>	<i>gup^ükh</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupikh</i>	<i>gupεkh</i>

Recent past inflection of GUP 'conceal', Conj. I

Object number and gender

Singular

Plural

A
(overt subject
required)

B
(overt subject
optional)

A
(overt subject
required)

B
(overt subject
optional)

Masc

Fem

Masc

Fem

Masc

Fem

Masc

Fem

Sg

1

gup^u

gup^ü

gupum

gup^üm

gupⁱ

gup^ε

gupim

gupεm

2

██████████

guputh

gup^üth

██████████

██████████

gupith

gupεth

3

gup^u

gup^ü

gupun

gup^ün

gupⁱ

gup^ε

gupin

gupεn

Pl

1

gup^u

gup^ü

██████████

gupⁱ

gup^ε

██████████

2

██████████

gup^uwa

gup^üwa

██████████

██████████

gupⁱwa

gupεwa

3

gup^u

gup^ü

gupukh

gup^ükh

gupⁱ

gup^ε

gupikh

gupεkh

Recent past inflection of GUP 'conceal', Conj. I

Subject person and number (B)		Object number and gender							
		Singular				Plural			
		A (overt subject required)		B (overt subject optional)		A (overt subject required)		B (overt subject optional)	
		Masc	Fem	Masc	Fem	Masc	Fem	Masc	Fem
Sg	1	<i>gup^u</i>	<i>gup^ü</i>	<i>gupum</i>	<i>gup^üm</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupim</i>	<i>gupεm</i>
	2			<i>guputh</i>	<i>gup^üth</i>			<i>gupith</i>	<i>gupεth</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupun</i>	<i>gup^ün</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupin</i>	<i>gupεn</i>
Pl	1	<i>gup^u</i>	<i>gup^ü</i>			<i>gupⁱ</i>	<i>gup^ε</i>		
	2			<i>gup^uwa</i>	<i>gup^üwa</i>			<i>gupⁱwa</i>	<i>gupεwa</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupukh</i>	<i>gup^ükh</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupikh</i>	<i>gupεkh</i>

Recent past inflection of GUP 'conceal', Conj. I

Subject person and number (B)		Object number and gender							
		Singular				Plural			
		A (overt subject required)		B (overt subject optional)		A (overt subject required)		B (overt subject optional)	
		Masc	Fem	Masc	Fem	Masc	Fem	Masc	Fem
Sg	1	<i>gup^u</i>	<i>gup^ü</i>	<i>gupum</i>	<i>gup^üm</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupim</i>	<i>gupεm</i>
	2			<i>guputh</i>	<i>gup^üth</i>			<i>gupith</i>	<i>gupεth</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupun</i>	<i>gup^ün</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupin</i>	<i>gupεn</i>
Pl	1	<i>gup^u</i>	<i>gup^ü</i>			<i>gupⁱ</i>	<i>gup^ε</i>		
	2			<i>gup^uwa</i>	<i>gup^üwa</i>			<i>gupⁱwa</i>	<i>gupεwa</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupukh</i>	<i>gup^ükh</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupikh</i>	<i>gupεkh</i>

Recent past inflection of GUP 'conceal', Conj. I

Subject person and number (B)		Object number and gender							
		Singular				Plural			
		A (overt subject required)		B (overt subject optional)		A (overt subject required)		B (overt subject optional)	
		Masc	Fem	Masc	Fem	Masc	Fem	Masc	Fem
Sg	1	<i>gup^u</i>	<i>gup^ü</i>	<i>gupum</i>	<i>gup^üm</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupim</i>	<i>gupεm</i>
	2			<i>guputh</i>	<i>gup^üth</i>			<i>gupith</i>	<i>gupεth</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupun</i>	<i>gup^ün</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupin</i>	<i>gupεn</i>
Pl	1	<i>gup^u</i>	<i>gup^ü</i>			<i>gupⁱ</i>	<i>gup^ε</i>		
	2			<i>gup^uwa</i>	<i>gup^üwa</i>			<i>gupⁱwa</i>	<i>gupεwa</i>
	3	<i>gup^u</i>	<i>gup^ü</i>	<i>gupukh</i>	<i>gup^ükh</i>	<i>gupⁱ</i>	<i>gup^ε</i>	<i>gupikh</i>	<i>gupεkh</i>

Recent past forms of GUP 'conceal' (Conj. I)	Subject person and number	Object number and gender			
		Singular		Plural	
		A		A	
		Masc	Fem	Masc	Fem
1sg	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
2sg					
3sg	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
1pl	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
2pl					
3pl	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	



The number and gender of a transitive verb's object are coded by the same morphology as the number and gender of Conj. II verb's third-person subject.

Recent past forms of GUP 'conceal' (Conj. I)	Subject person and number	Object number and gender			
		Singular		Plural	
		A		A	
		Masc	Fem	Masc	Fem
1sg	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
2sg					
3sg	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
1pl	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	
2pl					
3pl	<i>gup^u</i>	<i>gup^ü</i>	<i>gupⁱ</i>	<i>gup^ε</i>	

Recent past forms of WUP 'burn inside' (Conj. II)		Masc	Fem
	1sg	<i>wupus</i>	<i>wup^üs</i>
	2sg	<i>wupukh</i>	<i>wup^ükh</i>
	3sg	<i>wup^u</i>	<i>wup^ü</i>
	1pl	<i>wupⁱ</i>	<i>wupε</i>
	2pl	<i>wupⁱwa</i>	<i>wupεwa</i>
	3pl	<i>wupⁱ</i>	<i>wupε</i>



Recent past forms of GUP 'conceal' (Conj. I)	Subject person and number	Object number and gender			
		Singular		Plural	
		B		B	
		Masc	Fem	Masc	Fem
1sg	<i>gupum</i>	<i>gup^üm</i>	<i>gupim</i>	<i>gupεm</i>	
2sg	<i>guputh</i>	<i>gup^üth</i>	<i>gupith</i>	<i>gupεth</i>	
3sg	<i>gupun</i>	<i>gup^ün</i>	<i>gupin</i>	<i>gupεn</i>	
1pl					
2pl	<i>gup^uwa</i>	<i>gup^üwa</i>	<i>gupⁱwa</i>	<i>gupεwa</i>	
3pl	<i>gupukh</i>	<i>gup^ükh</i>	<i>gupikh</i>	<i>gupεkh</i>	

Past-tense pronominal subject suffixes (Conj. I)	1sg	<i>-m</i>
	2sg	<i>-th</i>
	3sg	<i>-n</i>
	1pl	
	2pl	<i>-wa</i>
	3pl	<i>-kh</i>

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁵⁷

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁵⁸

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁵⁹

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁶⁰

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁶¹

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēyε</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēyε</i>	<i>wuphyāv</i>	<i>wuphyēyε</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēyε</i>	<i>wuphyāy</i>	<i>wuphyēyε</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēyε</i>	<i>wuphiyāv</i>	<i>wuphiyēyε</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēyε</i>	<i>wuphiyāy</i>	<i>wuphiyēyε</i> ⁶²

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	<i>wupus</i>	<i>wup^üs</i>	<i>wuphyōs</i>	<i>wuphyēyēs</i>
		2	<i>wupukh</i>	<i>wup^ükh</i>	<i>wuphyōkh</i>	<i>wuphyēyεkh</i>
		3	<i>wup^u</i>	<i>wup^ü</i>	<i>wuphyōv</i>	<i>wuphyēye</i>
	Pl	1	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēye</i>
		2	<i>wupⁱwa</i>	<i>wupεwa</i>	<i>wuphyēwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupⁱ</i>	<i>wupε</i>	<i>wuphyēy</i>	<i>wuphyēye</i>
Indefinite past	Sg	1	<i>wupyōs</i>	<i>wupyēyēs</i>	<i>wuphyās</i>	<i>wuphyēyēs</i>
		2	<i>wupyōkh</i>	<i>wupyēyεkh</i>	<i>wuphyākh</i>	<i>wuphyēyεkh</i>
		3	<i>wupyōv</i>	<i>wupyēye</i>	<i>wuphyāv</i>	<i>wuphyēye</i>
	Pl	1	<i>wupyēy</i>	<i>wupyēye</i>	<i>wuphyāy</i>	<i>wuphyēye</i>
		2	<i>wupyēwa</i>	<i>wupyēyεwa</i>	<i>wuphyāwa</i>	<i>wuphyēyεwa</i>
		3	<i>wupyēy</i>	<i>wupyēye</i>	<i>wuphyāy</i>	<i>wuphyēye</i>
Remote past	Sg	1	<i>wupyās</i>	<i>wupyēyēs</i>	<i>wuphiyās</i>	<i>wuphiyēyēs</i>
		2	<i>wupyākh</i>	<i>wupyēyεkh</i>	<i>wuphiyākh</i>	<i>wuphiyēyεkh</i>
		3	<i>wupyāv</i>	<i>wupyēye</i>	<i>wuphiyāv</i>	<i>wuphiyēye</i>
	Pl	1	<i>wupyāy</i>	<i>wupyēye</i>	<i>wuphiyāy</i>	<i>wuphiyēye</i>
		2	<i>wupyāwa</i>	<i>wupyēyεwa</i>	<i>wuphiyāwa</i>	<i>wuphiyēyεwa</i>
		3	<i>wupyāy</i>	<i>wupyēye</i>	<i>wuphiyāy</i>	<i>wuphiyēye</i> ⁶³

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	wupus	wup ^ü s	wuphyōs	wuphyēyēs
		2	wupukh	wup ^ü kh	wuphyōkh	wuphyēyεkh
		3	wup ^u	wup ^ü	wuphyōv	wuphyēyε
	Pl	1	wup ⁱ	wupε	wuphyēy	wuphyēyε
		2	wup ⁱ wa	wupεwa	wuphyēwa	wuphyēyεwa
		3	wup ⁱ	wupε	wuphyēy	wuphyēyε
Indefinite past	Sg	1	wupyōs	wupyēyēs	wuphyās	wuphyēyēs
		2	wupyōkh	wupyēyεkh	wuphyākh	wuphyēyεkh
		3	wupyōv	wupyēyε	wuphyāv	wuphyēyε
	Pl	1	wupyēy	wupyēyε	wuphyāy	wuphyēyε
		2	wupyēwa	wupyēyεwa	wuphyāwa	wuphyēyεwa
		3	wupyēy	wupyēyε	wuphyāy	wuphyēyε
Remote past	Sg	1	wupyās	wupyēyēs	wuphiyās	wuphiyēyēs
		2	wupyākh	wupyēyεkh	wuphiyākh	wuphiyēyεkh
		3	wupyāv	wupyēyε	wuphiyāv	wuphiyēyε
	Pl	1	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε
		2	wupyāwa	wupyēyεwa	wuphiyāwa	wuphiyēyεwa
		3	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε ⁶⁴

