

# Obligatory clause nominalization in Ndebele

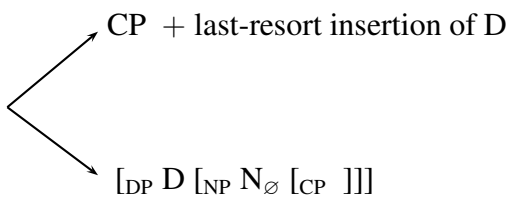
Ling Lunch, MIT, Nov 2 2017  
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## 1 Introduction: Clausal DP-shell in the theory of extended projections

- Embedded clauses in Ndebele (Bantu, Zimbabwe) show nominal properties.
- I argue that the nominal properties of embedded clauses are due to the projection of a DP layer on top of the embedded CP.
- Grimshaw (1991, 2000): functional categories such as D and C are extended projections of N and V, respectively
- In this theory, *direct clausal DP shells* are impossible:

(1) An impossible structure:  $*[_{DP} D [_{CP} ]]$  (Grimshaw, 2000)

- Nonetheless, (1) has been proposed in the literature on clausal complementation, e.g. for sentential subjects (i.a. Davies & Dubinsky (1999, 2001); Takahashi (2010)).
- (1) is only a problem for the theory of extended projections if there is evidence that direct DP shells can indeed be generated. It's not obvious.

(2)  $[_{DP} D [_{CP} ]]$    $CP + \text{last-resort insertion of } D$  (Hartman (2012))  
 $[_{DP} D [_{NP} N_{\emptyset} [_{CP} ]]]$  (Lees (1965), Aygen (2002), Hartman (2012))

- The last-resort insertion view is motivated by the fact that DP properties of clausal complements are detected only in certain contexts: crucially, in all and only those contexts in which a bare CP cannot appear.

- (3) a.  $*(\text{To})$  ze Marek wyjechal zostalo powiedziane jasno. (Polish)  
DEM that Marek left was said clearly  
'That Marek left was said clearly'
- b. Powiedzialam  $(*\text{to})$  ze Marek wyjechal.  
said.1SG DEM that Marek left.  
'I said that Marek left'.

QUESTION: Is the direct DP shell in (1) indeed attested, or is it always reducible to one of the analyses in (2)?

**What we learn from Ndebele:**

- i. Clausal DP shells do not have a last-resort distribution in Ndebele
- ii. CP complements to nouns are unattested in the language

⇒ **Base-generation of direct clausal DP shells must be allowed**

## OUTLINE:

Sec 2. Evidence for DP-shell in a variety of syntactic contexts – no last resort distribution

Sec 3. Obligatory DP-shell in N-complement clauses

Sec 4. Obligatory DP-shell in relative clauses

Sec 5. Conclusion

**2 Evidence for clausal DP shell**

- Complement clauses are introduced by the complementizer *ukuthi*

- (4) Ngicabanga **ukuthi** u-ya-m-thanda.  
 think.1sg COMP 1s-DSJ-1o-like  
 ‘I think that she likes him.’

- They behave like nominal complements in a number of ways

*1. Complement clauses control  $\varphi$ -agreement*

- (5) a. Ngi- \* (ya)- **ku**-thanda ukudla  
 1sg.S- DSJ- 15o-like 15food  
 ‘I like the food.’
- b. Ngi- \* (ya)- **ku**-cabanga ukuthi uZodwa u-ya-m-thanda  
 1sg.S- DSJ- 15o-thing 15COMP 1Zodwa 1s-DSJ-1o-like  
 ‘I think that Zodwa likes him.’

– Like nominal objects, clausal objects must be dislocated whenever they control object agreement (the verbal prefix *ya* marks dislocation of the object).

*2. Complement clauses have an overt D: **the augment vowel***

- Etymologically, the complementizer is a nominalization of the verb *thi* ‘say’

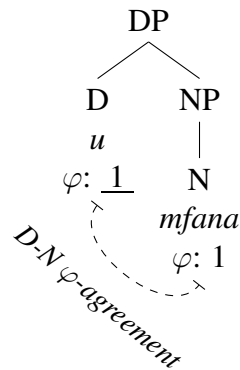
- (6) u- ku- thi  
 15aug- 15- say  
 ‘saying/to say’

- Complex structure of the complementizers is not just diachronic. The augment vowel is an independent morpheme.

