The feature structure of pronouns: a probe into multidimensional paradigms

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1 Introduction

General aim:

- ▷ look at syncretism patterns to learn about underlying feature structure of the personal pronouns.

- ▷ personal pronoun paradigms are multidimensional, in that they involve (at least) the features person and number.
- ▷ syncretisms in multidimensional paradigms may be horizontal and/or vertical.

(1)

	sg	pl
1	A	B
2	A	C
3	D	E

	sg	pl
1	A	A
2	B	C
3	D	E

- ▷ primary data: Cysouw (2003).
- ▷ analytic framework: nanosyntax (Starke 2009, Caha 2009).
  - ○ one feature = one head
  - ○ postsyntactic lexical insertion.
  - ○ phrasal spell-out.
  - ○ cornerstone of the nanosyntax method: syncretisms target contiguous regions in a sequence of heads: *ABA.

(2)

NOM	A	A	A
ACC	A	B	A
GEN	B	B	A

Specific aims:

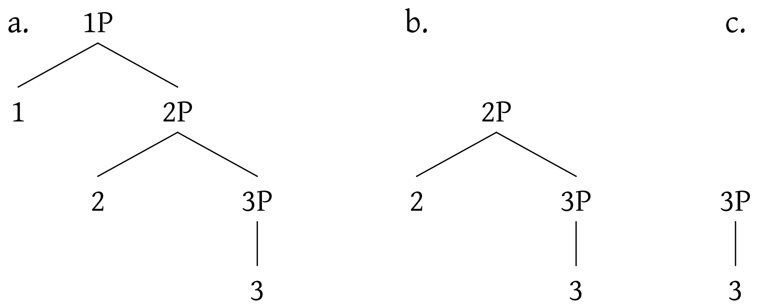
- ▷ vertical syncretisms require an extension of the classical nanosyntactic framework.
- ▷ two such extensions have been proposed:
  - ○ pointers (Caha & Pantcheva 2012)
  - ○ a reformulation of the *Superset Principle* (Caha 2014)
- ▷ I will compare both proposals and show
  - ○ where they make different predictions, and
  - ○ how these predictions fare with respect to the attested data.

2 The person feature complex

A first shot at a nanosyntactic view on Person (Starke 2013):

- ▷ 3 privative features: [speaker], [participant], [person]
- ▷ for expository purposes, I refer to these features by numbers:
  - ○ 1 = speaker
  - ○ 2 = participant
  - ○ 3 = person
- ▷ the features entertain a containment relation
- ▷ the feature trees for the personal pronouns 'I', 'You', and 'he' are given in (3a), (3b), and (3c), respectively:

(3)



- ▷ What syncretisms does this system predict?

(4)

					*
1	A	A	A	A	A
2	B	A	B	A	B
3	C	B	B	A	A

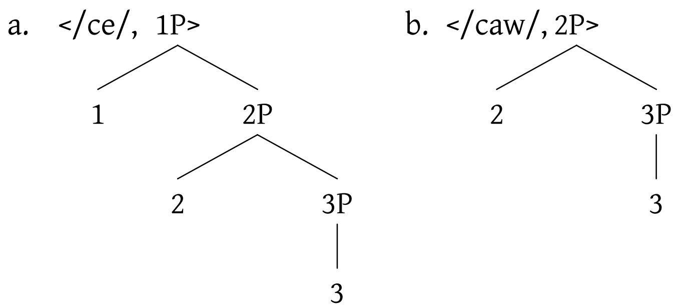
- ▷ possible syncretisms between 1 and 2 (AAB), 2 and 3 (ABB), and 1, 2, and 3 (AAA)
- ▷ no syncretism of 1 and 3 across 2 (*ABA)

The ABB-pattern in (5) (Qawesqar) results from lexical items in (6) and the *Superset Principle* and the *Elsewhere Condition*:

(5)

1P	ce
2P	caw
3P	caw

(6)



(7) *The Superset Principle*
A phonological exponent is inserted into a node if its lexical entry has a (sub-)constituent that is identical to the node.

(8) *The Elsewhere Principle*
In case two rules, R_1 and R_2, can apply in an environment E, R_1 takes precedence over R_2 if it applies in a proper subset of environments compared to R_2.

3 Where is number?

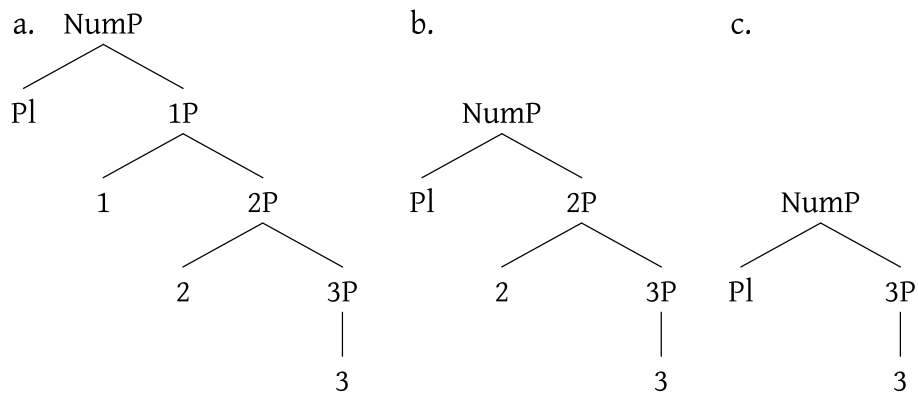
- ▷ some languages form the plural of pronouns with the same morpheme that is used with nouns (or certain noun classes)
- ▷ e.g. Mandarin Chinese (Corbett 2000:76):