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	wupus	wup ^ü s	wuphyōs	wuphyēyēs
		2	wupukh	wup ^ü kh	wuphyōkh	wuphyēyεkh
		3	wup ^u	wup ^ü	wuphyōv	wuphyēyε
	Pl	1	wup ⁱ	wupε	wuphyēy	wuphyēyε
		2	wup ⁱ wa	wupεwa	wuphyēwa	wuphyēyεwa
		3	wup ⁱ	wupε	wuphyēy	wuphyēyε
Indefinite past	Sg	1	wupyōs	wupyēyēs	wuphyās	wuphyēyēs
		2	wupyōkh	wupyēyεkh	wuphyākh	wuphyēyεkh
		3	wupyōv	wupyēyε	wuphyāv	wuphyēyε
	Pl	1	wupyēy	wupyēyε	wuphyāy	wuphyēyε
		2	wupyēwa	wupyēyεwa	wuphyāwa	wuphyēyεwa
		3	wupyēy	wupyēyε	wuphyāy	wuphyēyε
Remote past	Sg	1	wupyās	wupyēyēs	wuphiyās	wuphiyēyēs
		2	wupyākh	wupyēyεkh	wuphiyākh	wuphiyēyεkh
		3	wupyāv	wupyēyε	wuphiyāv	wuphiyēyε
	Pl	1	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε
		2	wupyāwa	wupyēyεwa	wuphiyāwa	wuphiyēyεwa
		3	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε ⁶⁵

		WUP 'burn inside', Conj. II		WUPH 'fly', Conj. III		
		Masc	Fem	Masc	Fem	
Recent past	Sg	1	wupus	wup ^ü s	wuphyōs	wuphyēyēs
		2	wupukh	wup ^ü kh	wuphyōkh	wuphyēyεkh
		3	wup ^u	wup ^ü	wuphyōv	wuphyēyε
	Pl	1	wup ⁱ	wupε	wuphyēy	wuphyēyε
		2	wup ⁱ wa	wupεwa	wuphyēwa	wuphyēyεwa
		3	wup ⁱ	wupε	wuphyēy	wuphyēyε
Indefinite past	Sg	1	wupyōs	wupyēyēs	wuphyās	wuphyēyēs
		2	wupyōkh	wupyēyεkh	wuphyāk ^h	wuphyēyεkh
		3	wupyōv	wupyēyε	wuphyāv	wuphyēyε
	Pl	1	wupyēy	wupyēyε	wuphyāy	wuphyēyε
		2	wupyēwa	wupyēyεwa	wuphyāwa	wuphyēyεwa
		3	wupyēy	wupyēyε	wuphyāy	wuphyēyε
Remote past	Sg	1	wupyās	wupyēyēs	wuphiyās	wuphiyēyēs
		2	wupyāk ^h	wupyēyεkh	wuphiyāk ^h	wuphiyēyεkh
		3	wupyāv	wupyēyε	wuphiyāv	wuphiyēyε
	Pl	1	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε
		2	wupyāwa	wupyēyεwa	wuphiyāwa	wuphiyēyεwa
		3	wupyāy	wupyēyε	wuphiyāy	wuphiyēyε ⁶⁶

Kashmiri conjugations

From the point of view of content, there are three past tenses in Kashmiri; but from the point of view of form, there are four.

Recent past	Conjugations I, II
	Conjugation III

{past a}

Indefinite past	Conjugations I, II
	Conjugation III

{past b}

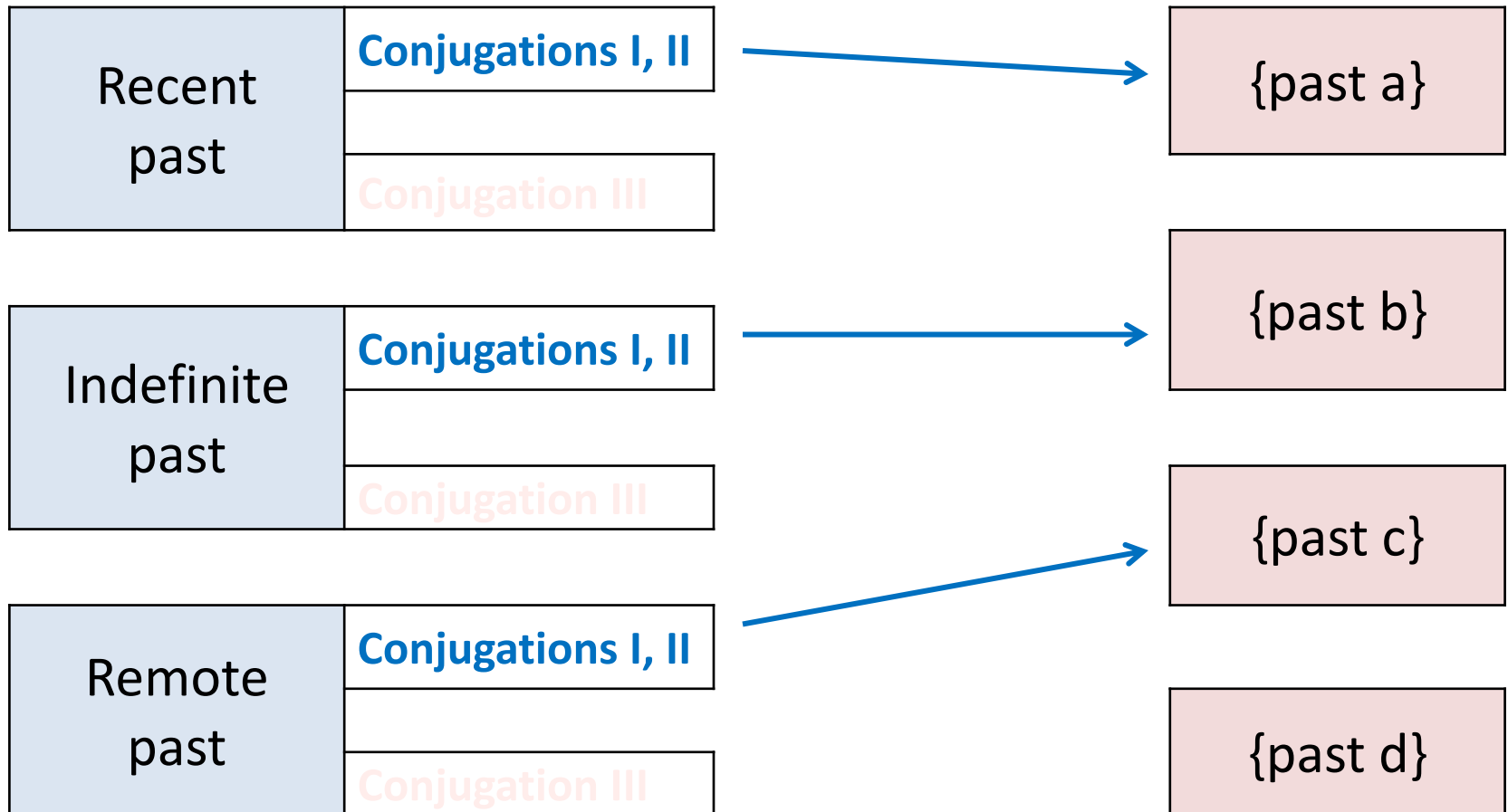
Remote past	Conjugations I, II
	Conjugation III

{past c}

{past d}

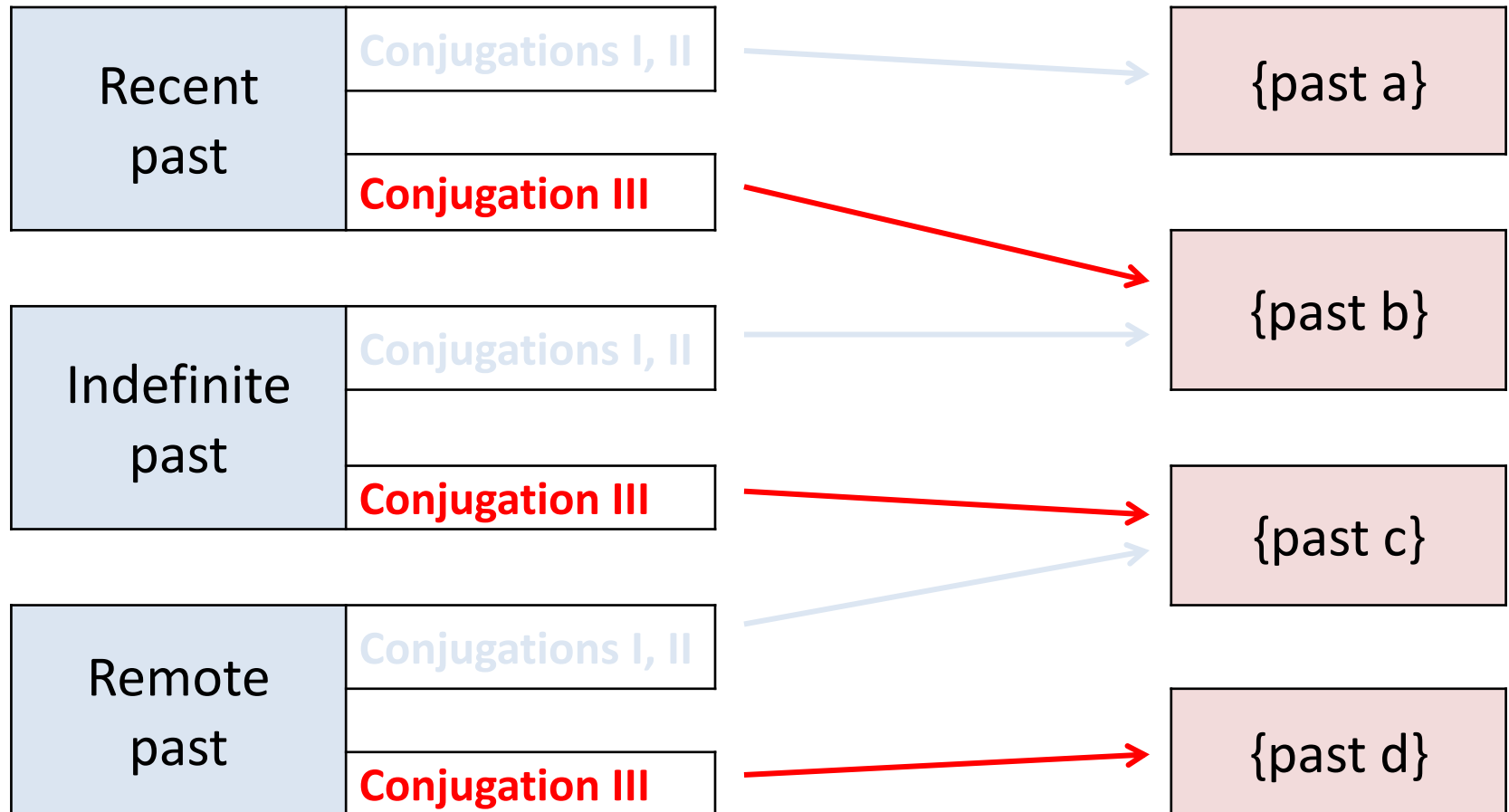
Kashmiri conjugations

From the point of view of content, there are three past tenses in Kashmiri; but from the point of view of form, there are four.