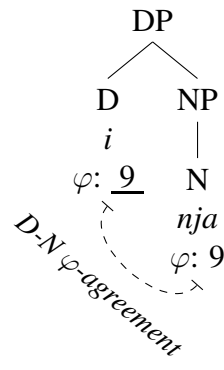
	noun class	augment	class prefix	root	translation
	class 1	<b>u-</b>	m-	fana	'boy'
	class 2	<b>a-</b>	ba-	fana	'boys'
	class 5	<b>i-</b>	∅-	luba	'flower'
	class 6	<b>a-</b>	ma-	luba	'flowers'
(7)	class 7	<b>i-</b>	si-	lwane	'lion'
	class 8	<b>i-</b>	zi-	lwane	'lions'
	class 9	<b>i-</b>	∅-	nja	'dog'
	class 10	<b>i-</b>	zi-	nja	'dogs'
	class 11	<b>u-</b>	lu-	tho	'thing'
	class 15	<b>u-</b>	ku-	dla	'food'

- The augment is a determiner (Ziervogel, 1967; von Staden, 1973; Giusti, 1997; de Dreu, 2008; Visser, 2008; Taraldsen, 2010; Buell & de Dreu, 2013).<sup>1</sup>
- It agrees with the noun class of its complement NP.

(8) a. *umfana* 'the/a boy'



b. *inja* 'the/a dog'



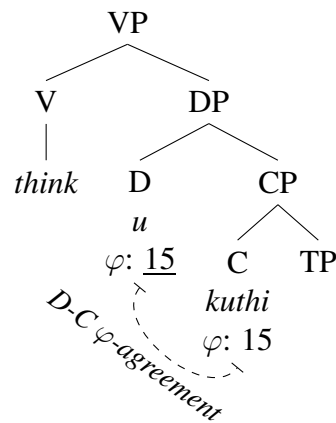
- The augment can be dropped on DPs in structurally licensed positions, e.g. on in-situ objects in negative sentences (Halpert, 2012).

<sup>1</sup> Halpert (2012) proposes that the augment in Zulu is a realization of  $K^0$ , rather than  $D^0$ , and there is convincing evidence the presence of the augment vowel reflects structural case licensing. The discussion to follow is entirely independent of this choice. What matters is that the augment realizes some head in the nominal extended projection, be it  $K^0$  or  $D^0$ . For clearer exposition, I will therefore assume that the augment is an exponent of  $D^0$ .

- (9) a. A-*ngi-funi* [DP (i)-*sinkwa.* ] *negation + in-situ obj.*  
 NEG-1sg.S-want 7aug-7bread  
 ‘I don’t want (any) bread.’
- b. A-*ngi-si-funi* [DP \*(i)-*sinkwa.* ] *negation + dislocated obj.*  
 NEG-1sg.S-7o-want 7aug-7bread  
 ‘I don’t want the bread.’
- c. *Ngi-funa* [DP \*(i)-*sinkwa.* ] *no negation*  
 1sg.S-want 7aug-7bread  
 ‘I want bread.’
- (10) a. A-*ngi-cabangi* [DP (u)-*kuthi uSipho u-za-pheka* ].  
 NEG-1sg.S-think aug-15COMP 1Sipho 1S-FUT-cook  
 ‘I don’t think Sipho will cook’. (I don’t think so at all.)
- b. A-*ngi-ku-cabangi* [DP \*(u)-*kuthi uSipho u-za-pheka* ].  
 NEG-1sg.S-15o-think aug-15COMP 1Sipho 1S-FUT-cook  
 ‘I don’t think Sipho will cook’.
- c. *Ngi-cabanga* [DP \*(u)-*kuthi uSipho u-za-pheka* ].  
 1sg.S-think aug-15COMP 1Sipho 1S-FUT-cook  
 ‘I think Sipho will cook.’

- the complementizer *ukuthi* is not monomorphemic. It has an active augment, whose distribution is regulated by the same licensing conditions as those for DP objects.

