Systematically investigating syncretism in multidimensional inflectional systems: generating views into transitive verb paradigms

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Syncretism: General considerations

Syncretism is when different functions of a lexeme are realized by the same form.

Study of syncretism patterns helps investigating:

- the denotation of forms
- systematic neutralizations
- the structure of the paradigm at hand

More complex paradigms can have:

- more cells that can be syncretic,
- but, more importantly, **more kinds of syncretisms**.
- These are not always apparent to the naked eye.

One example: **polypersonal indexation (in transitive verbs)**

Example: Khaling syncretism

Well-known fact in Kiranti verbs (arrows show syncretism)

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʊ̃m-nɛ	loʊ̃m-su	loʊ̃m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	loɔp-kʌ	→	→
2SG	ʔi-loʊ̃m-ŋʌ		↑		↑				ʔi-lɵ̄:b-ʉ	ʔi-lɵ̂:p-su	ʔi-lɵ̂:p-nu
2DU	ʔi-loʊ̃m-ŋʌsu		↑		↑				ʔi-ləp-i	ʔi-ləp-i	ʔi-ləp-i
2PL	ʔi-loʊ̃m-ŋʌnu		↑		↑				ʔi-loʊ̃m-ni	→	→
3SG	ʔi-loʊ̃m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	lɵ̄:b-ʉ	↑	lɵ̂:p-nu
3DU	ʔi-loʊ̃m-ŋʌsu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	lɵ̂:p-su	lɵ̂:p-nu
3PL	ʔi-loʊ̃m-ŋʌnu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	lɵ̂:p-nu	lɵ̂:p-nu	lɵ̂:p-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

Horizontal, vertical, L–shaped...

What different **kinds** of syncretism does this system have?

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʊ̂m-nɛ	loʊ̂m-su	loʊ̂m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	loɔp-kʌ	→	→
2SG	ʔi-loʊ̂m-ŋʌ		↑		↑				ʔi-lɵ̄ːb-ʉ	ʔi-lêːp-su	ʔi-lêːp-nu
2DU	ʔi-loʊ̂m-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loʊ̂m-ŋʌnu		↑		↑				ʔi-loʊ̂m-ni	→	→
3SG	ʔi-loʊ̂m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	lɵ̄ːb-ʉ	↑	↑
3DU	ʔi-loʊ̂m-ŋʌsu	↓	↓	↓	↓	↓	↓	↓	←	lêːp-su	↑
3PL	ʔi-loʊ̂m-ŋʌnu	↓	↓	↓	↓	↓	↓	↓	←	←	lêːp-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

What different **kinds** of syncretism does this system have?

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʔm-nɛ	loʔm-su	loʔm-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʔm-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʔm-ni	loɔp-kʌ	→	→
2SG	ʔi-loʔm-ŋʌ		↑		↑				ʔi-lē:b-ʉ	ʔi-lê:p-su	ʔi-lê:p-nu
2DU	ʔi-loʔm-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loʔm-ŋʌnu		↑		↑				ʔi-loʔm-ni	→	→
3SG	ʔi-loʔm-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʔm-ni	lē:b-ʉ	↑	↑
3DU	ʔi-loʔm-ŋʌsu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	lê:p-su	↑
3PL	ʔi-loʔm-ŋʌnu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	←	lê:p-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

What different **kinds** of syncretism does this system have?

Neutralization of:

- number of the agent (num_A)

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʊ̂m-nɛ	loʊ̂m-su	loʊ̂m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	loɔp-kʌ	→	→
2SG	ʔi-loʊ̂m-ŋʌ		↑		↑				ʔi-lə̄ːb-ʉ	ʔi-lə̂ːp-su	ʔi-lə̂ːp-nu
2DU	ʔi-loʊ̂m-ŋʌsu		↑		↑				ʔi-ləp-i	ʔi-ləp-i	ʔi-ləp-i
2PL	ʔi-loʊ̂m-ŋʌnu		↑		↑				ʔi-loʊ̂m-ni	→	→
3SG	ʔi-loʊ̂m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	lə̄ːb-ʉ	↑	↑
3DU	ʔi-loʊ̂m-ŋʌsu	↓	↓	↓	↓	↓	↓	↓	←	lə̂ːp-su	↑
3PL	ʔi-loʊ̂m-ŋʌnu	↓	↓	↓	↓	↓	↓	↓	←	←	lə̂ːp-nu

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What different **kinds** of syncretism does this system have?
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- number of the agent (num_A)
- number of the patient (num_P)

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʊ̃m-nɛ	loʊ̃m-su	loʊ̃m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	loɔp-kʌ	→	→
2SG	ʔi-loʊ̃m-ŋʌ		↑		↑				ʔi-lɵ̄ːb-ʉ	ʔi-lɵ̂ːp-su	ʔi-lɵ̂ːp-nu
2DU	ʔi-loʊ̃m-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loʊ̃m-ŋʌnu		↑		↑				ʔi-loʊ̃m-ni	→	→
3SG	ʔi-loʊ̃m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̃m-ni	lɵ̄ːb-ʉ	↑	lɵ̂ːp-nu
3DU	ʔi-loʊ̃m-ŋʌsu	↓	↓	↓	↓	↓	↓	↓	←	lɵ̂ːp-su	lɵ̂ːp-nu
3PL	ʔi-loʊ̃m-ŋʌnu	↓	↓	↓	↓	↓	↓	↓	lɵ̂ːp-nu	lɵ̂ːp-nu	lɵ̂ːp-nu

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What different **kinds** of syncretism does this system have?

Neutralization of:

- number of the agent (num_A)
- number of the patient (num_P)

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loʊ̂m-nɛ	loʊ̂m-su	loʊ̂m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	loɔp-kʌ	→	→
2SG	ʔi-loʊ̂m-ŋʌ		↑		↑				ʔi-lə̄ːb-ʉ	ʔi-lə̂ːp-su	ʔi-lə̂ːp-nu
2DU	ʔi-loʊ̂m-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loʊ̂m-ŋʌnu		↑		↑				ʔi-loʊ̂m-ni	→	→
3SG	ʔi-loʊ̂m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loʊ̂m-ni	lə̄ːb-ʉ	↑	↑
3DU	ʔi-loʊ̂m-ŋʌsu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	lə̂ːp-su	↑
3PL	ʔi-loʊ̂m-ŋʌnu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	←	lə̂ːp-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

What different **kinds** of syncretism does this system have?

Neutralization of:

- number of the agent (num_A)
- number of the patient (num_P)
- person of the agent (per_A)

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loɔ̃m-nɛ	loɔ̃m-su	loɔ̃m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	loɔp-kʌ	→	→
2SG	ʔi-loɔ̃m-ŋʌ		↑		↑				ʔi-lɵ̄ːb-ʉ	ʔi-lɵ̂ːp-su	ʔi-lɵ̂ːp-nu
2DU	ʔi-loɔ̃m-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loɔ̃m-ŋʌnu		↑		↑				ʔi-loɔ̃m-ni	→	→
3SG	ʔi-loɔ̃m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	lɵ̄ːb-ʉ	↑	↑
3DU	ʔi-loɔ̃m-ŋʌsu	ʔi-ləp-i	↓	↓	↓	↓	ʔi-ləp-i	↓	←	lɵ̂ːp-su	↑
3PL	ʔi-loɔ̃m-ŋʌnu	ʔi-ləp-i	↓	↓	↓	↓	ʔi-ləp-i	↓	←	←	lɵ̂ːp-nu

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What different **kinds** of syncretism does this system have?