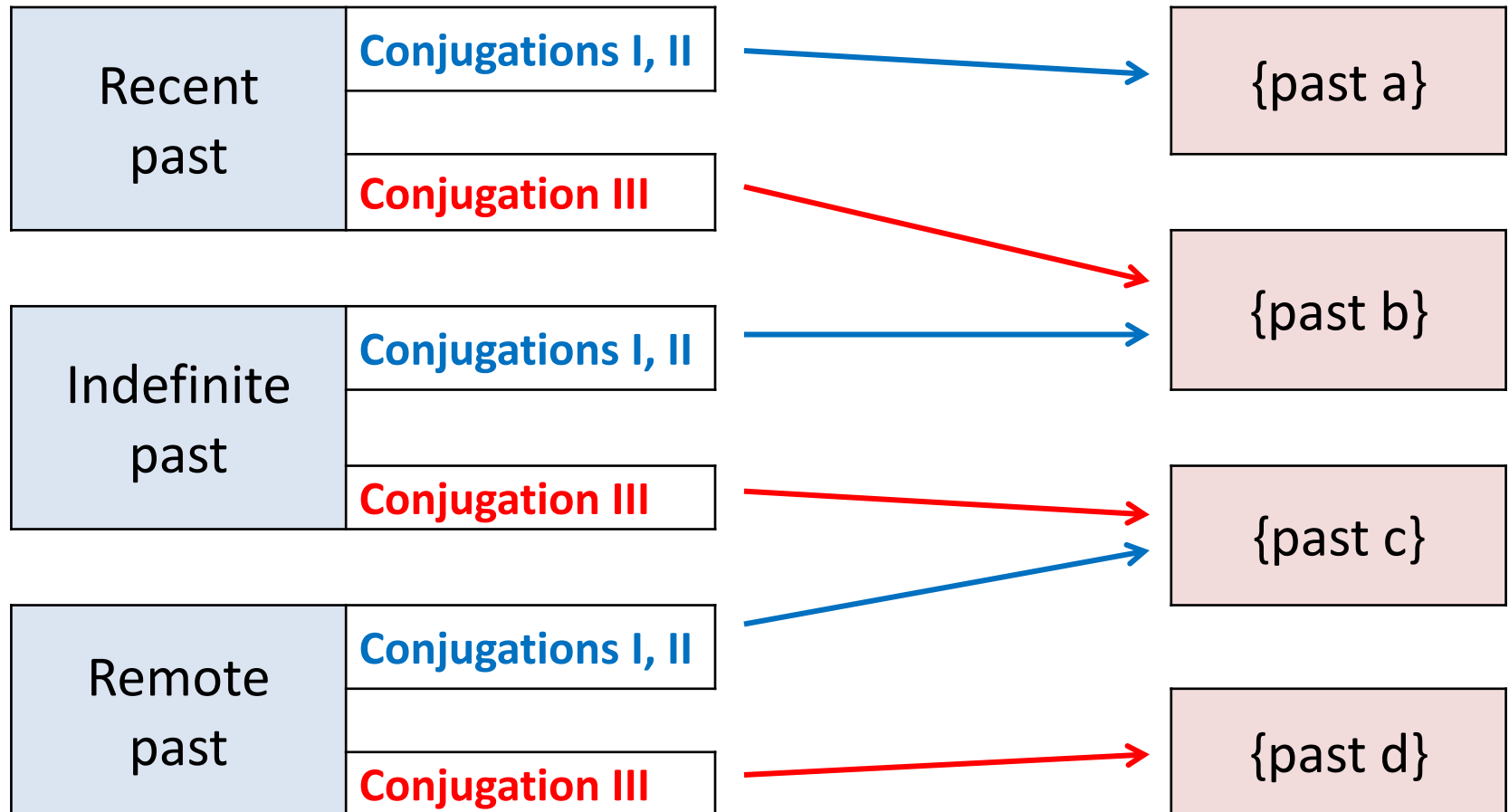
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Kashmiri conjugations

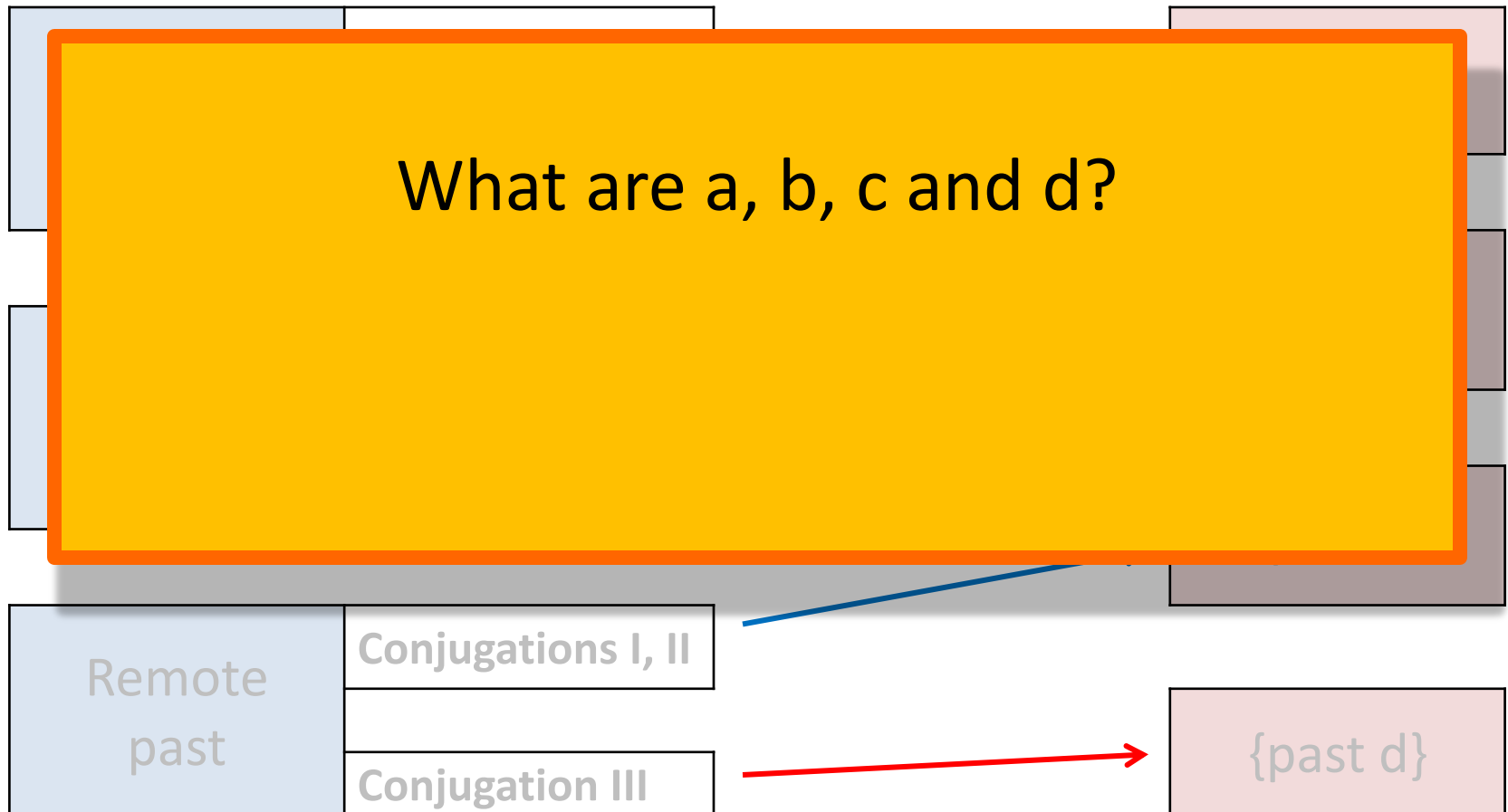
From the point of view of content, there are three past tenses in Kashmiri; but from the point of view of form, there are four.



Kashmiri conjugations

From the point of view of content, there are three past tenses in Kashmiri; but from the point of view of form, there are four.

What are a, b, c and d?

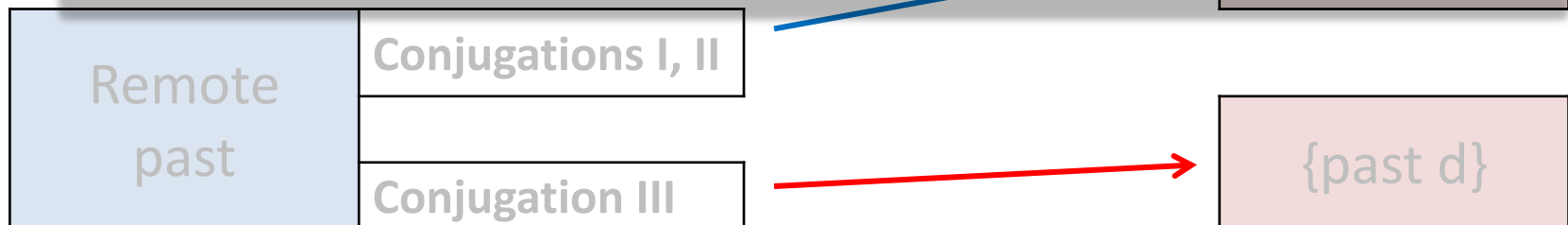


Kashmiri conjugations

From the point of view of content, there are three past tenses in Kashmiri; but from the point of view of form, there are four.

What are a, b, c and d?

They are *morphomic* properties
(Aronoff 1994).



**Modeling the dichotomy of content and form
in inflectional morphology with an alternative
to the cell interface model**

6. The paradigm linkage model

The **content paradigm** of a lexeme L is a set of **content cells**:

$$\langle L, \sigma \rangle$$

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The **form paradigm** of a stem Z is a set of **form cells**:

$$\langle Z, \tau \rangle$$

The **content paradigm** of a lexeme L is a set of **content cells**:

$$\langle L, \sigma \rangle$$

The **form paradigm** of a stem Z is a set of **form cells**:

$$\langle Z, \tau \rangle$$

Rules of semantic interpretation apply to content cells.

The **content paradigm** of a lexeme L is a set of **content cells**:

$$\langle L, \sigma \rangle$$

The **form paradigm** of a stem Z is a set of **form cells**:

$$\langle Z, \tau \rangle$$

Rules of semantic interpretation apply to content cells.

Realization rules apply to form cells.

Paradigm linkage model

The **content paradigm** of a lexeme L is a set of **content cells**:

$\langle L, \sigma \rangle$

The **form paradigm** of a stem Z is a set of **form cells**:

$\langle Z, \tau \rangle$

Rules of semantic interpretation apply to content cells.

Realization rules apply to form cells.

- ❑ Each content cell is matched with a form cell, which determines its inflectional realization.