(9)

	sg	pl
1P	wǒ	wǒ-men
2P	nǐ	nǐ-men
3P	tā	tā-men

(10) xuésheng xuésheng-men
student student-PL

▷ exploiting this analogy, we conclude that plural number sits on top of the person feature complex, as shown in (11):

(11)


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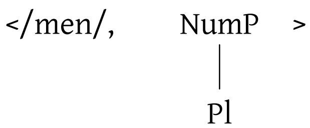


▷ *Spell-out driven movement*: to derive the plural pronouns in (9), the complement of Pl moves into the Spec of NumP, after which *-men* spells out NumP.
▷ as we shall see below, the number projection has more internal structure than represented here.

4 Attested syncretisms

4.1 Types of patterns

▷ vertical (cross-person) ((13)-I)
▷ horizontal (cross-number) ((13)-II)
▷ nonlinear (i.e. cross-person and cross-number) ((13)-III)

(13)

	I		II		III	
	sg	pl	sg	pl	sg	pl
1	C	A	A	A	A	A
2	D	B	B	C	B	A
3	E	B	D	E	C	D

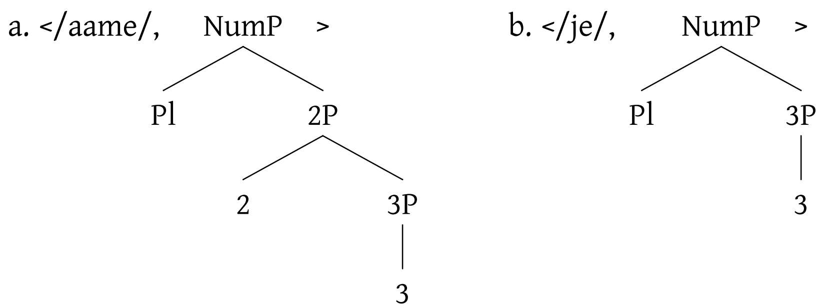
4.2 Horizontal syncretisms

- ▷ the facts
  - ○ 3P: Sinhalese, Sentani, Asmat, SALISH
  - ○ specific type: no 3P pronouns, but demonstratives
  - ○ 2P (rare): English, Xokleng
  - ○ 1P (rare): Marind
  - ○ 2P and 3P: Berik, Kuman
  - ○ 1P and 3P (rare): Tairora
  - ○ all persons: Salt-Yui (3P: demonstratives)

(14) Berik (New Guinea)

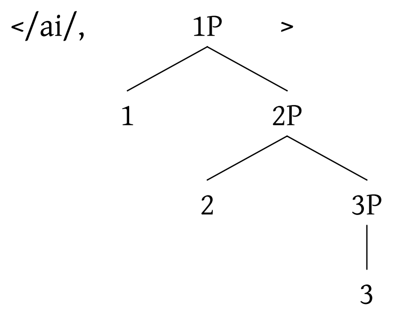
	sg	pl
1P	ai	ne
2P	aame	aame
3P	je	je

(15)



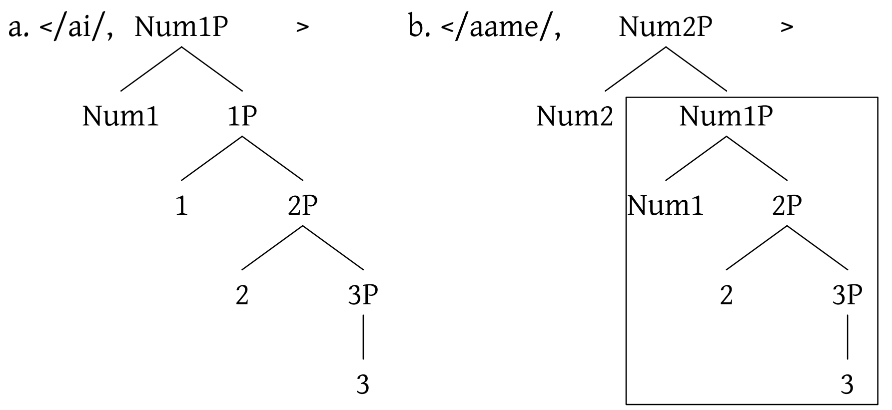
- ▷ (15a) can spell out 2P, singular and plural, by the *Superset Principle*: the tree of the singular pronoun is a subtree of the plural pronoun tree.
- ▷ for the same reason, (15b) can spell out 3P, singular and plural.
- ▷ Problem: for 2P singular *aame*, there is a tie between (15a) and the 1P sg pronoun *ai*:

(16)



- ▷ (15a) *aame* and (16) *ai* each contain exactly 1 feature more than the syntactic node of a 2P sg pronoun.
- ▷ how can we ensure that (15a) *aame* wins the competition in the 2P?
- ▷ answer: the number projection is internally complex .
- ▷ singular number also involves the presence of a number feature (Num1), plural number involves two features (Num2 and Num1).
- ▷ the lexical items for *ai* and *aame* need to be revised accordingly:

(17)



- ▷ (17b) *aame* can still spell out 2P, singular and plural (by 'shrinking' at the top).
- ▷ (17a) *ai* can no longer spell out the 2P sg, since it does not contain the syntactic tree as a subtree (highlighted in (17b)).
- ▷ this crucially requires that singular pronouns contain a Num1 feature: the presence of Num1 in (17a) prevents the tree from shrinking from 1P to 2P: for this to happen, the tree would have to shrink in the middle.
- ▷ the other attested patterns of horizontal syncretism work in the same way.

In sum:

- ▷ the horizontal syncretisms support the claim that singular number is not the absence of number, but the presence of a singular number feature
- ▷ the existence of horizontal syncretisms further rests on
  - ○ the possibility to build trees with an incomplete person f_{seq}, i.e. with person features missing at the top of the person sequence
  - ○ the shrinking of the number projection at the top of the tree

4.3 Vertical syncretisms

- ▷ syncretisms in the singular are extremely rare: Cysouw (2003) finds only two languages (out of some 450 listed in the index) showing ABB (Qawesqar and Winnebago).
- ▷ attested patterns in the plural:
  - ○ AAB: many Athabascan languages (e.g. Slave, Chiricahua Apache, Navaho, Kato, Hupa), Awa, Southern Haitian Creole
  - ○ ABB: Nez Perce, Warekena, Wolof (object pronouns), Mauritian Creole[1]
  - ○ ABA ('not really a common pattern'; Cysouw 2003:134): Bagirmi
- ▷ the account of the vertical syncretisms is not straightforward.
- ▷ consider the AAB pattern in Slave (an Athabascan language, Cysouw 2003:124):

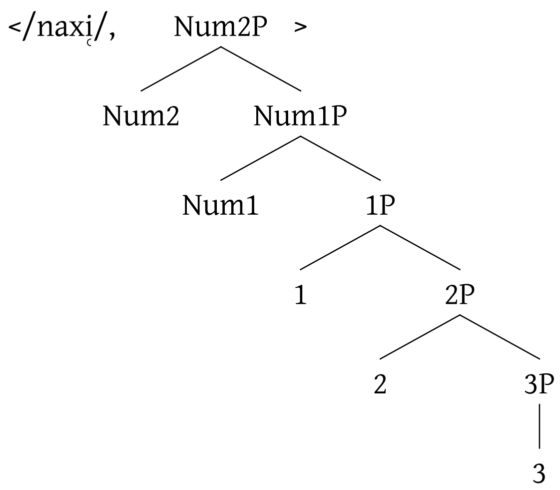
(18)

	sg	pl
1P	sį̧	naxį̧
2P	nį̧	naxį̧
3P	ʔedį̧	ʔegedį̧

- ▷ the lexical tree for the 1P plural pronoun looks like (19):

[1]According to Baker (1972) and Stein (1984), but not Adone (1994), who gives an ABC pattern in the plural.

(19)



- ▷ this can spell out a 1P pl pronoun, but not 2P pl one, since a 2P pl pronoun is not a subtree of (19) (it lacks the 1P node)
- ▷ to derive AAB, the tree would have to shrink in the middle (from 1P to 2P)
- ▷ for the same reason, the ABB pattern cannot be derived (the lexical item for 2P cannot shrink to 3P)
- ▷ this is the problem of multidimensional paradigms, which may feature both 'horizontal' and 'vertical' syncretism
- ▷ consider the German definite article:

(20)

	NOM	ACC	GEN
masc	der	den	des
neut	das	das	des

- ▷ two solutions:
  - ○ pointers (Caha & Pantcheva 2012)
  - ○ a revised *Superset Principle* (Caha 2014)

5 Pointers

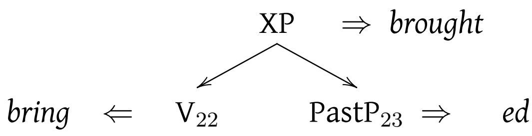
5.1 Suppletion

- ▷ a pointer is a node in the tree of a lexical item that points to another, existing, lexical item (Starke 2011)