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- number of the agent (num_A)
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- person of the agent (per_A)
- person of the patient (per_P)

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loɔ̃m-nɛ	loɔ̃m-su	loɔ̃m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	loɔp-kʌ	→	→
2SG	ʔi-loɔ̃m-ŋʌ		↑		↑				ʔi-lɛ̄:b-ʉ	ʔi-lɛ̂:p-su	ʔi-lɛ̂:p-nu
2DU	ʔi-loɔ̃m-ŋʌsu		↑		↑				ʔi-ləp-i	ʔi-ləp-i	ʔi-ləp-i
2PL	ʔi-loɔ̃m-ŋʌnu		↑		↑				ʔi-loɔ̃m-ni	→	→
3SG	ʔi-loɔ̃m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	lɛ̄:b-ʉ	↑	↑
3DU	ʔi-loɔ̃m-ŋʌsu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	lɛ̂:p-su	↑
3PL	ʔi-loɔ̃m-ŋʌnu	↓	↓	↓	↓	↓	ʔi-ləp-i	↓	←	←	lɛ̂:p-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

What different **kinds** of syncretism does this system have?

Neutralization of:

- number of the agent (num_A)
- number of the patient (num_P)
- person of the agent (per_A)
- person of the patient (per_P)
- role

Example: Khaling syncretism

	1SG	1DI	1DE	1PI	1PE	2SG	2DU	2PL	3SG	3DU	3PL
1SG						loɔ̃m-nɛ	loɔ̃m-su	loɔ̃m-nu	lob-u	lob-usu	lob-unu
1DI									ləp-i	→	→
1DE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	ləp-u	→	→
1PI									loɔp-ki	→	→
1PE						ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	loɔp-kʌ	→	→
2SG	ʔi-loɔ̃m-ŋʌ		↑		↑				ʔi-lɘ̄ːb-ʉ	ʔi-lɘ̂ːp-su	ʔi-lɘ̂ːp-nu
2DU	ʔi-loɔ̃m-ŋʌsu		↑		↑				ʔi-ləp-i	→	→
2PL	ʔi-loɔ̃m-ŋʌnu		↑		↑				ʔi-loɔ̃m-ni	→	→
3SG	ʔi-loɔ̃m-ŋʌ	ʔi-ləp-i	ʔi-ləp-u	ʔi-loɔp-ki	ʔi-loɔp-kʌ	ʔi-loɔp	ʔi-ləp-i	ʔi-loɔ̃m-ni	lɘ̄ːb-ʉ	↑	lɘ̂ːp-nu
3DU	ʔi-loɔ̃m-ŋʌsu	↓	↓	↓	↓	↓	↓	↓	←	lɘ̂ːp-su	lɘ̂ːp-nu
3PL	ʔi-loɔ̃m-ŋʌnu	↓	↓	↓	↓	↓	↓	↓	lɘ̂ːp-nu	lɘ̂ːp-nu	lɘ̂ːp-nu

Table 1: Khaling (Jacques et al. 2012: p. 1102)

What different **kinds** of syncretism does this system have?

Neutralization of:

- number of the agent (num_A)
- number of the patient (num_P)
- person of the agent (per_A)
- person of the patient (per_P)
- role

Across Kiranti languages I

	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU/PL
1SG						-nɛ	-nɛtchiŋ	-niŋ	-uŋ	-uŋsiŋ
1DE						←	-nɛtchige	→	-suge	-susige
1PE						↙	↓	↘	-umbe	-umsimbe
1DI									a- -su	a- -susi
1PI									a- -um	a- -umsim
2SG	kɛ- -ʔɛ	↑	↗						kɛ- -u	kɛ- -usi
2DU	←	akɛ-	→						kɛ- -su	kɛ- -susi
2PL	↙	↓	↘						kɛ- -um	kɛ- -umsim
3SG	-ʔɛ	-sige	-ige	a- -si	a-	kɛ-	kɛ- -si	kɛ- -i	-u	-usi
3DU	↑	↑	↑	↑	↑	↑	↑	↑	-su	-susi
3PL	mɛ- -ʔɛ	mɛ- -sige	mɛ- -ige	am- -si	am-	kɛm-	kɛm- -si	kɛm- -i	mɛ- -u	mɛ- -usi

Table 2: Limbu non-preterite (collected from van Driem 1987)

Across Kiranti languages II

	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG						ni	nitsi	nini	u	utsi	umi
1DE						←	←	←	tsuku	→	tsukumi
1PE						←	←	←	ku	kutsi	kumi
1DI									tsi	→	tsimi
1PI									i	itsi	imi
2SG	ŋi	tsiki	ki						na	natsi	nami
2DU	ŋitsi	tsiki	kitsi						tsi	tsi	tsimi
2PL	ŋini	tsikini	kini						ni	nitsi	nimi
3SG	ŋi	tsiki	ki	sa	sa	na	tsi	ni	ʉ	ʉtsi	ʉmi
3DU	ŋitsi	tsiki	kitsi	satsi	satsi	natsi	tsi	nitsi	tsi	tsi	tsimi
3PL	ŋimi	tsikimi	kimi	sami	sami	nami	tsimi	nimi	mi	mitsi	mi

Table 3: Thulung (Lahaussois 2020: p. 92)

Across Kiranti languages III

	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU/PL
1SG						-na	-naci	-nani	-uŋ	-uŋciŋ
1DE						↓	↓	↓	-cuŋ	→ (-cuciŋ)
1PE						↓	↓	↓	-umma	-umcimma
1DI									-cu	→ (-cuci)
1PI									-um	-umcim
2SG	a- -ŋa	a- -ciŋa	a- -iŋa						a- -u	a- -uci
2DU	a- -ciŋa	→=↓	→≠↓						a- -cu	→ (a- -cuci)
2PL	a- -iŋa	→≠↓	→=↓						a- -um	a- -umcim
3SG	-ŋa	-ciŋa	-iŋa	a- -ci	-a	-ma	ma- -ci	ma- -i	-u	-uci
3DU	-ciŋa	→=↓	→≠↓	↓	a- -ci	↓	↓	↓	-cu	→ (-cuci)
3PL	u- -ŋa	u- -ciŋa	u- -iŋa	↓	a-	↓	↓	↓	u- -u	u- -uci

Table 4: Athpare (Ebert 1997a: p. 31)

Across Kiranti languages IV

	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU/PL
1SG						-na	-naci	-nani	-uŋa	-uŋcuŋa
1DE						↓	↓	↓	-cka	→
1PE						↓	↓	↓	-umka	-umcumka
1DI									-ci	→
1PI									-um	-umcum
2SG	ta- -uŋa	ta- -cka	ta- -i(m)ka						ta- -u	ta- -ucyu
2DU	↓ (ta- -ci)	↓	↓						ta- -ci	→
2PL	↓ (ta- -i)	↓	↓						ta- -um	ta- -umcum
3SG	pa- -uŋa	pa- -cka	pa- -i(m)ka	pa- -ci	pa- -i	ta-	ta- -ci	ta- -i	-u	-ucyu
3DU	↓	↓	↓	↓	↓	↓	↓	↓	pa- -ci	→
3PL	↓	↓	↓	↓	↓	↓	↓	↓	pa-	-ucyu

Table 5: Northwest Chamling (Ebert 1997b: p. 17)

Goal

These paradigms have a lot of structure, **not apparent to the naked eye**

It useful to change the layout systematically, to:

- peruse complex data and find syncretisms quicker
- check certain hypotheses on subparadigms and compare them at a glance
- adapt the presentation of the paradigm to the research question

Also...

- computer script to systematically generate different views

Why care about syncretism? I

- Typology of feature neutralizations (Baerman, Brown & Corbett 2005)
- Influenced by prominence hierarchies (Lockwood & Macaulay 2012) and interactions between them

Lex.-refer. hierarchy pron. > nouns [hum. > anim. > inan.]
(Silverstein 1986)
Thematic hierarchy Agent > Dative > Patient (Givón 1984 a.o.)
Person hierarchy 1/2 > 3 (> 3.OBV)
(Zúñiga 2006, Jacques & Antonov 2014)

Transitive verbs: each argument has its position on the scale
Predictions for syncretism? (Lockwood & Macaulay 2012)

- Higher position ~ easily recoverable ~ zero-marked?
- Lower position ~ less salient ~ zero-marked?