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- ❑ Each content cell is matched with a form cell, which determines its inflectional realization.
- ❑ In the default case, the content cell $\langle L, \sigma \rangle$ is matched with the form cell $\langle Z, \sigma \rangle$, where Z is L's default stem.

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$\langle Z, \tau \rangle$

Rules of semantic interpretation apply to content cells.

Realization rules apply to form cells.

- ❑ Each content cell is matched with a form cell, which determines its inflectional realization.
- ❑ In the default case, the content cell $\langle L, \sigma \rangle$ is matched with the form cell $\langle Z, \sigma \rangle$, where Z is L 's default stem.
- ❑ But the relation between a content cell and the form cell with which it is matched may be mediated by a property mapping f such that $\langle L, \sigma \rangle$ is matched with $\langle Z, f(\sigma) \rangle$.

Paradigm linkage model

Kinds of property mappings

Where σ, τ are morphosyntactic property sets in contrasting content cells,

Corresponding property sets in form cells	Realization of morphosyntactic property sets σ, τ
$pm(\sigma) = \sigma$ $pm(\tau) = \tau$	canonical realization of σ, τ
$pm(\sigma) = pm(\tau)$ $pm(\sigma) \subseteq \sigma, \tau$	syncretism of natural class to which σ, τ belong
$pm(\sigma)$ contains ≥ 1 morphomic property	morphomic realization of σ
$pm(\sigma) = pm(\tau) = \sigma \neq \tau$	directional syncretism of σ, τ
$pm(\sigma) = pm(\tau) \neq \sigma, \tau$	nondirectional syncretism of σ, τ
$pm(\sigma) = \tau$ $pm(\tau)$ is undefined	deponency: inflection proper to τ realizes σ

Property mappings for Kashmiri verbs

Property mapping	Domain	Definition
<i>f</i>		
<i>g</i>		

Property mappings for Kashmiri verbs

Property mapping	Domain	Definition
<i>f</i>	Conjugations I and II	
<i>g</i>		

Property mappings for Kashmiri verbs

Property mapping	Domain	Definition
<i>f</i>	Conjugations I and II	$f(\sigma:\{\text{recent past}\}) = \sigma:\{\text{past a}\}$ $f(\sigma:\{\text{indefinite past}\}) = \sigma:\{\text{past b}\}$ $f(\sigma:\{\text{remote past}\}) = \sigma:\{\text{past c}\}$
<i>g</i>		

Property mappings for Kashmiri verbs

Property mapping	Domain	Definition
<i>f</i>	Conjugations I and II	$f(\sigma:\{\text{recent past}\}) = \sigma:\{\text{past a}\}$ $f(\sigma:\{\text{indefinite past}\}) = \sigma:\{\text{past b}\}$ $f(\sigma:\{\text{remote past}\}) = \sigma:\{\text{past c}\}$
<i>g</i>	Conjugation III	

Property mappings for Kashmiri verbs

Property mapping	Domain	Definition
<i>f</i>	Conjugations I and II	$f(\sigma:\{\text{recent past}\}) = \sigma:\{\text{past a}\}$ $f(\sigma:\{\text{indefinite past}\}) = \sigma:\{\text{past b}\}$ $f(\sigma:\{\text{remote past}\}) = \sigma:\{\text{past c}\}$
<i>g</i>	Conjugation III	$g(\sigma:\{\text{recent past}\}) = \sigma:\{\text{past b}\}$ $g(\sigma:\{\text{indefinite past}\}) = \sigma:\{\text{past c}\}$ $g(\sigma:\{\text{remote past}\}) = \sigma:\{\text{past d}\}$

Word-realization rules:

Block i

i, X [V], $\sigma:\{\text{past d}\} \rightarrow Xi$

Block ii

ii, X [V], $\sigma:\{\text{past a sg masc}\} \rightarrow Xu$

ii, X [V], $\sigma:\{\text{past a 3 sg masc}\} \rightarrow Xu$

ii, X [V], $\sigma:\{\text{past a pl masc}\} \rightarrow Xi$

ii, X [V], $\sigma:\{\text{past a sg fem}\} \rightarrow X\ddot{u}$

ii, X [V], $\sigma:\{\text{past a pl fem}\} \rightarrow X\varepsilon$

ii, X [V], $\sigma:\{\text{past}\} \rightarrow Xy$

ii, X [V], $\sigma:\{\text{past a}\} \rightarrow X$

Block iii

iii, X [V], $\sigma:\{\text{past b masc sg}\} \rightarrow X\bar{o}$

iii, X [V], $\sigma:\{\text{past b masc pl}\} \rightarrow X\bar{e}$

iii, X [V], $\sigma:\{\text{past masc}\} \rightarrow X\bar{a}$

iii, X [V], $\sigma:\{\text{past fem}\} \rightarrow X\bar{e}y\varepsilon$

iii, X [V], $\sigma:\{\text{past a masc/fem}\} \rightarrow X$

Block iv

iv, X [V], $\sigma:\{\text{1 sg}\} \rightarrow Xs$

iv, X [V], $\sigma:\{\text{2 sg}\} \rightarrow Xkh$

iv, X [V], $\sigma:\{\text{2 pl}\} \rightarrow Xwa$

iv, X [V], $\sigma:\{\text{3 sg masc}\} \rightarrow Xv$

iv, X [V], $\sigma:\{\text{3 pl masc}\} \rightarrow Xy$

iv, X [V], $\sigma:\{\text{past a 3 sg/pl masc}\} \rightarrow X$

Paradigm function:

$PF(\langle X, \sigma:\{\text{1 pl}\} \rangle) = PF(\langle X, \sigma:\{\text{3 pl}\} \rangle);$

otherwise, $PF(\langle X, \sigma \rangle) = [iv : [iii : [ii : [i : \langle X, \sigma \rangle]]]]$.

Word-realization rules:

Block i

i, X [V], $\sigma:\{\text{past d}\} \rightarrow Xi$

Block ii

ii, X [V], $\sigma:\{\text{past a sg masc}\} \rightarrow Xu$

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ii, X [V], $\sigma:\{\text{past a pl masc}\} \rightarrow Xi$

ii, X [V], $\sigma:\{\text{past a sg fem}\} \rightarrow X\ddot{u}$

ii, X [V], $\sigma:\{\text{past a pl fem}\} \rightarrow X\varepsilon$

ii, X [V], $\sigma:\{\text{past}\} \rightarrow Xy$

ii, X [V], $\sigma:\{\text{past a}\} \rightarrow X$

Block iii

iii, X [V], $\sigma:\{\text{past b masc sg}\} \rightarrow X\bar{o}$

iii, X [V], $\sigma:\{\text{past b masc pl}\} \rightarrow X\bar{e}$

iii, X [V], $\sigma:\{\text{past masc}\} \rightarrow X\bar{a}$

iii, X [V], $\sigma:\{\text{past fem}\} \rightarrow X\bar{e}y\varepsilon$

iii, X [V], $\sigma:\{\text{past a masc/fem}\} \rightarrow X$

Block iv

iv, X [V], $\sigma:\{1 \text{ sg}\} \rightarrow Xs$

iv, X [V], $\sigma:\{2 \text{ sg}\} \rightarrow Xkh$

iv, X [V], $\sigma:\{2 \text{ pl}\} \rightarrow Xwa$

iv, X [V], $\sigma:\{3 \text{ sg masc}\} \rightarrow Xv$

iv, X [V], $\sigma:\{3 \text{ pl masc}\} \rightarrow Xy$

iv, X [V], $\sigma:\{\text{past a 3 sg/pl masc}\} \rightarrow X$

Paradigm function:

$PF(\langle X, \sigma:\{1 \text{ pl}\} \rangle) = PF(\langle X, \sigma:\{3 \text{ pl}\} \rangle);$

otherwise, $PF(\langle X, \sigma \rangle) = [\text{iv} : [\text{iii} : [\text{ii} : [\text{i} : \langle X, \sigma \rangle]]]]$.

⟨WUP, {3 sg masc indefinite past}⟩

WUP ‘burn inside’ (Conj. II)

WUPH ‘fly’ (Conj. III)

$\lambda x_{[3, \text{masc}]} [\text{IndefPast}(\wedge [\text{burn_inside}'(x)])]$



$\langle \text{WUP}, \{3 \text{ sg masc indefinite past}\} \rangle$

WUP ‘burn inside’ (Conj. II)

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$\langle \text{WUP}, \{3 \text{ sg masc indefinite past}\} \rangle$

WUP ‘burn inside’ (Conj. II)

WUPH ‘fly’ (Conj. III)

$\langle \text{WUP}, \{3 \text{ sg masc remote past}\} \rangle$

$\lambda x_{[3, \text{masc}]} [\text{IndefPast}(\wedge [\text{burn_inside}'(x)])]$



$\langle \text{WUP}, \{3 \text{ sg masc indefinite past}\} \rangle$

WUP 'burn inside' (Conj. II)

WUPH 'fly' (Conj. III)

$\lambda x_{[3, \text{masc}]} [\text{RemPast}(\wedge [\text{burn_inside}'(x)])]$



$\langle \text{WUP}, \{3 \text{ sg masc remote past}\} \rangle$

$\lambda x_{[3, \text{masc}]} [\text{IndefPast}(\wedge [\text{burn_inside}'(x)])]$



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$\langle \text{WUP}, \{3 \text{ sg masc indefinite past}\} \rangle$

$\lambda x_{[3, \text{masc}]} [\text{IndefPast}(\wedge [\text{fly}'(x)])]$



$\langle \text{WUPH}, \{3 \text{ sg masc indefinite past}\} \rangle$

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WUPH 'fly' (Conj. III)

$\lambda x_{[3, \text{masc}]} [\text{RemPast}(\wedge [\text{burn_inside}'(x)])]$



$\langle \text{WUP}, \{3 \text{ sg masc remote past}\} \rangle$

⟨WUP, {3 sg masc indefinite past}⟩

⟨WUPH, {3 sg masc indefinite past}⟩

WUP ‘burn inside’ (Conj. II)

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc remote past}⟩

⟨WUP, {3 sg masc indefinite past}⟩

f ↓

⟨*wup*, {3 sg masc past **b**}⟩

⟨WUPH, {3 sg masc indefinite past}⟩

WUP ‘burn inside’ (Conj. II)

⟨WUP, {3 sg masc remote past}⟩

f ↓

⟨*wup*, {3 sg masc past **c**}⟩

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc indefinite past}⟩

f ↓

⟨*wup*, {3 sg masc **past b**}⟩

↓

wupyōv

WUP ‘burn inside’ (Conj. II)

⟨WUPH, {3 sg masc indefinite past}⟩

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc remote past}⟩

f ↓

⟨*wup*, {3 sg masc **past c**}⟩

↓

wupyāv

⟨WUP, {3 sg masc indefinite past}⟩

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↓

wupyāv

⟨WUPH, {3 sg masc indefinite past}⟩

g

↓

WUPH ‘fly’ (Conj. III)