(21) a. <$_{24}$ /brought/, [$_{XP}$ 22 23]>
b. <$_{22}$ /bring/, V>

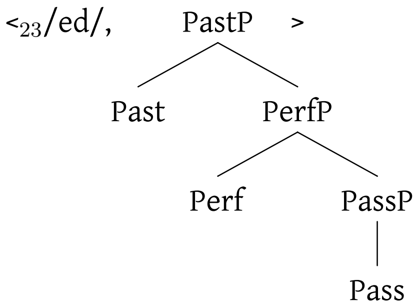
c. <$_{23}$ /ed/, PastP>

(22)



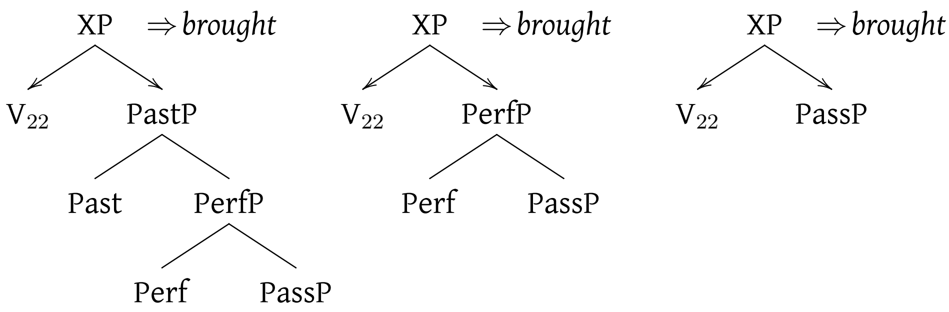
- ▷ each of the lexical items pointed to is subject to independent cyclic spellout
- ▷ this creates *bring+ed*, which is overwritten at the top node by *brought*
- ▷ given the syncretism between Past-Perfect-Passive, we must conclude that *-ed* has more internal structure, so that instead of (21c), we have (23):

(23)



- ▷ the *Superset Principle* ensures that *-ed* may spell out the Simple Past, the Perfect participle, and the Passive participle.
- ▷ the suppletive form *brought* shows the same Past-Perfect-Passive syncretism.
- ▷ this means that in the item with the pointer (22), the item pointed to (23) can shrink to any subtree:

(24)

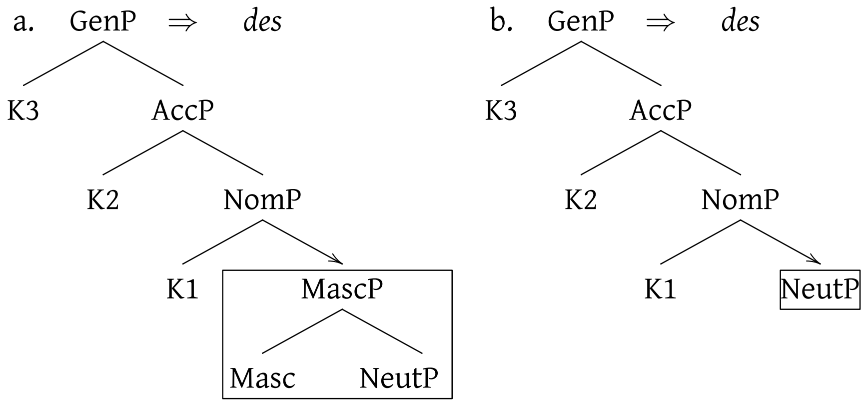


- ▷ an item with a pointer can shrink not just at the top, but also in the middle of the tree, at the top of the item pointed to.
- ▷ as a result, the lexical item *brought* can spell out three different syntactic trees.

5.2 Multidimensional paradigms

- ▷ Case endings on nouns are typically fusional, and spell out other features besides Case: number, gender, noun class.
- ▷ Caha & Pantcheva (2012) propose that nominal paradigms can contain pointers at the junctures of the dimensions.
- ▷ this allows the generation of both horizontal and vertical syncretisms.
- ▷ consider the German definite article *des*, which spells out genitive masculine and neuter (see (20) above):

(25)

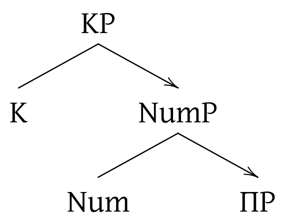


- ▷ the cross-gender syncretism in the genitive is derived by shrinking the tree of *des* in the middle (boxed area in (25)).
- ▷ C&P have to give up the restriction that pointers point to existing lexical items: there is no lexical item that spells out MascP.

Back to pronouns:

- ▷ in the same manner as Case endings, pronouns spell out multiple features: Case, number, person, and gender.
- ▷ lexical items for pronouns can also contain pointers at the juncture of the dimensions:

(26)

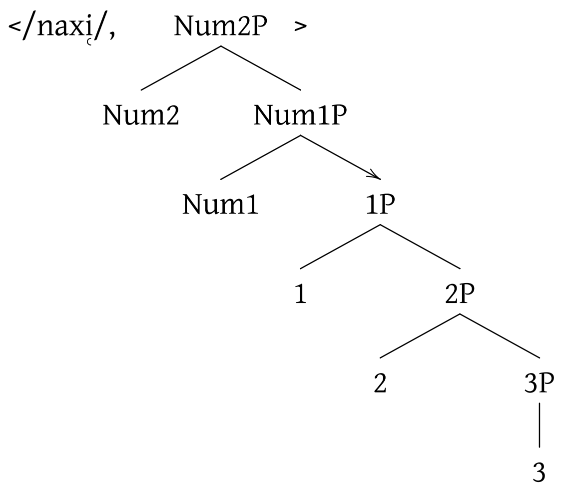


- ▷ this allows the derivation of the problematic vertical syncretisms, since the tree can now shrink in the middle (from 1P to 2P to 3P).