Why care about syncretism? II

Rough empirical tendencies:

- Person hierarchy: Participants with higher person tend to receive more marking
  - absolute: 3rd person is often zero
  - relative: hierarchical marking (DeLancey 1981)
- Thematic hierarchy: Object marking (participant with “lower” role!) tends to persist, with syncretism of subject values (Baerman, Brown & Corbett 2005: p. 76)
- Sociopragmatic effects may muddy the picture (DeLancey 2018)
  - Substitution of 3rd-person markers for 2nd person in “local” scenarios (Heath 1991, 1998)

Therefore, studying syncretism in transitive verbs may help in:

- assessing the linking hypotheses between theory and data
- determining how hierarchies can interact
  - Which hierarchy prevails?
  - In what parts of morphosyntax?

Standard layout

Question: How to rearrange the table to better show syncretisms?

↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG											
1DE											
1PE											
1DI											
1PI											
2SG											
2DU											
2PL											
3SG											
3DU											
3PL											

Table 6: Standard transitive layout in Kiranti (Lahaussois 2019)

- In rows: different agents
- In columns: different patients
- One hidden choice...

Standard layout

Question: How to rearrange the table to better show syncretisms?

↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG											
1DE											
1PE											
1DI											
1PI											
2SG											
2DU											
2PL											
3SG											
3DU											
3PL											

Table 6: Standard transitive layout in Kiranti (Lahaussois 2019)

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Standard layout

Question: How to rearrange the table to better show syncretisms?

↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG											
1DE											
1PE											
1DI											
1PI											
2SG											
2DU											
2PL											
3SG											
3DU											
3PL											

Table 6: Standard transitive layout in Kiranti (Lahaussois 2019)

- In rows: different agents
- In columns: different patients
- One hidden choice...

What the usual layout hid from you all along

	↓ A \ P →	>1					>2			>3		
		1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1>	1SG 1DE 1PE 1DI 1PI						1>2			1>3		
2>	2SG 2DU 2PL	2>1								2>3		
3>	3SG 3DU 3PL	3>1					3>2			3>3		

Table 7: Underlying structure of the usual transitive layout

- Rows and columns are grouped first by person, then by number
- Naturally tailored to syncretism of number

What the usual layout hid from you all along

		>1					>2			>3		
	↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1>	1SG						1>2			1>3		
	1DE											
	1PE											
	1DI											
	1PI											
2>	2SG	2>1								2>3		
	2DU											
	2PL											
3>	3SG	3>1					3>2			3>3		
	3DU											
	3PL											

Table 7: Underlying structure of the usual transitive layout

- Rows and columns are grouped first by person, then by number
- Naturally tailored to syncretism of number
  - of agent (vertical)
  - of patient (horizontal)

Flattening several dimensions into one

	SG	DU	PL
1	•	•	•
2	•	•	•
3	•	•	•

(a) Full-blown paradigm

↓ per	↓ num
1	1SG
	1DU
	1PL
2	2SG
	2DU
	2PL
3	3SG
	3DU
	3PL

(b) Grouping by person (lines)

↓ num	↓ per
SG	1SG
	2SG
	3SG
DU	1DU
	2DU
	3DU
PL	1PL
	2PL
	3PL

(c) Grouping by number (cols)

- Group by a specific feature first: person or number
- Flatten a 2-dimensional system into one dimension…
- To make room for additional dependencies in transitive verbs (4D to 2D)

Exploring different layouts I

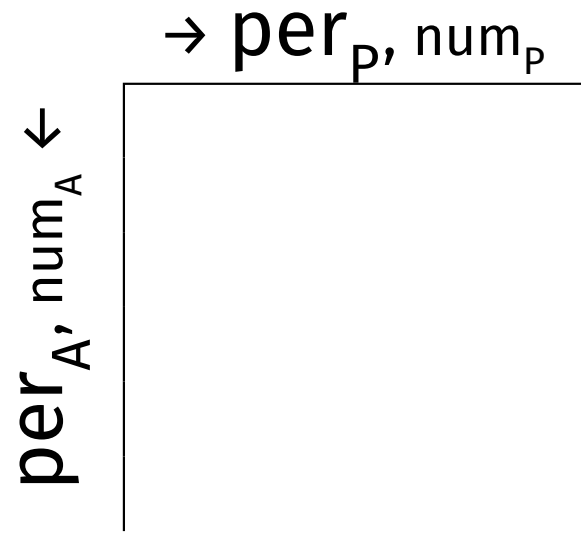
The person-flow layout

Standard layout:

- “person first, number second”
- for both rows (agent) and columns (patient)

Small zones combine:

- a person for the agent
- a person for the patient



“person-flow” layout

↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG						1>2			1>3		
1DE											
1PE											
1DI											
1PI											
2SG		2>1								2>3	
2DU											
2PL											
3SG		3>1				3>2			3>3		
3DU											
3PL											

Exploring different layouts II

The person-flow layout

- \+ Nice for neutralization of number
- \+ “Person zones” can have different marking strategies
- \+ Direct/inverse scenarios stand out (upper-right/lower-left)
- \+ Impossible cells are grouped together
- − Poor for neutralization of person and role

↓ A \ P →	>1SG	>1DU	>1PL
2SG>	kɛ- -ʔɛ	↑	↗
2DU>	←	a-kɛ-	→
2PL>	↙	↓	↘

Table 8: Limbu 2>1 zone

↓ A \ P →	1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1SG											
1DE						1>2				1>3	
1PE											
1DI											
1PI											
2SG											
2DU		2>1								2>3	
2PL											
3SG											
3DU		3>1					3>2			3>3	
3PL											

Exploring different layouts I

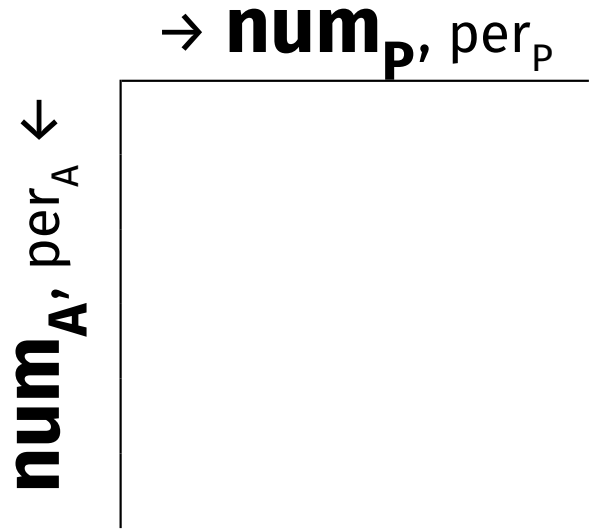
The number-flow layout

Instead:

- “**number** first, person second”
- for both rows (agent) and columns (patient)

Small zones combine:

- a **number** for the agent
- a **number** for the patient



“number-flow” layout

	↓ A \ P →	>SG			>DU				>PL			
		1SG	2SG	3SG	1DE	1DI	2DU	3DU	1PI	1PE	2PL	3PL
SG>	1SG 2SG 3SG	SG>SG			SG>DU				SG>PL			
DU>	1DE 1DI 2DU 3DU	DU>SG			DU>DU				DU>PL			
PL>	1PE 1PI 2PL 3PL	PL>SG			PL>DU				PL>PL			