⟨*wuph*, {3 sg masc past **c**}⟩

⟨WUP, {3 sg masc indefinite past}⟩

f ↓

⟨*wup*, {3 sg masc **past b**}⟩

↓

wupyōv

WUP ‘burn inside’ (Conj. II)

⟨WUP, {3 sg masc remote past}⟩

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f ↓

⟨*wup*, {3 sg masc past **b**}⟩

↓

wupyōv

WUP ‘burn inside’ (Conj. II)

⟨WUPH, {3 sg masc recent past}⟩

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc remote past}⟩

f ↓

⟨*wup*, {3 sg masc past **c**}⟩

↓

wupyāv

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⟨*wup*, {3 sg masc **past b**}⟩

↓

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f ↓

⟨*wup*, {3 sg masc **past c**}⟩

↓

wupyāv

$\lambda_{x_{[3, \text{masc}]}}[\text{RecPast}(\hat{[\text{fly}'(x)]})]$

↑

⟨WUPH, {3 sg masc recent past}⟩

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc indefinite past}⟩

f ↓

⟨wup, {3 sg masc past b}⟩

↓

wupyōv

WUP ‘burn inside’ (Conj. II)

⟨WUP, {3 sg masc remote past}⟩

f ↓

⟨wup, {3 sg masc past c}⟩

↓

wupyāv

$\lambda_{x_{[3, \text{masc}]}}[\text{RecPast}(\wedge[\text{fly}'(x)])]$

↑

⟨WUPH, {3 sg masc recent past}⟩

g ↓

⟨wuph, {3 sg masc past b}⟩

WUPH ‘fly’ (Conj. III)

⟨WUP, {3 sg masc indefinite past}⟩

f ↓

⟨*wup*, {3 sg masc past b}⟩

↓

wupyōv

WUP ‘burn inside’ (Conj. II)

⟨WUP, {3 sg masc remote past}⟩

f ↓

⟨*wup*, {3 sg masc past c}⟩

↓

wupyāv

$\lambda_{x_{[3, \text{masc}]}}[\text{RecPast}(\hat{[\text{fly}'(x)]})]$

↑

⟨WUPH, {3 sg masc recent past}⟩

g ↓

⟨*wuph*, {3 sg masc past b}⟩

↓

wuphyōv

WUPH ‘fly’ (Conj. III)

Interim conclusions

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Two types of paradigms must be distinguished in the definition of a language's inflectional morphology: content paradigms and form paradigms. The former determine semantic interpretation; the latter determine inflectional realization.

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Two types of paradigms must be distinguished in the definition of a language's inflectional morphology: content paradigms and form paradigms. The former determine semantic interpretation; the latter determine inflectional realization.

In the simplest cases, a content paradigm is isomorphic to the form paradigm from which it gets its realizations. In more challenging cases, the relation between a content paradigm and the corresponding form paradigm is mediated by a property mapping.

Declensional paradigm of Turkish ADAM 'man'

	Singular	Plural
Nominative	<i>adam</i>	<i>adam-lar</i>
Accusative	<i>adam-ı</i>	<i>adam-lar-ı</i>
Dative	<i>adam-a</i>	<i>adam-lar-a</i>
Locative	<i>adam-da</i>	<i>adam-lar-da</i>
Ablative	<i>adam-dan</i>	<i>adam-lar-dan</i>
Genitive	<i>adam-ın</i>	<i>adam-lar-ın</i>

An isomorphic relation between content paradigms and form paradigms, exemplified by the declension of Turkish ADAM 'man'

Content paradigm		Form paradigm		Realized paradigm
⟨ADAM, {nom sg}⟩	⇒	⟨ <i>adam</i> , {nom sg}⟩	→	⟨ <i>adam</i> , {nom sg}⟩
⟨ADAM, {acc sg}⟩	⇒	⟨ <i>adam</i> , {acc sg}⟩	→	⟨ <i>adamı</i> , {acc sg}⟩
⟨ADAM, {dat sg}⟩	⇒	⟨ <i>adam</i> , {dat sg}⟩	→	⟨ <i>adama</i> , {dat sg}⟩
⟨ADAM, {loc sg}⟩	⇒	⟨ <i>adam</i> , {loc sg}⟩	→	⟨ <i>adamda</i> , {loc sg}⟩
⟨ADAM, {abl sg}⟩	⇒	⟨ <i>adam</i> , {abl sg}⟩	→	⟨ <i>adamdan</i> , {abl sg}⟩
⟨ADAM, {gen sg}⟩	⇒	⟨ <i>adam</i> , {gen sg}⟩	→	⟨ <i>adamin</i> , {gen sg}⟩
⟨ADAM, {nom pl}⟩	⇒	⟨ <i>adam</i> , {nom pl}⟩	→	⟨ <i>adamlar</i> , {nom pl}⟩
⟨ADAM, {acc pl}⟩	⇒	⟨ <i>adam</i> , {acc pl}⟩	→	⟨ <i>adamları</i> , {acc pl}⟩
⟨ADAM, {dat pl}⟩	⇒	⟨ <i>adam</i> , {dat pl}⟩	→	⟨ <i>adamlara</i> , {dat pl}⟩
⟨ADAM, {loc pl}⟩	⇒	⟨ <i>adam</i> , {loc pl}⟩	→	⟨ <i>adamlarda</i> , {loc pl}⟩
⟨ADAM, {abl pl}⟩	⇒	⟨ <i>adam</i> , {abl pl}⟩	→	⟨ <i>adamlardan</i> , {abl pl}⟩
⟨ADAM, {gen pl}⟩	⇒	⟨ <i>adam</i> , {gen pl}⟩	→	⟨ <i>adamların</i> , {gen pl}⟩

A non-isomorphic relation between content paradigms and form paradigms, exemplified by the conjugation of Kashmiri WUPH 'fly'

Content paradigm

⟨WUPH, {1sg masc rec past}⟩

⟨WUPH, {2sg masc rec past}⟩

⟨WUPH, {3sg masc rec past}⟩

⟨WUPH, {1pl masc rec past}⟩

⟨WUPH, {2pl masc rec past}⟩

⟨WUPH, {3pl masc rec past}⟩

⟨WUPH, {1sg masc indef past}⟩

⟨WUPH, {2sg masc indef past}⟩

⟨WUPH, {3sg masc indef past}⟩

⟨WUPH, {1pl masc indef past}⟩

⟨WUPH, {2pl masc indef past}⟩

⟨WUPH, {3pl masc indef past}⟩

⇒

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Form paradigm

⟨*wuph*, {1sg masc past b III}⟩

⟨*wuph*, {2sg masc past b III}⟩

⟨*wuph*, {3sg masc past b III}⟩

⟨*wuph*, {1pl masc past b III}⟩

⟨*wuph*, {2pl masc past b III}⟩

⟨*wuph*, {3pl masc past b III}⟩

⟨*wuph*, {1sg masc past c III}⟩

⟨*wuph*, {2sg masc past c III}⟩

⟨*wuph*, {3sg masc past c III}⟩

⟨*wuph*, {1pl masc past c III}⟩

⟨*wuph*, {2pl masc past c III}⟩

⟨*wuph*, {3pl masc past c III}⟩

A non-isomorphic relation between content paradigms and form paradigms, exemplified by the conjugation of Kashmiri WUPH 'fly'

Content paradigm

⟨WUPH, {1sg masc **rec past**}⟩

⟨WUPH, {2sg masc **rec past**}⟩

⟨WUPH, {3sg masc **rec past**}⟩

⟨WUPH, {1pl masc **rec past**}⟩

⟨WUPH, {2pl masc **rec past**}⟩

⟨WUPH, {3pl masc **rec past**}⟩

⟨WUPH, {1sg masc **indef past**}⟩

⟨WUPH, {2sg masc **indef past**}⟩

⟨WUPH, {3sg masc **indef past**}⟩

⟨WUPH, {1pl masc **indef past**}⟩

⟨WUPH, {2pl masc **indef past**}⟩

⟨WUPH, {3pl masc **indef past**}⟩

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Form paradigm

⟨*wuph*, {1sg masc past b III}⟩

⟨*wuph*, {2sg masc past b III}⟩

⟨*wuph*, {3sg masc past b III}⟩

⟨*wuph*, {1pl masc past b III}⟩

⟨*wuph*, {2pl masc past b III}⟩

⟨*wuph*, {3pl masc past b III}⟩

⟨*wuph*, {1sg masc past c III}⟩

⟨*wuph*, {2sg masc past c III}⟩

⟨*wuph*, {3sg masc past c III}⟩

⟨*wuph*, {1pl masc past c III}⟩

⟨*wuph*, {2pl masc past c III}⟩

⟨*wuph*, {3pl masc past c III}⟩

A non-isomorphic relation between content paradigms and form paradigms, exemplified by the conjugation of Kashmiri WUPH 'fly'

Content paradigm

⟨WUPH, {1sg masc **rec past**}⟩

⟨WUPH, {2sg masc **rec past**}⟩

⟨WUPH, {3sg masc **rec past**}⟩

⟨WUPH, {1pl masc **rec past**}⟩

⟨WUPH, {2pl masc **rec past**}⟩

⟨WUPH, {3pl masc **rec past**}⟩

⟨WUPH, {1sg masc **indef past**}⟩

⟨WUPH, {2sg masc **indef past**}⟩

⟨WUPH, {3sg masc **indef past**}⟩

⟨WUPH, {1pl masc **indef past**}⟩

⟨WUPH, {2pl masc **indef past**}⟩

⟨WUPH, {3pl masc **indef past**}⟩

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Form paradigm

⟨*wuph*, {1sg masc **past b III**}⟩

⟨*wuph*, {2sg masc **past b III**}⟩

⟨*wuph*, {3sg masc **past b III**}⟩

⟨*wuph*, {1pl masc **past b III**}⟩

⟨*wuph*, {2pl masc **past b III**}⟩

⟨*wuph*, {3pl masc **past b III**}⟩

⟨*wuph*, {1sg masc **past c III**}⟩

⟨*wuph*, {2sg masc **past c III**}⟩

⟨*wuph*, {3sg masc **past c III**}⟩

⟨*wuph*, {1pl masc **past c III**}⟩

⟨*wuph*, {2pl masc **past c III**}⟩

⟨*wuph*, {3pl masc **past c III**}⟩

A non-isomorphic relation between content paradigms and form paradigms, exemplified by the conjugation of Kashmiri WUPH 'fly'

Form paradigm

⟨*wuph*, {1sg masc past b III}⟩

⟨*wuph*, {2sg masc past b III}⟩

⟨*wuph*, {3sg masc past b III}⟩

⟨*wuph*, {1pl masc past b III}⟩

⟨*wuph*, {2pl masc past b III}⟩

⟨*wuph*, {3pl masc past b III}⟩

⟨*wuph*, {1sg masc past c III}⟩

⟨*wuph*, {2sg masc past c III}⟩

⟨*wuph*, {3sg masc past c III}⟩

⟨*wuph*, {1pl masc past c III}⟩

⟨*wuph*, {2pl masc past c III}⟩

⟨*wuph*, {3pl masc past c III}⟩

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Realized paradigm

wuphyōs

wuphyōkh

wuphyōv

wuphyēy

wuphyēwa

wuphyēy

wuphyās

wuphyākh

wuphyāv

wuphyāy

wuphyāwa

wuphyāy

In the Kashmiri example, the mismatch between content and form

- involves semantic content and
- is only observable through the comparison of distinct paradigms.