▷ recall the lexical tree for the Slave pronoun *naxį*, syncretic for 1P pl and 2P pl ((19) above).

▷ we now add a pointer to this tree, between the Number and the person dimension:

(27)



▷ deriving AAB
  - the lexical item in (27) can spell out a 1P pl pronoun, but also a 2P pl one, because of the presence of the pointer.
  - the lexical item for the 3P pl pronoun *ʔegedį* does not contain the 1P and 2P projection.
  - it will win the competiton from (27) in 3P pl because of the *Elsewhere Principle*.

▷ deriving ABB:
  - assume a lexical item like (27) but without a pointer, and a B-pronoun like (27) (with a pointer) but without the 1P node
  - the A-pronoun can only spell out 1P pl, since it does not contain a pointer, and the B-pronoun does not compete, since it lacks the 1P node
  - the B-pronoun contains a pointer and can spell out both 2P pl and 3P pl

5.3 Pointers introduce ABA

▷ allowing pointers also allows a certain type of ABA-pattern in the plural, in agreement with an abstract prediction made by Taraldsen (2012).

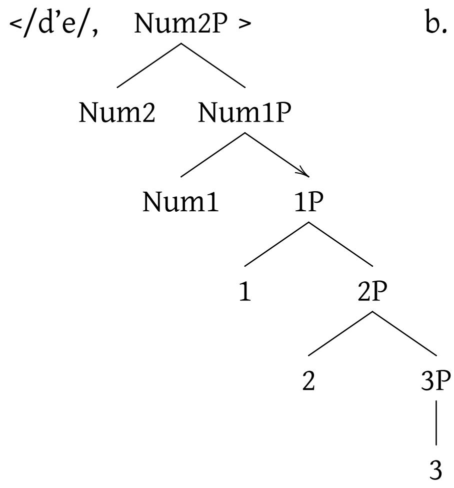
▷ one attested instance in Cysouw (2003) (Bagirmi):

(28)

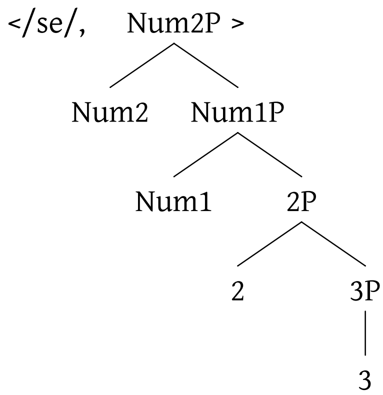
	sg	pl
1P	ma	d'e
2P	i	se
3P	ne	d'e

- ▷ for *d'e*, assume a lexical entry with a *pointer*, as in (29a).
- ▷ (29a) is flexible at the joint: due to the shrinkability of items with pointers, the lexical item *d'e* can spell out all the plural pronouns.
- ▷ the lexical item for *se*, given in (29b), does not contain a pointer, and is therefore rigid (i.e. not shrinkable in the middle).

(29) a.



b.



- ▷ if the syntactic tree is 3P plural:
  - ○ (29a) *d'e* is the only candidate, since (29b) *se* cannot shrink in the middle to spell out 3P pl.
- ▷ if the syntactic tree is 2P plural:
  - ○ *se* wins the competition from *d'e*, even though their trees are identical (modulo the shrinking of (29a) at the juncture), because of the *Elsewhere Principle*.
  - ○ the lexical item (28b), without the pointer, applies in a proper subset of the environments of the lexical item (29a), with the pointer.
  - ○ (29a) applies to 9 structures (Num2Num1-1P2P3P, Num2Num1-2P3P, Num2Num1-3P, Num1-1P2P3P, Num1-2P3P, Num1-3P, 1P2P3P, 2P3P, 3P).
  - ○ (29b) applies to 4 structures (Num2Num1-2P3P, Num1-2P3P, 2P3P, 3P).
- ▷ if the syntactic tree is 1P plural:
  - ○ *se* is not a competitor since it lacks a 1P node; *d'e* can (and does) spell out the tree.

- ▷ these findings agree with an abstract prediction made by Taraldsen (2012), who argues that ABA patterns may arise in multidimensional paradigms (given Caha & Pantcheva's analysis in terms of pointers).