(11) The syntax of verb complement clauses:



## 3. Oblique prefixes on clausal complements

- Unlike prepositions, oblique prefixes **replace the augment**
- The augment on the complementizer *ukuthi* can be replaced by an oblique prefix

(12) Oblique case prefix:

- a. Umama u-dan-is-w-e                      **yi-lokho.**  
 1mother 1S-worry-CAUS-PSV-PST OBL-this  
 ‘Mother was worried by this.’
- b. Ngi-dan-is-w-e                      **yi-kuthi**                      u-sukile.  
 1sg.S-worry-CAUS-PSV-PST OBL-15COMP 2sg.S-left  
 ‘I was worried by the fact that you left’

## 4. Coordination of clausal complements involves the nominal conjunction

- DP coordination requires the conjunction *la* (lit. ‘with’) (13-a)
- *la* cannot be used in coordinating matrix clauses (13-b), TPs (13-c) or VPs (13-d).

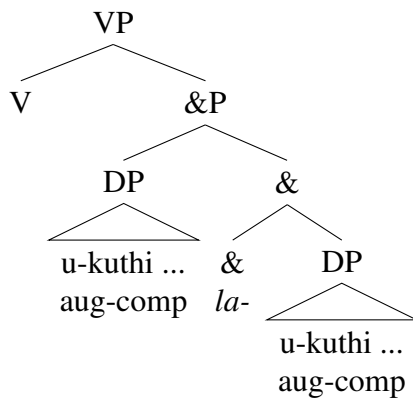
- (13) a. UJohn u-dle [ isuphu ] \*( la)- [ isinkwa]. (> **lesinkwa**)  
 1John 1.S-ate 9soup &- 9bread  
 ‘John ate soup and bread’
- b. [ Wena u-dlile ] ∅/\*la [ mina ngi-nathile].  
 2sg.PRON 2sg.S-ate & 1sg.PRON 1sg.S-drunk  
 ‘You ate and I drank’
- c. Ngicabanga ukuthi [ uZodwa u-dlile ] ∅/\*la [ uFanele u-nathile].  
 1s.think COMP 1Zodwa 1s.S-ate & 1Fanele 1S-drunk  
 ‘I think that Zodwa ate and Fanele drank’
- d. UJohn [ u-dlile ] ∅/\*la [ u-nathile].  
 1John 1S-ate & 1S-drunk  
 ‘John ate and drank’

- Coordination of complement clauses requires the nominal conjunction

(14) *Ngizwe ukuthi uMary uyahlabela lokuthi uJohn udlala ibhola.*

Ngizwe [DP ukuthi uMary uyahlabela ] \*( **la** ) [DP ukuthi uJohn udlala ibhola].  
 heard.1sg comp Mary sings & comp John plays soccer  
 ‘I heard that Mary sings and that John plays soccer’

(15) Coordination: V-complement clause



- The vowel in *la* undergoes vowel coalescence with the augment vowel of the DP of the second conjuncted

(16) Regular hiatus resolution rules in Ndebele (from Sibanda (2004)):

- $a + u \rightarrow o$
- $a + i \rightarrow e$
- $V_{\alpha} + V_{\alpha} \rightarrow V_{\alpha}$

### 5. Clausal objects of prepositions

- (17) a. Si-khuluma *nga-* [DP **u-kuthi** abantu babambane.] (> *ngo-kuthi*)  
 1pl.S-talk about- aug-15COMP people be.united  
 ‘We are talking about \*(the fact) that people are united’.
- b. Si-khuluma *nga-* [DP **u-muntu** omdala.] (> *ngo-muntu*)  
 1pl.S-talk about- aug-1person old  
 ‘We are talking about an old person’.

### 6. Clauses can be subjects

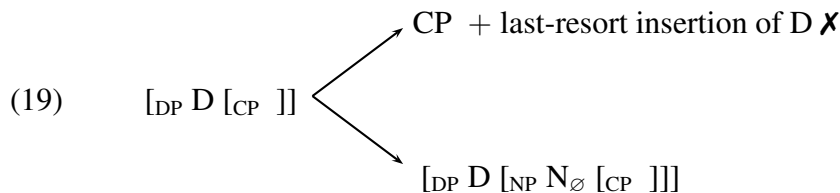
- (18) a. **Ukuthi** umama wakhe u-dla imbeba **ku-ya-ngi-mangalisa**.  
 15COMP 1mother 1your 1S-eat mice 15S-DSJ-1sg.o-surprise  
 ‘That your mother eats mice surprises me’
- b. **Ukuthi** izitha zi-za-buya **ku-bal-iw-e** e-roof-ini.  
 15COMP 10enemies 10S-FUT-come 15S-write-PSV-PST LOC-roof-LOC  
 ‘That enemies were coming was written on the roof.’