In the Kashmiri example, the mismatch between content and form

- involves semantic content and
- is only observable through the comparison of distinct paradigms.

But the paradigm linkage approach is also motivated by mismatches between content and form that

- involve syntactic content and
- are observable within individual paradigms.

7. Hua verb agreement

Haiman, John. 1980. *Hua: A Papuan language of the eastern highlands of New Guinea*. Amsterdam: Benjamins.

Modal properties expressed by verb inflection in Hua

Indicative

Interrogative

Relative

Purposive

Concessive-expectant

Inconsequential

Medial: a. Coordinate b. Subordinate

Exclamatory

Assertive

Counterfactual: a. Protasis b. Apodosis

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha-pe	da-pe	mi-pe
hi-ve	de-ve	mi-ve
hu-'ve	do-'ve	mu-'ve
ha-'ve	da-'ve	mi-'ve
hu-pe	do-pe	mu-pe
ha-ve	da-ve	mi-ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu- ve	do- ve	mu- ve
ha-pe	da-pe	mi-pe
hi- ve	de- ve	mi- ve
hu-'ve	do-'ve	mu-'ve
ha-'ve	da-'ve	mi-'ve
hu-pe	do-pe	mu-pe
ha- ve	da- ve	mi- ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha-pe	da-pe	mi-pe
hi-ve	de-ve	mi-ve
hu- 've	do- 've	mu- 've
ha- 've	da- 've	mi- 've
hu-pe	do-pe	mu-pe
ha-ve	da-ve	mi-ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha- pe	da- pe	mi- pe
hi-ve	de-ve	mi-ve
hu-'ve	do-'ve	mu-'ve
ha-'ve	da-'ve	mi-'ve
hu- pe	do- pe	mu- pe
ha-ve	da-ve	mi-ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu -ve	do -ve	mu -ve
ha-pe	da-pe	mi-pe
hi-ve	de-ve	mi-ve
hu -'ve	do -'ve	mu -'ve
ha-'ve	da-'ve	mi-'ve
hu -pe	do -pe	mu -pe
ha-ve	da-ve	mi-ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha -pe	da -pe	mi -pe
hi-ve	de-ve	mi-ve
hu-'ve	do-'ve	mu-'ve
ha -'ve	da -'ve	mi -'ve
hu-pe	do-pe	mu-pe
ha -ve	da -ve	mi -ve

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha-pe	da-pe	mi-pe
hi -ve	de -ve	mi -ve
hu-'ve	do-'ve	mu-'ve
ha-'ve	da-'ve	mi-'ve
hu-pe	do-pe	mu-pe
ha-ve	da-ve	mi-ve

Stem ablaut in Hua verbs

Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'
hu-	do-	mu-
ha-	da-	mi-
hi-	de-	mi-

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'	
1	hu-	do-	mu-	back
2	ha-	da-	mi-	
3	hi-	de-	mi-	

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'	
1	hu-	do-	mu-	back
2	ha-	da-	mi-	
3	hi-	de-	mi-	front

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'	
1	hu-	do-	mu-	back
2	ha-	da-	mi-	diagonal
3	hi-	de-	mi-	front

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'
Root	hu-	do	mi-
	hu-	do-	mu-
	ha-	da-	mi-
	hi-	de-	mi-

Stem ablaut in Hua verbs

Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'
hu-	do	mi-
hu-	do-	mu-
ha-	da-	mi-
hi-	de-	mi-

Rules of stem ablaut

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'	
	hu-	do	mi-	Rules of stem ablaut
1	hu-	do-	mu-	$V \rightarrow [-\text{front}]$
	ha-	da-	mi-	
	hi-	de-	mi-	

Stem ablaut in Hua verbs

Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'
hu-	do	mi-
hu-	do-	mu-
ha-	da-	mi-
3 hi-	de-	mi-

Rules of stem ablaut

$V \rightarrow [-\text{front}]$

$V \rightarrow [+front]$

Stem ablaut in Hua verbs

	Type I: HU 'do'	Type II: DO 'eat'	Type III: MI 'give'		
	hu-	do	mi-	Rules of stem ablaut	
	hu-	do-	mu-		$V \rightarrow [-\text{front}]$
2	ha-	da-	mi-		$\overset{V}{[-\text{front}]} \rightarrow [+low]$
	hi-	de-	mi-	$V \rightarrow [+front]$	

Three verb types in Hua (interrogative forms)

Type I: HU 'do' 'Did I do? ...'	Type II: DO 'eat' 'Did I eat? ...'	Type III: MI 'give' 'Did I give? ...'
hu-ve	do-ve	mu-ve
ha-pe	da-pe	mi-pe
hi-ve	de-ve	mi-ve
hu-'ve	do-'ve	mu-'ve
ha-'ve	da-'ve	mi-'ve
hu-pe	do-pe	mu-pe
ha-ve	da-ve	mi-ve

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'			
	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'			
	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'				Type II: DO 'eat'			
	A	B	C	A	B	C	
1	hu-ve			do-ve		do-pe	
2	ha-ve			da-ve		da-pe	
3	hi-ve						

Word forms in each row share the same ablaut grade.

	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'

A B C

1 hu-ve hu-'ve hu-pe

2 ha-ve ha-'ve ha-pe

3 hi-ve

Type II: DO 'eat'

A B C

1 do-ve do-'ve do-pe

2 da-ve da-'ve da-pe

3 de-ve

Type III: MI 'give'

A B C

1 mu-ve mu-'ve mu-pe

2 mi-ve mi-'ve mi-pe

3 mi-ve

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'			
	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'			
	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'

	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'

	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'

	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			Type II: DO 'eat'			
	A	B	C	A	B	C
1	hu-ve				do-pe	
2	ha-ve				da-pe	
3	hi-ve					

Word forms in each column share the same suffix.

	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu- ve	hu-'ve	hu-pe
2	ha- ve	ha-'ve	ha-pe
3	hi- ve		

Type II: DO 'eat'			
	A	B	C
1	do- ve	do-'ve	do-pe
2	da- ve	da-'ve	da-pe
3	de- ve		

Type III: MI 'give'			
	A	B	C
1	mu- ve	mu-'ve	mu-pe
2	mi- ve	mi-'ve	mi-pe
3	mi- ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'			
	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'			
	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'			
	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'			
	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by form

Type I: HU 'do'			
	A	B	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type II: DO 'eat'			
	A	B	C
1	do-ve	do-'ve	do-pe
2	da-ve	da-'ve	da-pe
3	de-ve		

Type III: MI 'give'			
	A	B	C
1	mu-ve	mu-'ve	mu-pe
2	mi-ve	mi-'ve	mi-pe
3	mi-ve		

Interrogative forms in Hua, arranged by content

Type I: HU 'do'			
	SG	DU	PL
1 st	hu-ve	hu-'ve	hu-pe
2 nd	ha-pe	ha-'ve	ha-ve
3 rd	hi-ve	"	"

Type II: DO 'eat'			
	SG	DU	PL
1 st	do-ve	do-'ve	do-pe
2 nd	da-pe	da-'ve	da-ve
3 rd	de-ve	"	"

Type III: MI 'give'			
	SG	DU	PL
1 st	mu-ve	mu-'ve	mu-pe
2 nd	mi-pe	mi-'ve	mi-ve
3 rd	mi-ve	"	"

Interrogative forms in Hua, arranged by content

Type I: HU 'do'				Type II: DO 'eat'			
	SG	DU	PL		SG	DU	PL
1 st	hu-ve	hu-'ve	hu-pe	1 st	do-ve	do-'ve	do-pe
2 nd	ha-pe	ha-'ve	ha-ve	2 nd	da-pe	da-'ve	da-ve
3 rd	hi-ve	"	"	3 rd	de-ve	"	"

Type III: MI 'give'			
	SG	DU	PL
1 st	mu-ve	mu-'ve	mu-pe
2 nd	mi-pe	mi-'ve	mi-ve
3 rd	mi-ve	"	"

Interrogative forms in Hua, arranged by content

Type I: HU 'do'			
	SG	DU	PL
1 st	hu-ve	hu-'ve	hu-pe
2 nd	ha-pe	ha-'ve	ha-ve
3 rd	hi-ve	"	"

Type II: DO 'eat'			
	SG	DU	PL
1 st	do-ve	do-'ve	do-pe
2 nd	da-pe	da-'ve	da-ve
3 rd	de-ve	"	"

Type III: MI 'give'			
	SG	DU	PL
1 st	mu-ve	mu-'ve	mu-pe
2 nd	mi-pe	mi-'ve	mi-ve
3 rd	mi-ve	"	"

Type I: HU 'do'

arranged by content

	SG	DU	PL
1	hu-ve	hu-'ve	hu-pe
2	ha-pe	ha-'ve	ha-ve
3	hi-ve	"	"

arranged by form

	A	DU	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

Type I: HU 'do'

arranged by content

	SG	DU	PL
1	hu-ve	hu-'ve	hu-pe
2	ha-pe	ha-'ve	ha-ve
3	hi-ve	"	"

arranged by form

	A	DU	C
1	hu-ve	hu-'ve	hu-pe
2	ha-ve	ha-'ve	ha-pe
3	hi-ve		

1sg	1du	1pl
2pl	2du	2sg
3sg		

Subject markers in Hua

	Indicative	Interrogative	Relative	Purposive	Concessive-expectant	Inconsequential	Medial		Exclamatory	Assertive	Counterfactual	
							Coordinate	Subordinate			Protasis	Apodosis
A	-e	-ve	-ma'	-mi'	-va	-mana	-ga	-ma	-mane	-mae	-hipana	-hine
DU	-'e	-'ve	-'ma'	-'mi'	-'va	-'mana	-'ga	-'ma	-'mane	-'mae	-'hipana	-'hine
C	-ne	-pe	-pa'	-pi'	-pa	-pana	-na	-pa	-pane	-pae	-sipana	-sine

The property C in this analysis is not a morphosyntactic property, since syntax is insensitive to it; it is instead a morphomic property.