Exploring different layouts II

The number-flow layout

- Finding natural syncretic cells becomes a no-brainer even in a big paradigm
  - Here shown on subparadigms for simplicity

↓ A \ P →	1SG	2SG	3SG
1SG		-ni	-u
2SG	-ŋi		-na
3SG	-ŋi	-na	-ʉ

Table 9: Thulung SG>SG (DeLancey 2018)

- Once acquainted with natural subparadigms, comparison across subparadigms becomes visual
  - shapes instead of linearly arranged patterns

Exploring different layouts III

The number-flow layout

- \+ Nice for neutralization of person
- – Impossible cells are scattered in each “number zone”
- – Poor for neutralization of number and role

↓ A P →	1DE	2DU	3DU
1DE		- tsu ku	- tsu ku
1DI			-tsi
2DU	- tsi ki		-tsi
3DU	- tsi ki	-tsi	-tsi

Table 10: Thulung DU>DU (Lahaussois 2020)

		>SG			>DU				>PL			
	↓ A \ P →	1SG	2SG	3SG	1DE	1DI	2DU	3DU	1PI	1PE	2PL	3PL
SG>	1SG 2SG 3SG	SG>SG			SG>DU				SG>PL			
DU>	1DE 1DI 2DU 3DU	DU>SG			DU>DU				DU>PL			
PL>	1PE 1PI 2PL 3PL	PL>SG			PL>DU				PL>PL			

Exploring different layouts

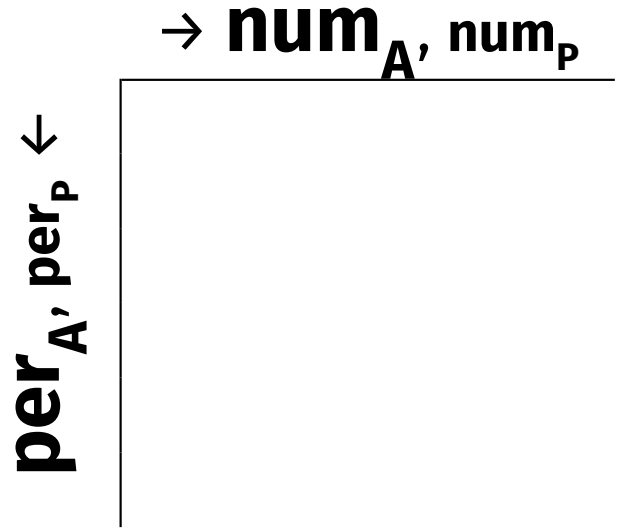
The agent-centered layout

Why choose to keep agent on one axis and patient on the other? Instead:

- person in rows
- number in columns
- “agent first, patient second”

Small zones combine:

- a person for the **agent**
- a number for the **agent**



“agent-centered” layout

		SG>			DU>			PL>		
	↓per\num→	SG>SG	SG>DU	SG>PL	DU>SG	DU>DU	DU>PL	PL>SG	PL>DU	PL>PL
1>	1>2 1>3	1SG>			1DE>			1PE>		
1I>	1I>3				1DI>			1PI>		
2>	2>1 2>3	2SG>			2DU>			2PL>		
3>	3>1 3>1I 3>2 3>3	3SG>			3DU>			3PL>		

Exploring different layouts II

The agent-centered layout

+ Nice for neutralization of patients

↓ per	num → (A: 1PE)	PL>SG	PL>DU	PL>PL
1>2		-ku	-ku	-ku
1>3		-ku	-kutsi	-kumi

Table 11: Thulung 1PE> (Lahaussois 2020)

Exploring different layouts II

The agent-centered layout

+ Nice for neutralization of patients
+ Side-by-side comparison with imperative paradigms (which select specific agents)
+ Slighty more compact (impossible rows can be removed)
+ Recapitulates conjugation lists such as Hodgson's (Lahaussois 2019), in a principled way
– Poor for neutralization of agent features, and role

		SG>			DU>			PL>		
	↓per\num→	SG>SG	SG>DU	SG>PL	DU>SG	DU>DU	DU>PL	PL>SG	PL>DU	PL>PL
1>	1>2 1>3	1SG>			1DE>			1PE>		
1I>	1I>3				1DI>			1PI>		
2>	2>1 2>3	2SG>			2DU>			2PL>		
3>	3>1 3>1I 3>2 3>3	3SG>			3DU>			3PL>		

Checking a hypothesis on a subparadigm

- Hypothesis: “Higher persons make more number distinctions than lower persons”

↓ per	num → (A: 1PE)	PL>SG	PL>DU	PL>PL
1>2		-ku	-ku	-ku
1>3		-ku	-kutsi	-kumi

Table 11: Thulung 1PE> (Lahaussois 2020)

- Falsified because of wide neutralization of patient features

Exploring different layouts I

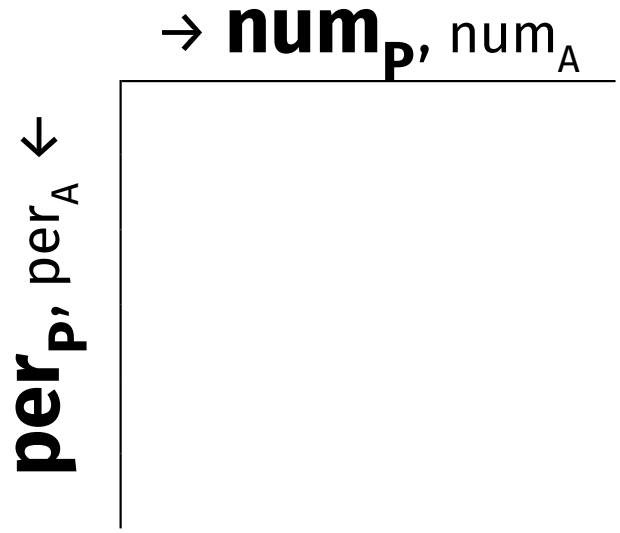
The patient-centered layout

Instead:

- “**patient** first, agent second”

Small zones combine:

- a person for the **patient**
- a number for the **patient**



“patient-centered” layout

		>SG			>DU			>PL		
	↓per\num→	SG>SG	DU>SG	PL>SG	SG>DU	DU>DU	PL>DU	SG>PL	DU>PL	PL>PL
>1	2>1 3>1	>1SG			>1DE			>1PE		
>1I	3>1I				>1DI			>1PI		
>2	1>2 3>2	>2SG			>2DU			>2PL		
3>	1>3 1I>3 2>3 3>3	>3SG			>3DU			>3PL		

Exploring different layouts II

The patient-centered layout

- Systematic neutralization of agent person (but not number) when patient is specifically 1SG

↓ per	num → (P: 1SG)	SG>SG	DU>SG	PL>SG
2>1		ʔi-loɔ̂m-ŋʌ	ʔi-loɔ̂m-ŋʌsu	ʔi-loɔ̂m-ŋʌnu
3>1		ʔi-loɔ̂m-ŋʌ	ʔi-loɔ̂m-ŋʌsu	ʔi-loɔ̂m-ŋʌnu

Table 12: Khaling >1SG (Jacques et al. 2012)

+ Nice for neutralization of agents
+ Side-by-side comparison with intransitive paradigms (“zero object/patient”)
– Poor for neutralization of patients and role

Role-centered layout I

When forms are insensitive to swapping agent and patient, put:

- role in columns
- unassigned sets of participants in rows

Role-centered layout I

When forms are insensitive to swapping agent and patient, put:

- role in columns
- unassigned sets of participants in rows

↓ Person-set Roles →	Direct	Inverse
1SG~2SG	loɔ̂m-nɛ	ʔi -loɔ̂m-ŋʌ
1SG~3SG	lob-u	ʔi -loɔ̂m-ŋʌ
1DE~3	lɵp-u	ʔi -lɵp-u
1PE~3	loɔp-kʌ	ʔi -loɔp-kʌ
1DI~3	lɵp-i	ʔi -lɵp-i
1PI~3	loɔp-ki	ʔi -loɔp-ki
2DU~3	ʔi -lɵp-i	ʔi -lɵp-i
2PL~3	ʔi -loɔ̂m-ni	ʔi -loɔ̂m-ni
3PL~3	lê:p-nu	lê:p-nu

Table 13: Khaling inverse marker and role-insensitive cells

Role-centered layout II

- Test a hypothesis on a role-insensitive matter: hierarchical indexation
- “Does 2SG trigger hierarchical marking?”
- Put side by side tables with opposite roles

Role-centered layout II

- Test a hypothesis on a role-insensitive matter: hierarchical indexation
- “Does 2SG trigger hierarchical marking?”
- Put side by side tables with opposite roles

2SG	A (2SG>)			/	P (>2SG)		
↓per\role,num→	2SG>SG	2SG>DU	2SG>PL		SG>2SG	DU>2SG	PL>2SG
2SG~1	-ŋi	-tsiki	-ki	/	-ni	-tsuku	-ku
2SG~3	-na	-natsi	-nami		-na	-natsi	-nami

Table 14: Thulung 2SG marking (adapted from Lahaussois 2020)

- Expect first-person markers at the top, second-person at the bottom

Role-centered layout II

- Test a hypothesis on a role-insensitive matter: hierarchical indexation
- “Does 2SG trigger hierarchical marking?”
- Put side by side tables with opposite roles

2SG	A (2SG>)			/	P (>2SG)		
↓per\role,num→	2SG>SG	2SG>DU	2SG>PL		SG>2SG	DU>2SG	PL>2SG
2SG~1	-ŋi	-tsiki	-ki	/	-ni	-tsuku	-ku
2SG~3	-na	-natsi	-nami		-na	-natsi	-nami

Table 14: Thulung 2SG marking (adapted from Lahaussois 2020)

- Expect first-person markers at the top, second-person at the bottom
- Hierarchical?

Role-centered layout II

- Test a hypothesis on a role-insensitive matter: hierarchical indexation
- “Does 2SG trigger hierarchical marking?”
- Put side by side tables with opposite roles

2SG	A (2SG>)			/	P (>2SG)		
↓per\role,num→	2SG>SG	2SG>DU	2SG>PL		SG>2SG	DU>2SG	PL>2SG
2SG~1	1	1	1	/	1>2	1	1
2SG~3	2	2,3	2,3		2	2,3	2,3

Table 14: Thulung 2SG marking (adapted from Lahaussois 2020)

- Expect first-person markers at the top, second-person at the bottom
- Hierarchical?
  - Almost when interacting with first person (except 1SG>)
  - Not really with third person

Conclusion

- Typologically:
  - Much is still to be explored in syncretism of transitive verbs
  - Relates to the open question of prominence hierarchies (Lockwood & Macaulay 2012)
  - Sociopragmatic neutralizations
- For descriptive linguists:
  - Exploring a transitive paradigm can be tricky
- Solution:
  - By **changing the way axes in a table reflect features**...
    - what features to enumerate
    - in what order
  - we can **choose which kinds of syncretisms** to highlight
    - for exploration
    - for exposition
- No layout is perfect, but each has advantages that can be exploited systematically

Systematically investigating syncretism in multidimensional inflectional systems: generating views into transitive verb paradigms

26th Himalayan Languages Symposium

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Université Paris Cité

6 September 2023

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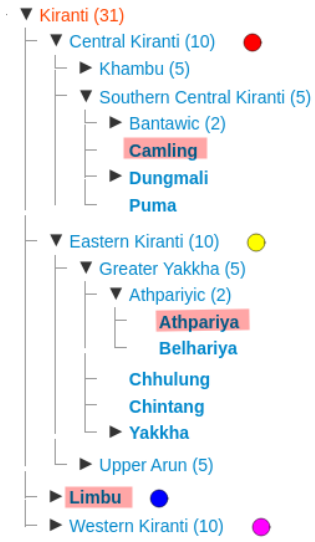
Languages

- Kiranti languages (Eastern Nepal):
  - Chamling (Ebert 1997b)
  - Athpare (Ebert 1997a)
  - Limbu (van Driem 1987)
  - Thulung (Lahaussois 2020)
- Verbal conjugation: polypersonal marking
  - Person and number of both subject and object
  - Tense (non-preterite/preterite)
  - Polarity (affirmative/negative)