5.4 Consequences for the syncretism diagnostic

- ▷ if ABA patterns are derivable, this (potentially) spells bad news for the usability of the syncretism diagnostic to arrange paradigms, and consequently, feature trees.
- ▷ to see this, reconsider the case of the German definite article:

(30)

	NOM	ACC	GEN
masc	der	den	des
neut	das	das	des

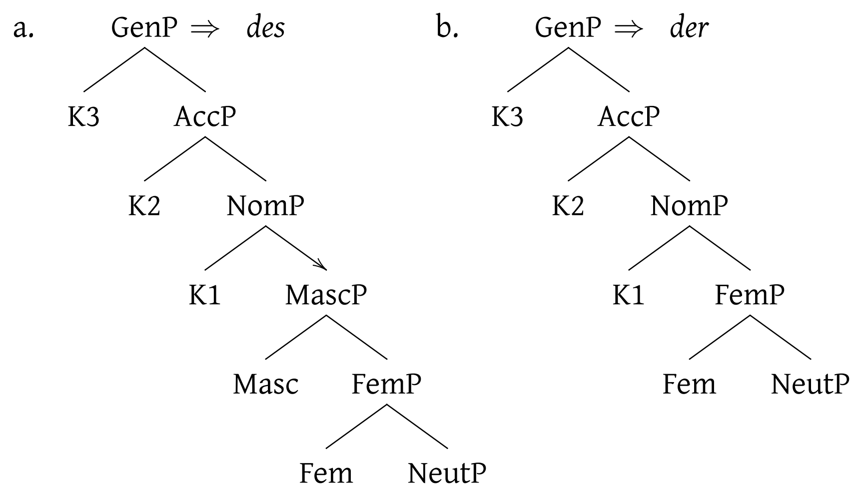
- ▷ we add feminine gender, and arrange in a (hypothetical) ABA-configuration:

(31)

	NOM	ACC	GEN
masc	der	den	des
fem	die	die	der
neut	das	das	des

- ▷ assume a matching (hypothetical) gender hierarchy masc > fem > neuter
- ▷ lexical items for the genitive forms *des* and *der* which derive this ABA pattern are given in (32):

(32)



- ▷ (32a) can spell out all genders, due to the shrinkability of the tree at the juncture.
- ▷ in the feminine gender, (32b) wins because of the *Elsewhere Principle*.
- ▷ we derive the ABA-pattern.
- ▷ conclusion: the 'vertical' syncretism in the definite article is uninformative about the hierarchical arrangement of the gender features.

Interim conclusion (I)

- ▷ pointers introduce the possibility of deriving ABA-patterns under certain specific conditions.
- ▷ although this may be empirically necessary (Bagirmi), it is a slippery slope conceptually, which threatens to undermine the cornerstone of the nanosyntactic method.

6 Reformulating the Superset Principle

- ▷ in this section, I investigate a different way of analysing multidimensional paradigms, which does not make ABA derivable.

(33) *Revised Superset Principle (RSP)* (modified from Caha 2014)
A a lexical entry L may spell out a syntactic node SN iff

(i) SN is identical to a node contained in L, and
(ii) all immediate daughters of SN are identical to a daughter of L.

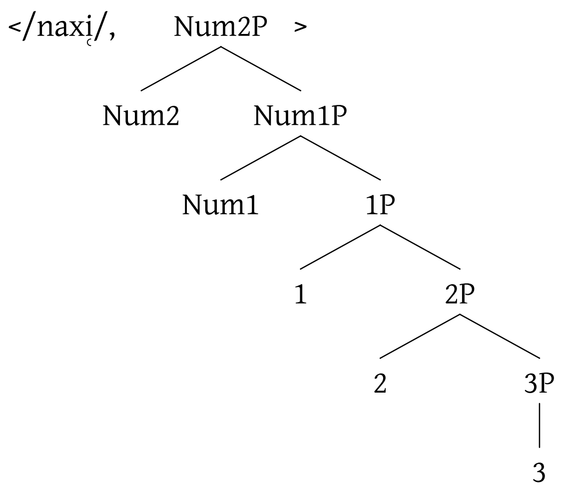
- ▷ the clause (33-i) will allow 'shrinking at the top' of L.
- ▷ the clause (33-ii) will allow 'shrinking in the middle' of L.
- ▷ the RSP derives both horizontal and vertical syncretisms in multidimensional paradigms without the need for pointers.
- ▷ ABA-patterns are underivable.