## INTERIM CONCLUSION:

- i. In addition to their DP-like distribution, complement clauses have an active augment – an exponent of D.
- ii. The DP-shell doesn't have a last resort distribution: it's evident both in DP-positions (Spec,TP, objects of Ps) but also in positions that should in principle allow CPs (V-complements).

### 3 N-complement clauses and the null N hypothesis

- DP-shell in canonical CP positions → the nominal shell is not last-resort insertion



- Ndebele doesn't allow clausal complements to nouns:

- (20) a. Ngi-zwe [ u-kuthi u-ya-m-thanda.]  
 1sg.S-hear.PST 15aug-15COMP 1s-TAM-1o-like  
 'I heard that she likes him'
- b. \*Ngi-zwe indaba [ (u-)kuthi u-ya-m-thanda ]  
 1sg.S-hear.PST 9news 15aug-15COMP 1s-TAM-1o-like  
 ('I heard the news that she likes him'.)

- If the CPs in (20) are in fact DPs, we can understand the ungrammaticality of (20-b) in terms of a general ban on adnominals of category D.

- (21) \*i-mota u-mfana.  
 9-car 1-boy  
 ('the boy's car')

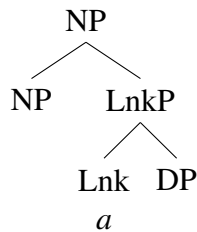
- Adnominal DPs are introduced by a functional element – the linker *a*.

- (22) i-mota y-a-u-mfana (> yomfana)  
 9-car 9-LNK-1-boy  
 'the boy's car'

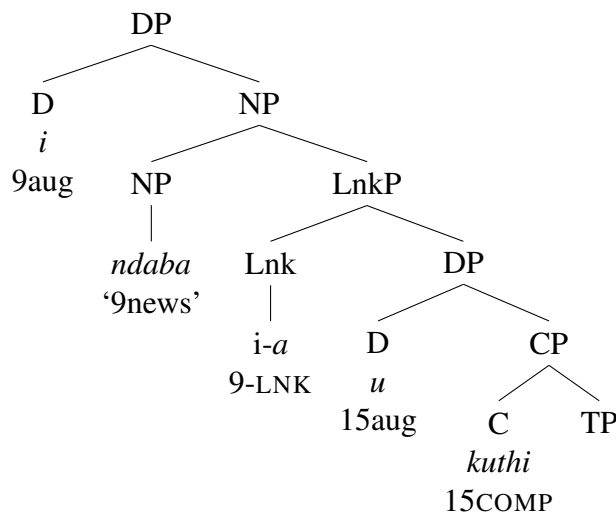
- Clausal complements to nouns require the linker as well:

(23) indaba i- a- [DP u-kuthi u-ya-m-thanda.] (> indaba yokuthi ...)  
 9news 9- LNK- 15aug-15COMP 1S-TAM-1o-like  
 ‘the news that she likes him.’

(24) The syntax of the nominal linker in Ndebele:

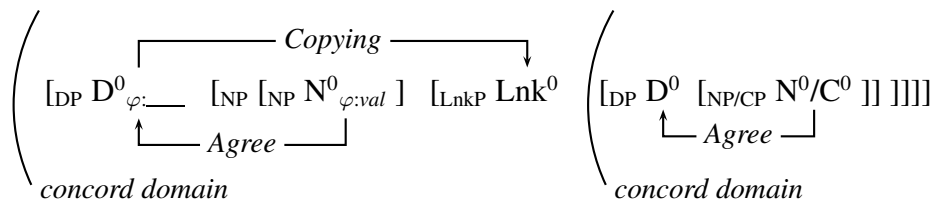


(25) The syntax of noun-complement clauses (structure for (23))



- The linker covaries with head noun (not its complement DP)
- DP-internal concord: the highest head (here D) agrees, followed by postsyntactic copying of the features onto lower elements *within a DP* (Norris, 2014).