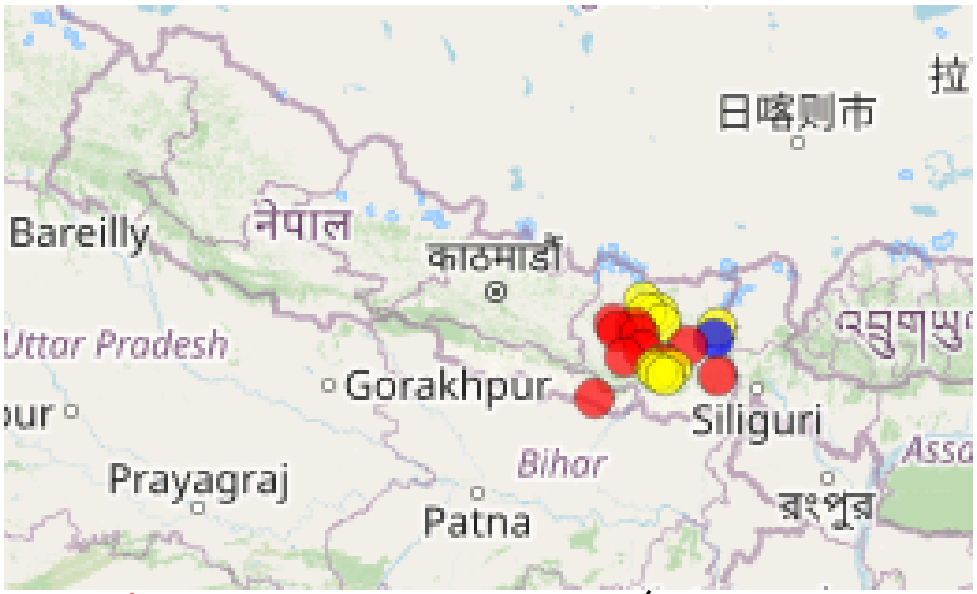
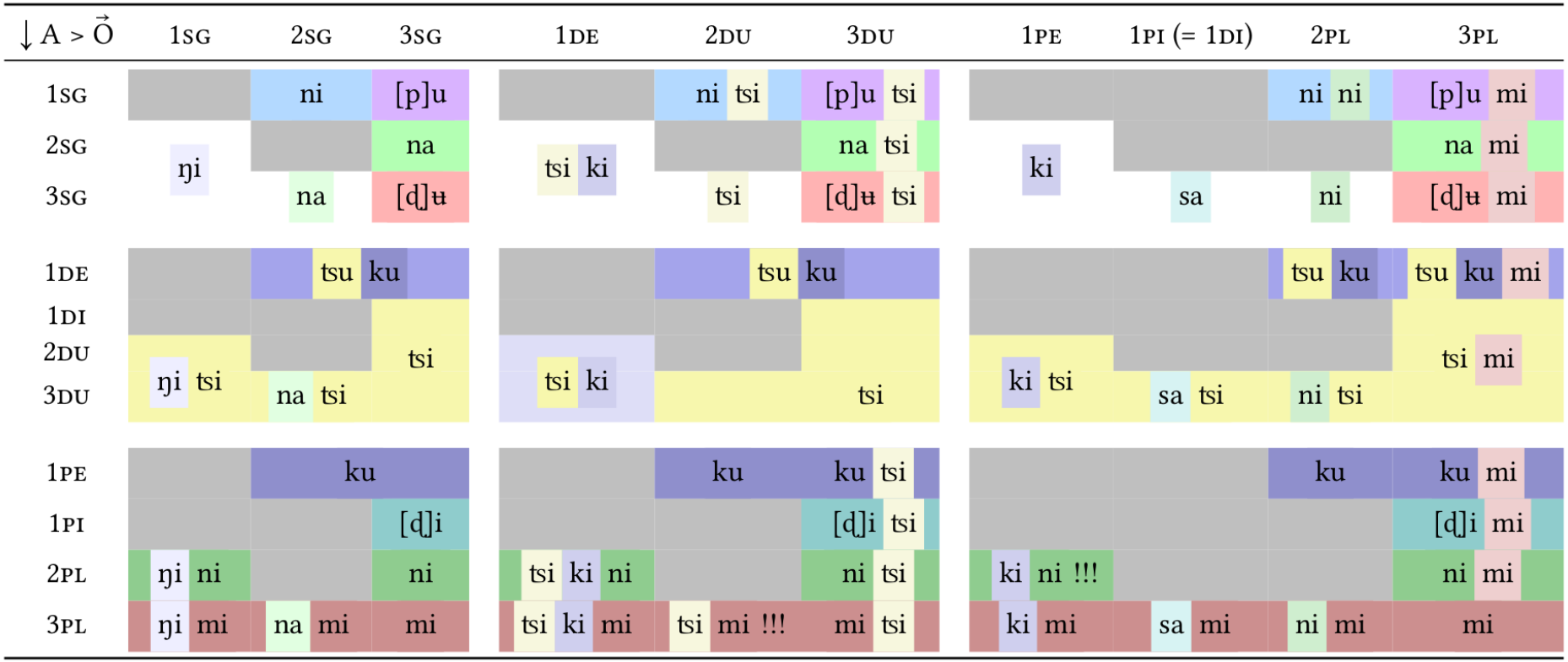
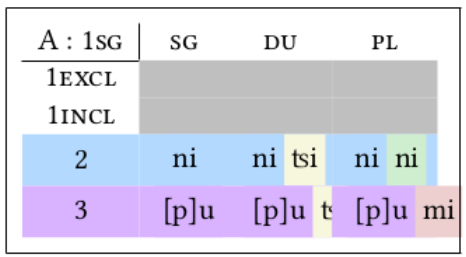
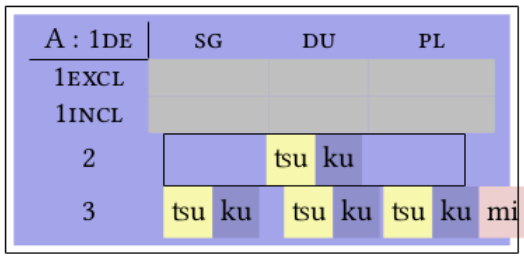
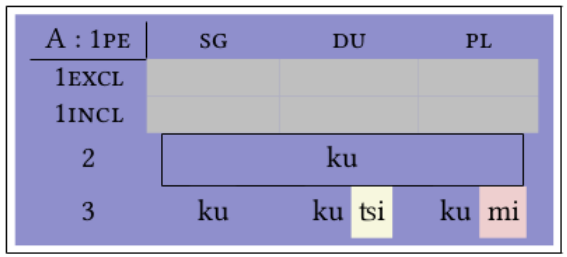
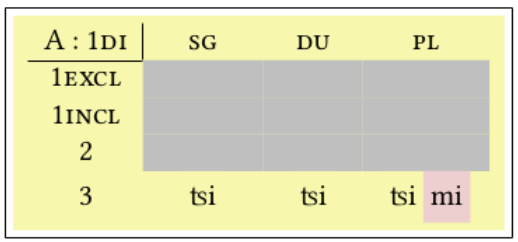
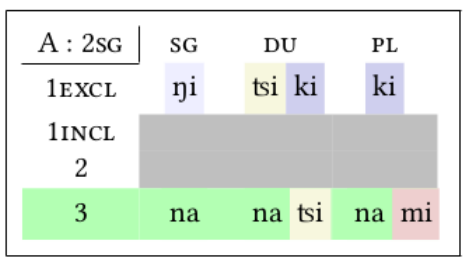
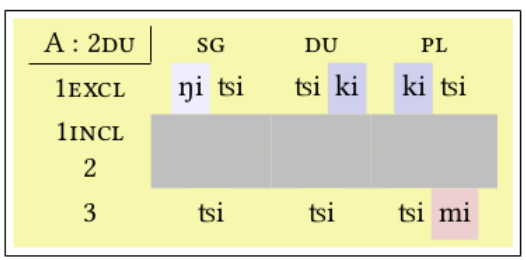
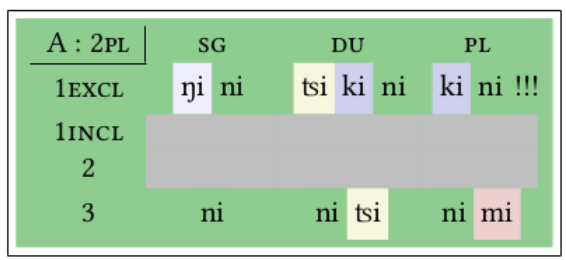
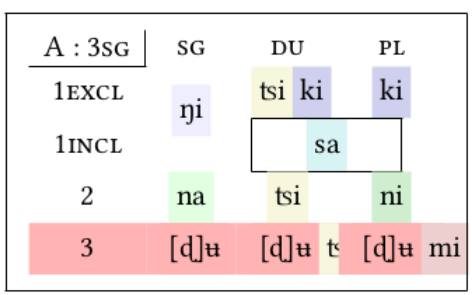
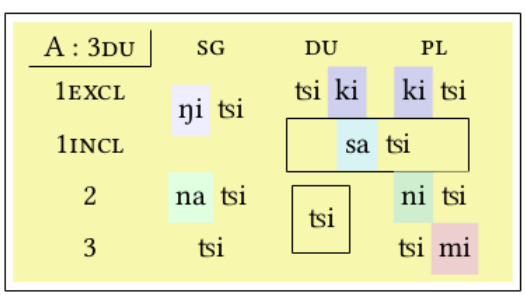
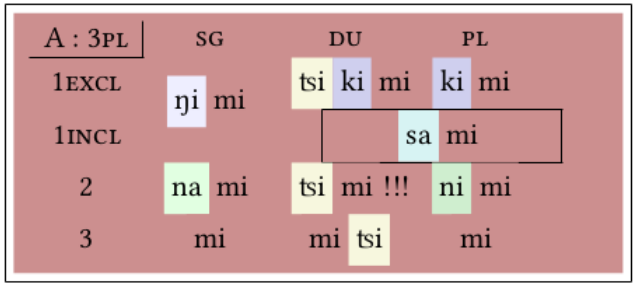


Figure 2: Source: Glottolog (code `kira1253`)