- ▷ to see how this works, reconsider the AAB pattern in Slave, with the lexical tree for the 1P plural pronoun given in (35):

(34)

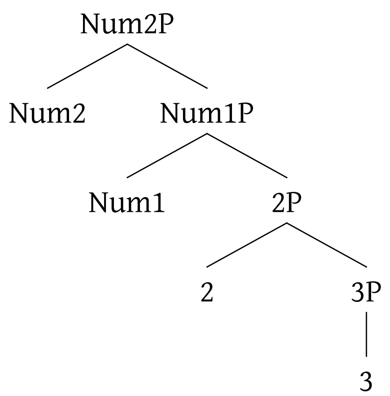
	sg	pl
1P	sį	naxį
2P	nį	naxį
3P	ʔedį	ʔegedį

(35)



- ▷ the lexical item (35) will be able to spell out a syntactic tree for 1P pl, as both trees are fully identical.
- ▷ what we need to show is that (35) can also spell out the syntactic tree for 2P pl (given the RSP).
- ▷ the relevant syntactic tree is given in (36):

(36)



- ▷ (35) can spell out (36), given that
  - ○ the SN Num2P is identical to a node contained in L (to wit, Num2P), and
  - ○ all immediate daughters of SN (36) are identical to a daughter of L (35).
- ▷ each node of the syntactic tree finds an identical node in the lexical tree.
- ▷ however, not all nodes of the subtree of the lexical tree need to find a match in the syntactic tree.
- ▷ in this example, the node 1P of the lexical tree is not found in the syntactic

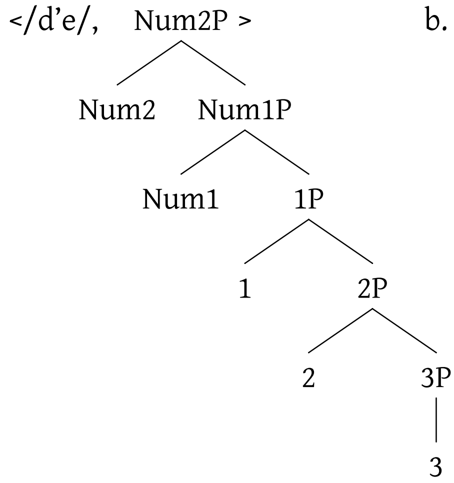
tree.

▷ the RSP does not allow the derivation of ABA-patterns.
▷ recall Bagirmi, and the lexical items in (38) (but now without a pointer).

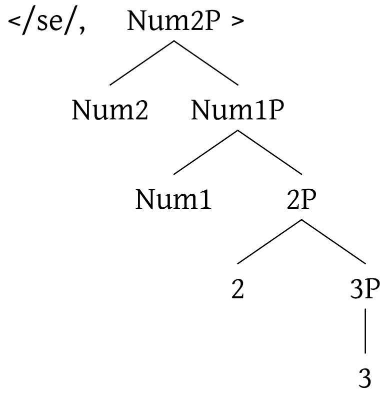
(37)

	sg	pl
1P	ma	d'e
2P	i	se
3P	ne	d'e

(38) a.



b.



▷ in the pointers approach, the reason *se* could win in the 2P pl but lose in the 3P pl (yielding the ABA) was that *se* was rigid (no pointer), whereas *d'e* was flexible at the pointer position.
▷ the *Elsewehere Principle* ensured a win of *se* in 2P pl, while the *Superset Principle* ensured that *se* was not a competitor for 3P pl.
▷ Given the RSP, both *d'e* and *se* can shrink in the middle, i.e. both can now spell out 2P and 3P.
▷ as a result, both lexical items will compete in 2P pl and 3P pl.
▷ the *Elsewhere Principle* now ensures that *se* will win the competition both in the 2P pl and the 3P pl.
▷ *ABA holds in full generality: ABA-patterns are underivable in principle.

Interim Conclusion (II)

▷ both the approach in terms of pointers and the RSP allow the derivation of multidimensional paradigms.

> ▷ the pointers approach opens the door to the derivation of ABA-patterns.
> ▷ the RSP is more restrictive and does not allow the derivation of ABA-patterns.

▷ In what follows, I investigate more cases of syncretism, showing where both approaches make different predictions.

7 Nonlinear syncretisms

7.1 Shapes and sizes

▷ syncretisms which are not exclusively horizontal, and not exclusively vertical either
- ○ L-shaped, contiguous
- ○ diagonal (non-contiguous)
- ○ L-shaped, with ABA (non-contiguous)
- ○ double L, with ABA
- ○ double L, without ABA
- ○ diagonal with ABA

7.2 L-shaped, contiguous

(39) Usarufa

	sg	pl
1P	ke	ke
2P	e	ke
3P	we	ye

▷ derivable with pointers:
- ○ *ke* is a lexical item containing a pointer; it can spell out all persons and numbers
- ○ *ke* loses the competition to more specific lexical items without pointers (*e*, *we*, *ye*)

▷ derivable with the RSP:
- ○ *ke* can spell out all persons and numbers.
- ○ in 2P sg, *ke* loses the competition to the more specific lexical item *e*, which lacks the 1P node.

- ○ in 2P pl, there is no competition because *e* lacks the plural number node.

(40)

	sg	pl
1P	A	A
2P	A	B
3P	C	D

▷ derivable with pointers (for the same reason as (39)).
▷ underivable with the RSP:
- ○ the A-item can spell out all persons and all numbers.
- ○ the B-item lacks a 1P node.
- ○ the B-item will therefore win the competiton in both 2P sg and 2P pl, because of the *Elsewhere Principle*.