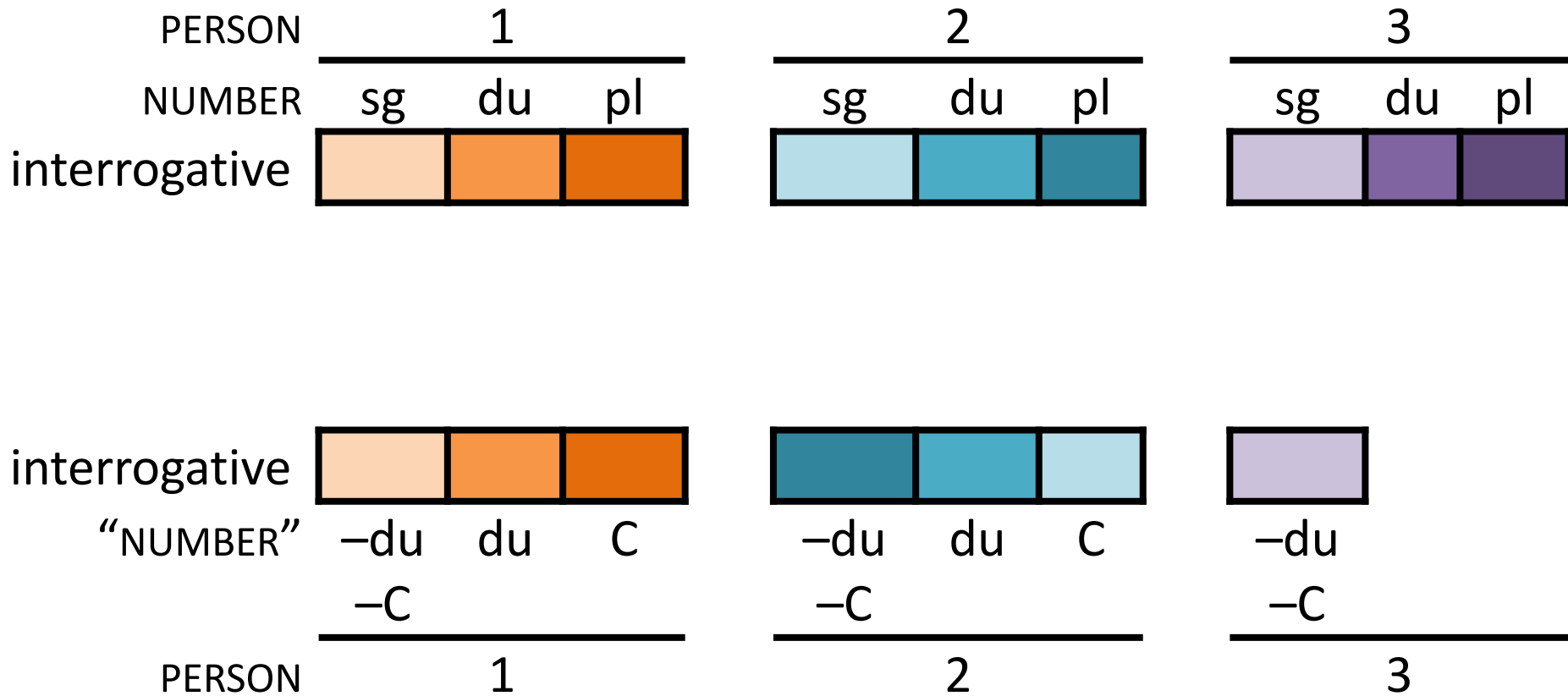
The property C in this analysis is not a morphosyntactic property, since syntax is insensitive to it; it is instead a morphomic property.

(Property A is 'not dual and not C'.)

A paradigm-linkage analysis of Hua verb inflection

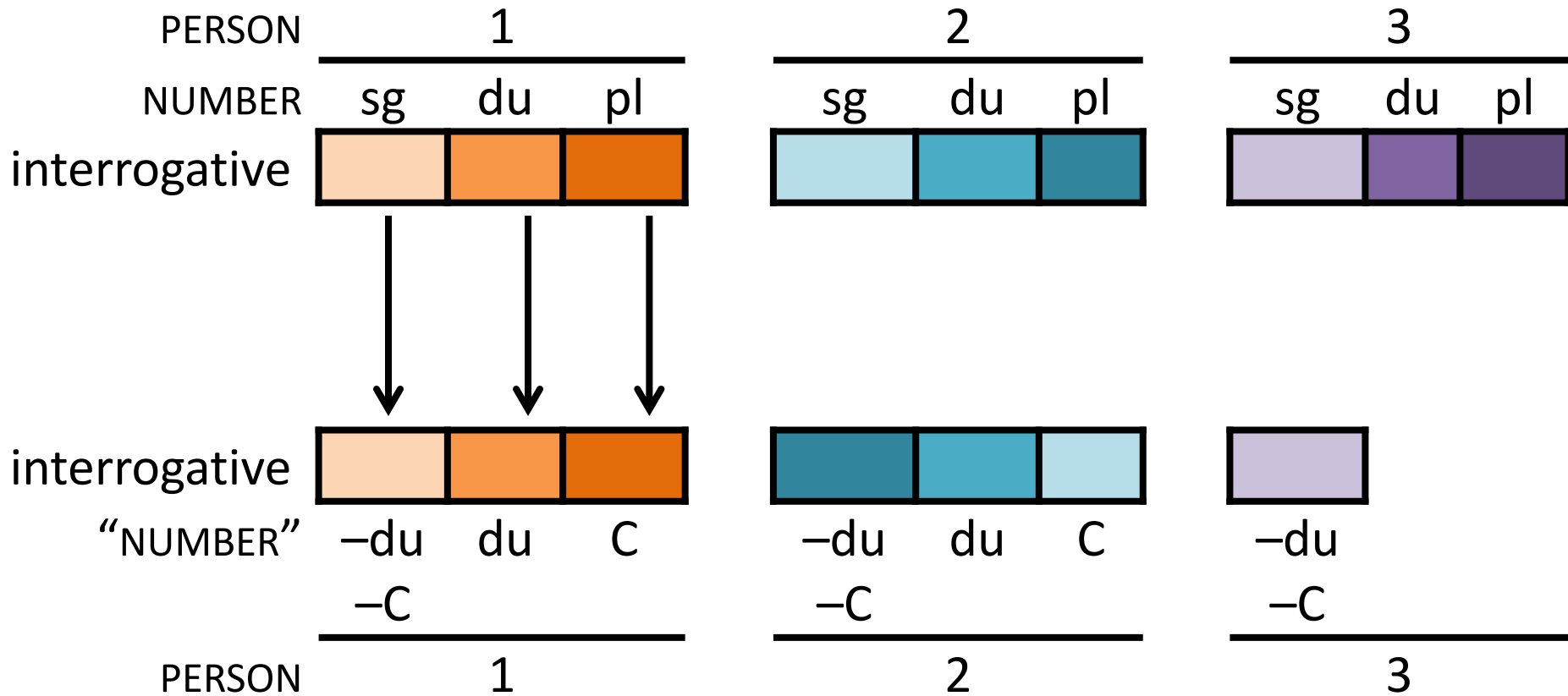
Hua verb agreement

Mismatch between content and form in Hua verbal paradigms



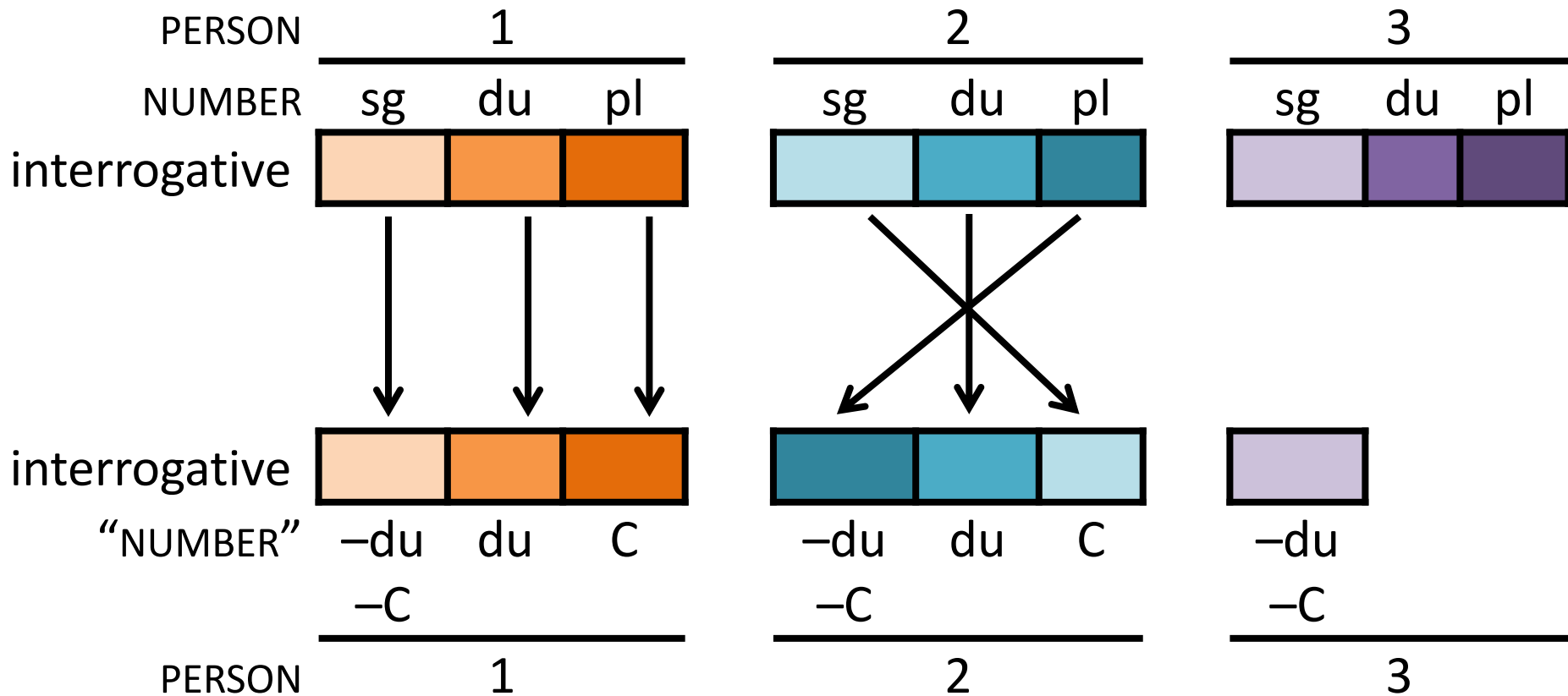
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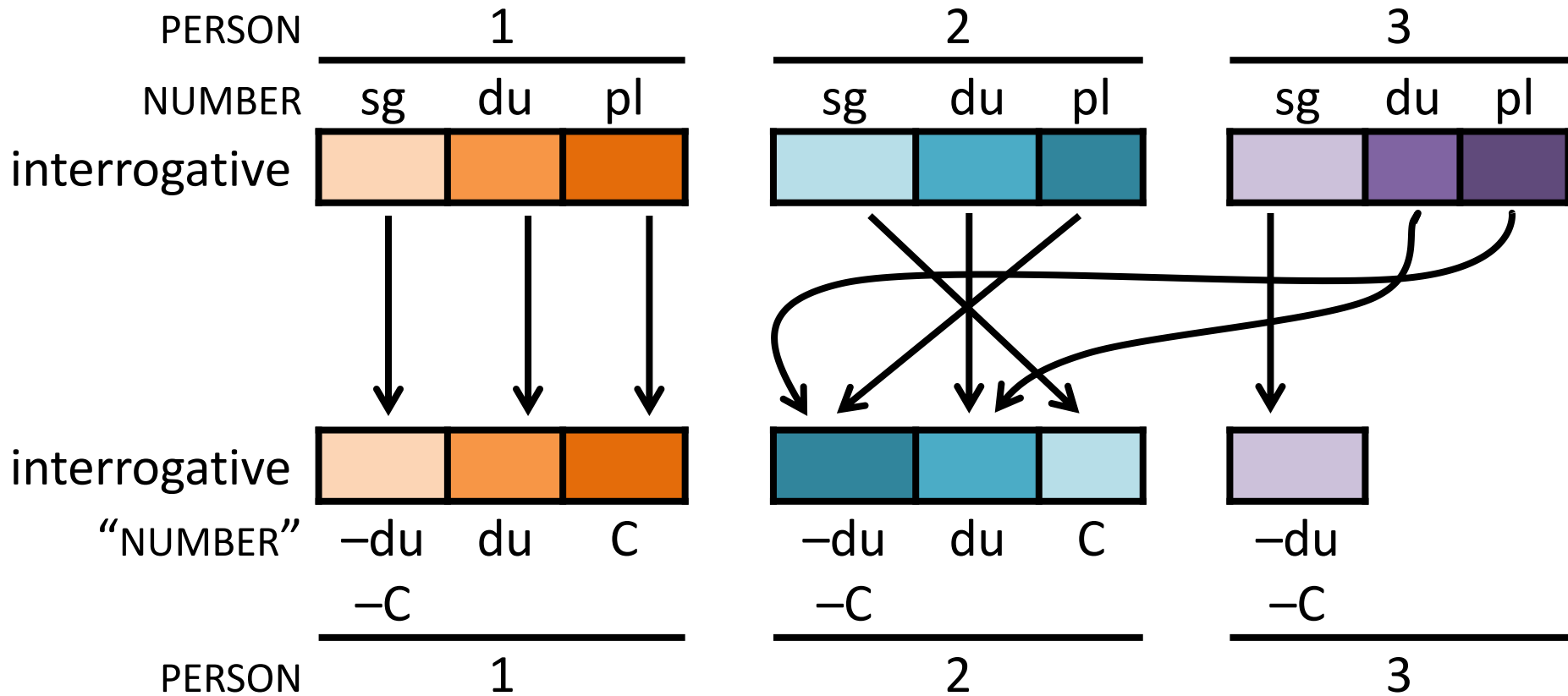
Hua verb agreement