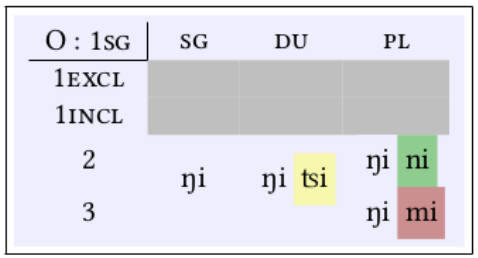
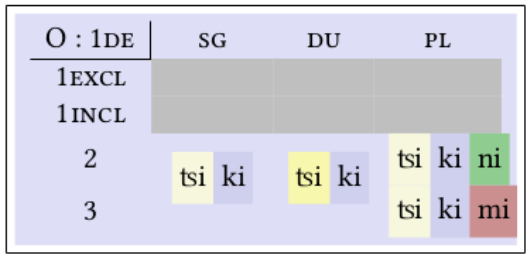
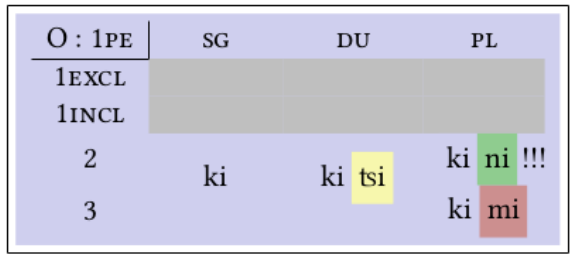
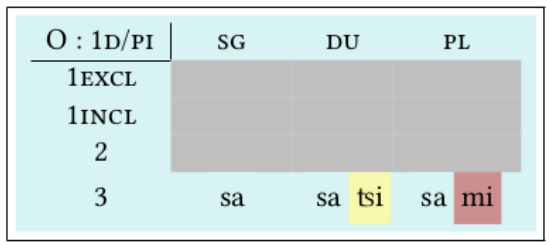
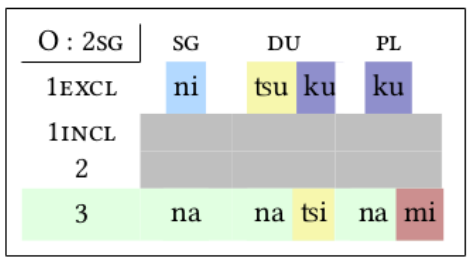
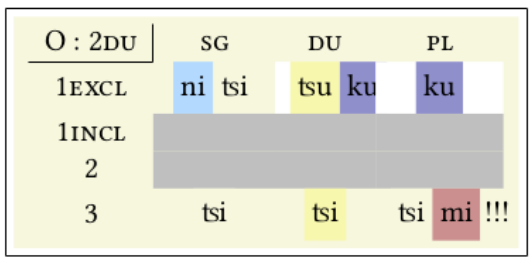
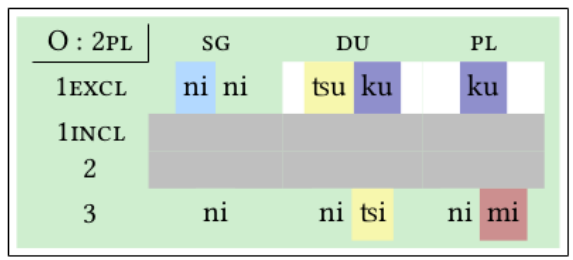
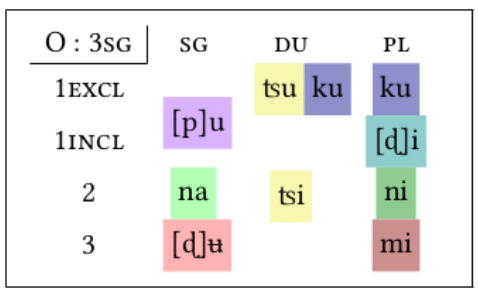
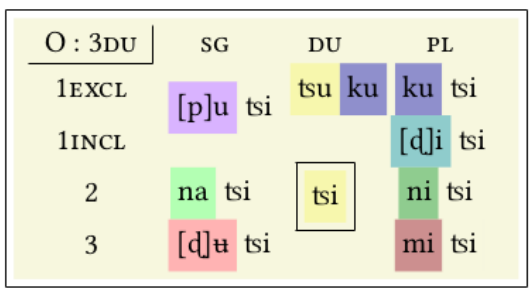
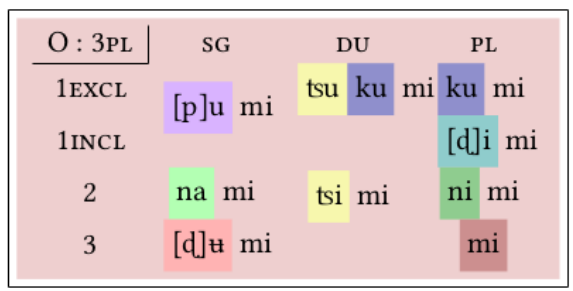
Full number-flow table: Thulung



Full agent-centered table: Thulung

Agent	SG	DU	PL
1EXCL			
1INCL			
2			
3			

Full patient-centered table: Thulung

Patient	SG	DU	PL
1EXCL			
1INCL			
2			
3			

“Morphomic” syncretism

Especially unwieldy systems (or irregular data: cf. Ebert 1997a: p. 40)

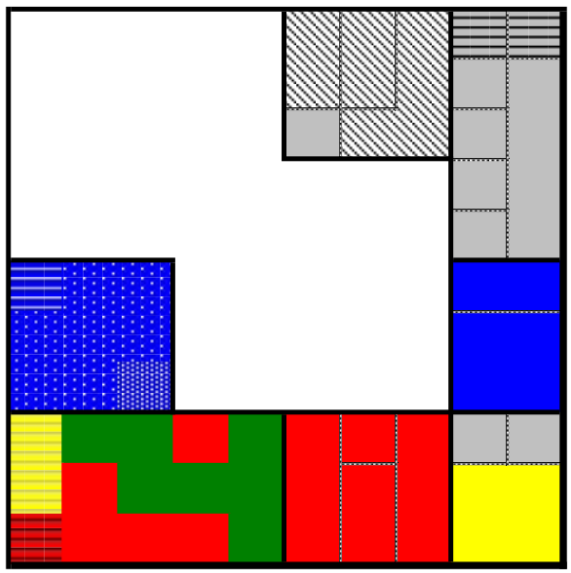


Figure 3: Schematic Bidyang Bantawa (Cho 2020: p. 85): green area!

I will limit myself to:

- “semantically well-motivated” syncretism
- person markers (no stem allomorphy or tense)

How to arrange different values of the same feature

- The different visualizations are based on the idea of putting together some set of minimally different pairs of cells
- Not every such pair of cells can be displayed close together at once (as soon as there are more than two values)

SG – DU – PL

SG – PL – DU

SG PL
DU

?

- A fully unbiased representation is not possible, unless we want to arrange tables cylindrically (with a triangle for a base, as above)

Microvariation in number syncretisms

Figure 5: Horizontal syncretism; SE Chamling

A \ P	1SG	1DU	1PL
2SG	→	→	→
2DU	→	→	→
2PL	→	→	→

Figure 6: Expression of either number (with overabundance); Athpare

A \ P	1SG	1DU	1PL
2SG		↓	↓
2DU	→	→↓	→↓
2PL	→	→↓	→↓

Figure 7: Cross syncretism (with dual expression being favored); Thulung

A \ P	1SG	1DU	1PL
2SG		↓	
2DU	→	→↓	→
2PL		↓	

Figure 8: Zero override: no overt number expression; Limbu

A \ P	1SG	1DU	1PL
2SG	•	↑	↗
2DU	←	∅	→
2PL	↙	↓	↘

Usual polypersonal representation

		>1			>1I		>2			>3		
↓ A \ P →		1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1>	1SG 1DE 1PE 1DI 1PI						1>2			1>3		
2>	2SG 2DU 2PL	2>1								2>3		
3>	3SG 3DU 3PL	3>1					3>2			3>3		
S →		1			1I		2			3		

Usual polypersonal representation

		>1			>1I		>2			>3		
↓ A \ P →		1SG	1DE	1PE	1DI	1PI	2SG	2DU	2PL	3SG	3DU	3PL
1>	1SG 1DE 1PE 1DI 1PI						1>2			1>3		
2>	2SG 2DU 2PL	2>1								2>3		
3>	3SG 3DU 3PL	3>1					3>2			3>3		
S →		1			1I		2			3		