7.3 Double L, without ABA

(41)

	sg	pl
1	A	A
2	B	A
3	B	B

▷ underivable with pointers:
- ○ both the A-item and the B-item contain pointers.
- ○ the A-item is maximal and flexible; it loses out to the more specific B-item in the 3P (unproblematic), but also in the 2P, both sg and pl, because the B-item applies to less cases than the A-item.

▷ underivable with the RSP (in contrast to Usarufa above).
- ○ the B-item has a Num2P-node and a 2P-node but lacks a 1P node; therefore it will compete with the A-item in 2P pl, and it will win.

(42)

	sg	pl
1	A	A
2	A	B
3	B	B

▷ underivable with pointers (for the same reason as (41)).
▷ underivable with the RSP.

(Note that both patterns have a vertical syncretism in the singular, which is exceedingly rare independently.)

7.4 Diagonal

(43) Suki

	sg	pl
1P	ne	e
2P	e	de
3P	u	i

- ▷ diagonal syncretisms contradict spatial acccounts of syncretism, which rely on contguity (e.g. McCreight & Chvany 1991).
- ▷ derivable with pointers:
  - ○ the lexical tree of the *e*-pronoun is maximal and flexible, i.e. shrinkable at the joint (from 1P to 2P)
  - ○ *e* can express all the persons and numbers
  - ○ it loses the competition to the rigid items for the other persons and numbers
- ▷ underivable with the RSP.
  - ○ the lexical item *e* can spell out all persons and all numbers.
  - ○ in 2P sg, there are two more specific items: *ne* and *de*
  - ○ *ne* will win, because *ne* can spell out 1/2/3P sg; *de* can spell out 2/3P sg and 2/3P pl, so *ne* is more specific than *de*.

(44)

	sg	pl
1P	A	B
2P	C	A
3P	D	E

- ▷ derivable with pointers (for the same reason as (43)).
- ▷ underivable with the RSP
  - ○ both the A and the B-item can spell out all numbers and all persons; the lexical trees of A and B would be identical.
  - ○ there would be a tie between A and B in 1P and in 2P pl.

(45)

	sg	pl
1P	B	A
2P	A	C
3P	C	C

- ▷ underivable with pointers:
  - ○ both A and C contain a pointer, therefore C will win in 2P sg.
- ▷ underivable with the RSP: C is more specific than A and will win in 2P sg.

7.5 L-shaped with ABA

(46)

	sg	pl
1	A	A
2	C	B
3	D	A

▷ derivable with pointers:
  ◦ the A-item is maximal and flexible; it loses out to the more specific C-B-D items
▷ underivable with the RSP (as are all cases involving ABA).

7.6 Double L, with ABA

(47)

	sg	pl
1	A	A
2	B	B
3	B	A

▷ underivable with pointers:
  ◦ there are two competing items, which both contain pointers.
  ◦ B will win from A in 3P pl since its tree is smaller than the tree of A.
▷ underivable with the RSP.

7.7 Diagonal with ABA

(48)

	sg	pl
1	C	A
2	D	B
3	B	A

▷ underivable with pointers:
  ◦ B contains a pointer (to get the diagonal), and will therefore win from A in the 3P pl.
▷ underivable with the RSP.

7.8 Summary of findings

Empirical problems for the RSP:

- ▷ attested but underivable
  - ○ Bagirmi (ABA): seems to be an isolated case; relatively undocumented (Gaden 1909).
  - ○ Suki (diagonal): 'commonly found in the contemporary Aztecan languages' (Cysouw 2003:121).

Where the RSP fares better:

- ▷ in general, the RSP is more restrictive, and allows less patterns, many of which are indeed unattested.
- ▷ conceptually, this approach is to be preferred, as it rules out all cases of ABA, and it therefore leaves the syncretism diagnostic fully intact.

7.9 ABA: false positives

Hittite (a-stem declension):

(49)

	father	army	chair
NOM	attas	tuzzi-s	harnau-s
ACC	atta-n	tuzzi-n	harnau-n
GEN	attas	tuzzi-as	harnaw-as
DAT	att-i	tuzzi-ya	harnaw-i
ABL	att-az	tuzzi-y-az	

(50) GEN: atta-as → attas

Latin (third declension):

(51)

	tower	leader	old man	tower
NOM	turris	princep-s	sen-ek-s	turr-i-s
ACC	turrim	princip-em	sen-em	turr-i-em
GEN	turris	princip-is	sen-is	turr-i-is

(52) GEN: turr-i-is → turris
ACC: turr-i-em → turrim

8 Conclusion

The main findings of this talk:

- ▷ the analysis of multidmensional paradigms requires an extension of classical nanosyntactic theory.
- ▷ I have discussed two such extensions:
  - ○ pointers (Caha & Pantcheva 2012)
  - ○ *Revised Superset Principle* (Caha 2014)
- ▷ both approaches make different empirical predictions:
  - ○ possibility of ABA
  - ○ nonlinear syncretisms
- ▷ empirically, the waters are murky
- ▷ conceptually, the RSP is to be preferred

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