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Hua verb agreement

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The Hua property mapping *pm*

Intensional definition

$$pm(\sigma:\{2, sg\}) = \sigma[sg/C]$$

$$pm(\sigma:\{1, pl\}) = \sigma[pl/C]$$

$$pm(\sigma:\{3 sg\}) = \sigma$$

$$pm(\sigma:\{3\}) = \sigma[3/2]$$

$$pm(\sigma:\{\}) = \sigma$$

($\sigma:\{X\}$ is a variable over
supersets of $\{X\}$;

$\sigma[a/b]$ is the result of
replacing a with b in σ .)

Extensional definition

σ	<i>pm</i> (σ)
{1, sg ...}	{1, sg ...}
{2, sg ...}	{2, C ...}
{3, sg ...}	{3, sg ...}
{1, du ...}	{1, du ...}
{2, du ...}	{2, du ...}
{3, du ...}	{2, du ...}
{1, pl ...}	{1, C ...}
{2, pl ...}	{2, pl ...}
{3, pl ...}	{2, pl ...}

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{3, sg ...}	{3, sg ...}
{1, du ...}	{1, du ...}
{2, du ...}	{2, du ...}
{3, du ...}	{2, du ...}
{1, pl ...}	{1, C ...}
{2, pl ...}	{2, pl ...}
{3, pl ...}	{2, pl ...}

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{3, du ...}	{2, du ...}
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{2, pl ...}	{2, pl ...}
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{2, du ...}	{2, du ...}
{3, du ...}	{2, du ...}
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{2, pl ...}	{2, pl ...}
{3, pl ...}	{2, pl ...}

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{3, sg ...}	{3, sg ...}
{1, du ...}	{1, du ...}
{2, du ...}	{2, du ...}
{3, du ...}	{2, du ...}
{1, pl ...}	{1, C ...}
{2, pl ...}	{2, pl ...}
{3, pl ...}	{2, pl ...}

Interrogative paradigms of the Hua verb HU 'do'

Content paradigm

⟨ HU, {1sg intrg} ⟩	⟨ HU, {1du intrg} ⟩	⟨ HU, {1pl intrg} ⟩
⟨ HU, {2sg intrg} ⟩	⟨ HU, {2du intrg} ⟩	⟨ HU, {2pl intrg} ⟩
⟨ HU, {3sg intrg} ⟩	⟨ HU, {3du intrg} ⟩	⟨ HU, {3pl intrg} ⟩

Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
⟨ <i>hu</i> , {2pl intrg} ⟩	⟨ <i>hu</i> , {2du intrg} ⟩	⟨ <i>hu</i> , {2C intrg} ⟩
⟨ <i>hu</i> , {3sg intrg} ⟩		

Realized paradigm

⟨ <i>hu-ve</i> , {1sg intrg} ⟩	⟨ <i>hu-'ve</i> , {1du intrg} ⟩	⟨ <i>hu-pe</i> , {1C intrg} ⟩
⟨ <i>ha-ve</i> , {2pl intrg} ⟩	⟨ <i>ha-'ve</i> , {2du intrg} ⟩	⟨ <i>ha-pe</i> , {1C intrg} ⟩
⟨ <i>hi-ve</i> , {3sg intrg} ⟩		

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Content paradigm

⟨ HU, {1sg intrg} ⟩	⟨ HU, {1du intrg} ⟩	⟨ HU, {1pl intrg} ⟩
⟨ HU, {2sg intrg} ⟩	⟨ HU, {2du intrg} ⟩	⟨ HU, {2pl intrg} ⟩
⟨ HU, {3sg intrg} ⟩	⟨ HU, {3du intrg} ⟩	⟨ HU, {3pl intrg} ⟩

Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
⟨ <i>hu</i> , {2pl intrg} ⟩	⟨ <i>hu</i> , {2du intrg} ⟩	⟨ <i>hu</i> , {2C intrg} ⟩
⟨ <i>hu</i> , {3sg intrg} ⟩		

Realized paradigm

⟨ <i>hu-ve</i> , {1sg intrg} ⟩	⟨ <i>hu-'ve</i> , {1du intrg} ⟩	⟨ <i>hu-pe</i> , {1C intrg} ⟩
⟨ <i>ha-ve</i> , {2pl intrg} ⟩	⟨ <i>ha-'ve</i> , {2du intrg} ⟩	⟨ <i>ha-pe</i> , {1C intrg} ⟩
⟨ <i>hi-ve</i> , {3sg intrg} ⟩		

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⟨ HU, {3sg intrg} ⟩	⟨ HU, {3du intrg} ⟩	⟨ HU, {3pl intrg} ⟩

Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
⟨ <i>hu</i> , {2pl intrg} ⟩	⟨ <i>hu</i> , {2du intrg} ⟩	⟨ <i>hu</i> , {2C intrg} ⟩
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⟨ HU, {3sg intrg} ⟩	⟨ HU, {3du intrg} ⟩	⟨ HU, {3pl intrg} ⟩

Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
⟨ <i>hu</i> , {2pl intrg} ⟩	⟨ <i>hu</i> , {2du intrg} ⟩	⟨ <i>hu</i> , {2C intrg} ⟩
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Realized paradigm

⟨ <i>hu-ve</i> , {1sg intrg} ⟩	⟨ <i>hu-'ve</i> , {1du intrg} ⟩	⟨ <i>hu-pe</i> , {1C intrg} ⟩
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Content paradigm

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Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
⟨ <i>hu</i> , {2pl intrg} ⟩	⟨ <i>hu</i> , {2du intrg} ⟩	⟨ <i>hu</i> , {2C intrg} ⟩
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⟨ <i>hu-ve</i> , {1sg intrg} ⟩	⟨ <i>hu-'ve</i> , {1du intrg} ⟩	⟨ <i>hu-pe</i> , {1C intrg} ⟩
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⟨ HU, {3sg intrg} ⟩	⟨ HU, {3du intrg} ⟩	⟨ HU, {3pl intrg} ⟩

Form paradigm

⟨ <i>hu</i> , {1sg intrg} ⟩	⟨ <i>hu</i> , {1du intrg} ⟩	⟨ <i>hu</i> , {1C intrg} ⟩
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⟨ <i>hi-ve</i> , {3sg intrg} ⟩		

8. Summary

Mismatches between content and form

Mismatch

Observable
in the realization
of a single paradigm

Observable
across paradigms

**different
content,
same
form**

**the Hua 'C'
inflection**

**same
content,
different
form**

**the Kashmiri
'a', 'b', 'c' and 'd'
inflections**

Mismatches between content and form

Mismatch

Observable
in the realization
of a single paradigm

Observable
across paradigms

**different
content,
same
form**

syncretism
(CLING)

deponency
(PARĀRE ‘prepare’ vs CŌNĀRĪ ‘try’)
homomorphy
(WEAR ‘have on’ vs WEAR ‘abrade’)
polyfunctionality
(Khanty *xo:t-e:m* ‘my house’
vs *we:r-l-e:m* ‘I make (it)’)

**same
content,
different
form**

stem allomorphy
(KNIFE)
overabundance
(*dreamed* vs *dreamt*)

defectiveness
(*je fris* vs **nous frisons*)
inflection-class allomorphy
(*mean-t* vs *lean-ed*)

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Inflectional Paradigms

Content and Form at
the Syntax-Morphology
Interface

Gregory Stump

Thank you!

John left.

$\exists t[\text{PAST}(t) \ \& \ \text{AT}(t, \text{^[leave'(John')}]})]$

John left.

$\exists t[\text{PAST}(t) \ \& \ \text{AT}(t, \wedge[\text{leave}'(\text{John}')])]$

↑

Quantificational component

John left.

$\exists t[\text{PAST}(t) \ \& \ \text{AT}(t, \wedge[\text{leave}'(\text{John}')])]$



Predicative component

John left.

$\exists t[\text{PAST}(t) \ \& \ \text{AT}(t, \wedge[\text{leave}'(\text{John}')])]$



Situative component

John left.

$\exists t[\text{PAST}(t) \ \& \ \text{AT}(t, \wedge[\text{leave}'(\text{John}')])]$



Situative component

leave \Rightarrow **leave'**

left \Rightarrow $\lambda x[\text{PAST}(t) \ \& \ \text{AT}(t, \wedge[\text{leave}'(x)])]$