Natural splits in verbal paradigms I

Figure 9: Natural splits fixing person, number and role: French *je* 1SG> and *me* >1SG

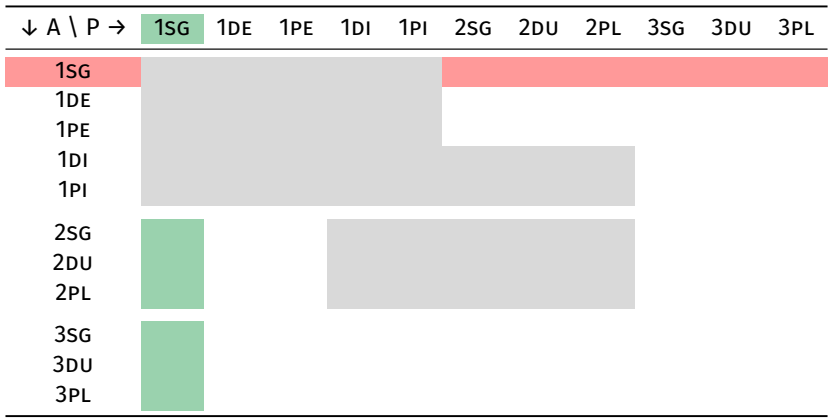
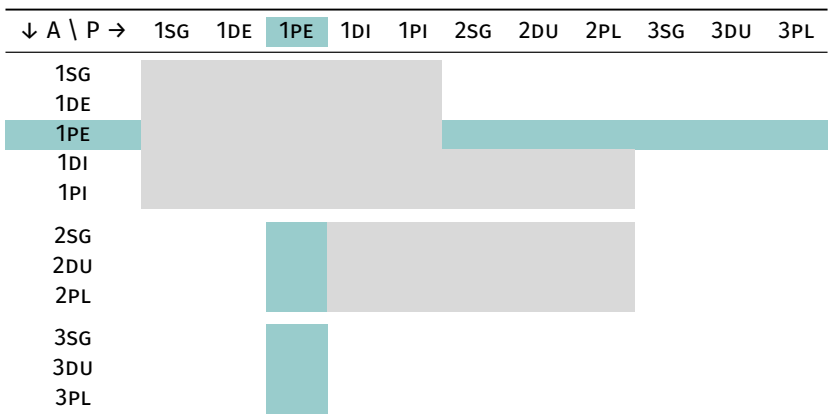


Figure 10: Natural splits with unspecified role: French *nous* 1PL



Natural splits in verbal paradigms II

Figure 11: Natural splits with unspecified number: Limbu *u* >3

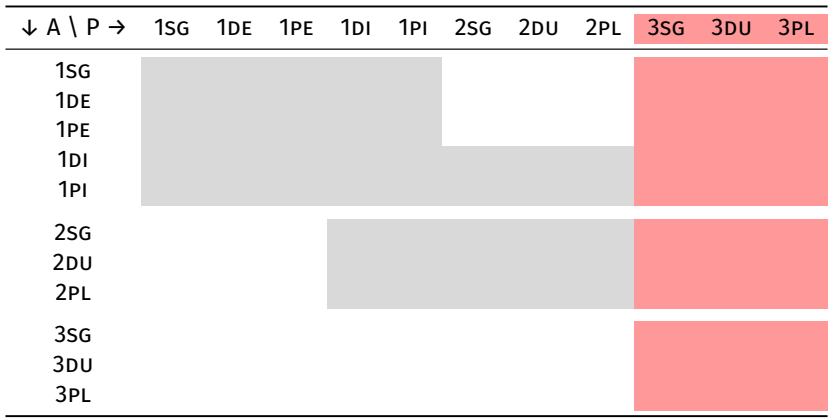
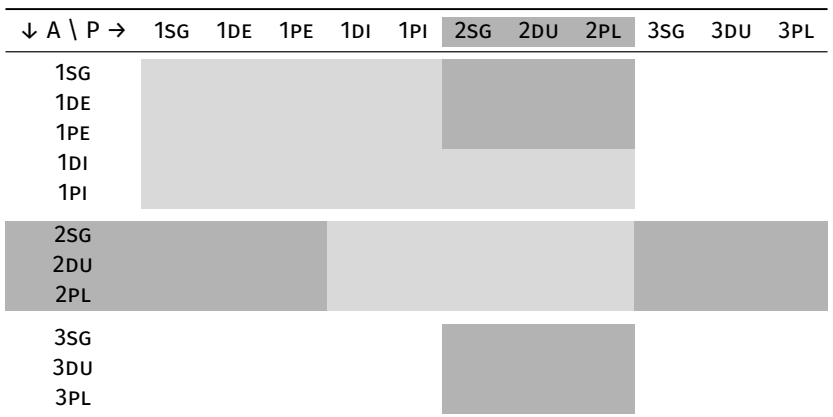
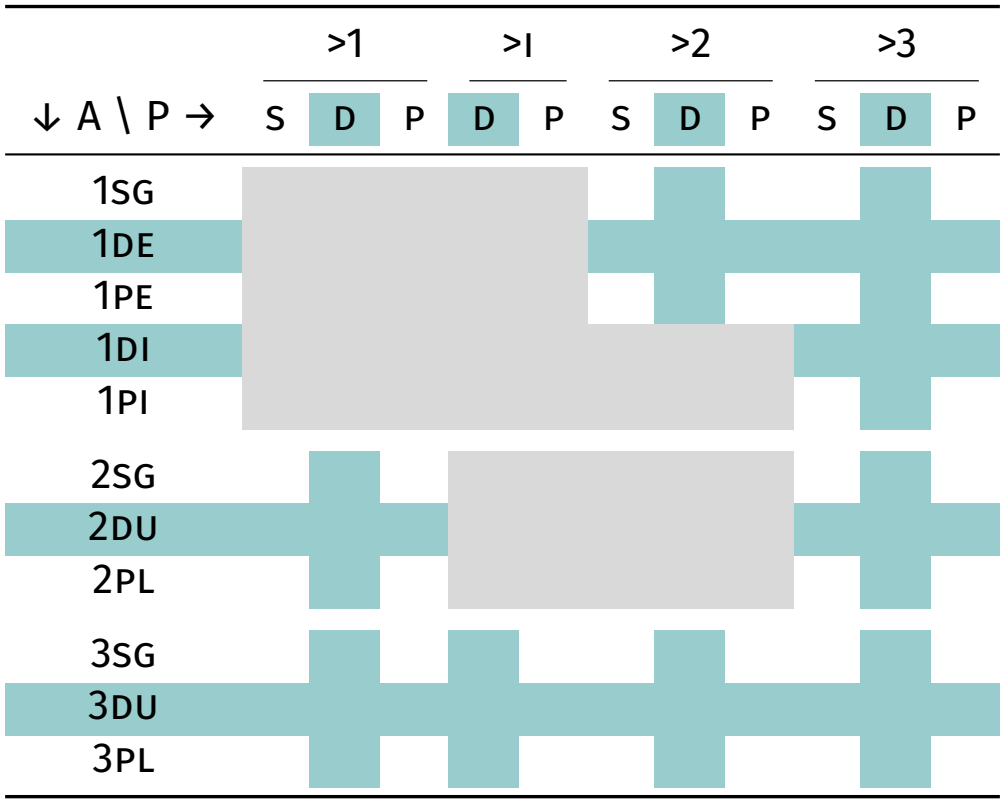


Figure 12: Natural splits with unspecified number and role: Limbu *kɛ* 2



Natural splits in verbal paradigms III

Figure 13: Natural splits with unspecified person and role: Thulung *tsi* DU



- Might look morphomic... but not necessarily, given the right underspecification!