(26) DP-internal concord in a linking structure:





### Coordination of N-complement clauses

- The nominal conjunction is required (DP coordination (27))
- Coordination site is below the linker (28)

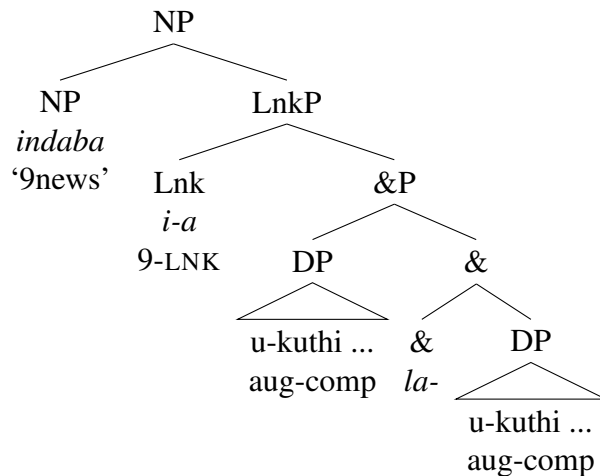
(27) *indaba yokuthi uMary uyahlabela lokuthi uJohn udlala ibhola*

indaba **i-a-** [DP **ukuthi** uMary uyahlabela ] \*( **la** ) [DP **ukuthi** uJohn udlala ibhola]  
 9news 9-LNK comp Mary sings & comp John plays soccer  
 ‘the news that Mary sings and that John plays soccer’

(28) \**indaba yokuthi uMary uyahlabela (la)yokuthi uJohn udlala ibhola.*

\*indaba [ **i-a-ukuthi** uMary uyahlabela ] (la) [ **i-a-ukuthi** uJohn udlala ibhola]  
 9news 9-LNK-comp Mary sings (&) 9-LNK-comp John plays soccer  
 (‘the news that Mary sings and that John plays soccer’)

(29) N-complement clause coordination



- The same pattern is found in other linked DPs, like possessors (30)-(31).

(30) *imoto yomama lobaba*

i-mota **i-a-** [DP **umama** ] \*( **la** ) [DP **ubaba** ]  
 9-car 9-LNK- 1mother & 1father  
 ‘mom and dad’s car’

(31) \**imoto yomama (la)yobaba*

\*i-mota [ **i-a-** **umama** ] (la) [ **i-a-** **ubaba** ]  
 9-car 9-LNK- 1mother & 9-LNK- 1father  
 (‘mom and dad’s car’)

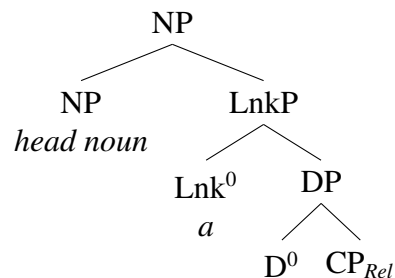
## INTERIM CONCLUSION

- i. The hypothesis that clausal DP-shell contains a null noun is untenable given that N(P)s do not combine directly with CPs in the language.
- ii. But neither do DPs.
- iii. Clausal DP-shell in "N-complement" clauses is obligatory nonetheless, suggesting that clausal DP-shell cannot be thought of a last-resort phenomenon in this language.

#### 4 Relative clauses: another instance of obligatory (but "problematic") DP-shell

- Relative clauses are also DPs
- Like other adnominals of category D, RCs are introduced by the linker *a*.

(32) The syntax of relativization in Ndebele:



- The DP shell in RCs is less transparent morphologically (no relative complementizer or pronouns)
- Relativization is marked by a special subject agreement prefix on the RC-internal verb

(33) subject agreement  
 u- m- fana **u**-yagijima.  
 1aug- 1- boy 1s-run  
 'The boy is running.'

(34) relative agreement  
 u- m- fana **o**-gijimayo  
 1aug- 1- boy 1rel-run  
 'the boy who is running'

(35) subject agreement  
 i- si- lwane **si**-yagijima.  
 7aug- 7- lion 7s-run  
 'The lion is running.'

(36) relative agreement  
 i- si- lwane **esi**-gijimayo  
 7aug- 7- lion 7rel-run  
 'the lion that is running'

- The relative prefix (in other Bantu languages with similar agreement patterns) is typically treated as bimorphemic: the relative C *a* + S-Agr prefix
- The relative marker *a* rarely surfaces as [a], however:

- (37) a. Class 7 agreement: [C *a* [T *si*-Verb ]] ⇒ *esi*-Verb  
 b. Class 1 agreement: [C *a* [T *u*-Verb ]] ⇒ *o*-Verb

- While the derivation in (37-b) looks like regular vowel coalescence (38), (37-a) doesn't – there is no hiatus.

(38) Regular hiatus resolution rules in Ndebele (from Sibanda (2004)):

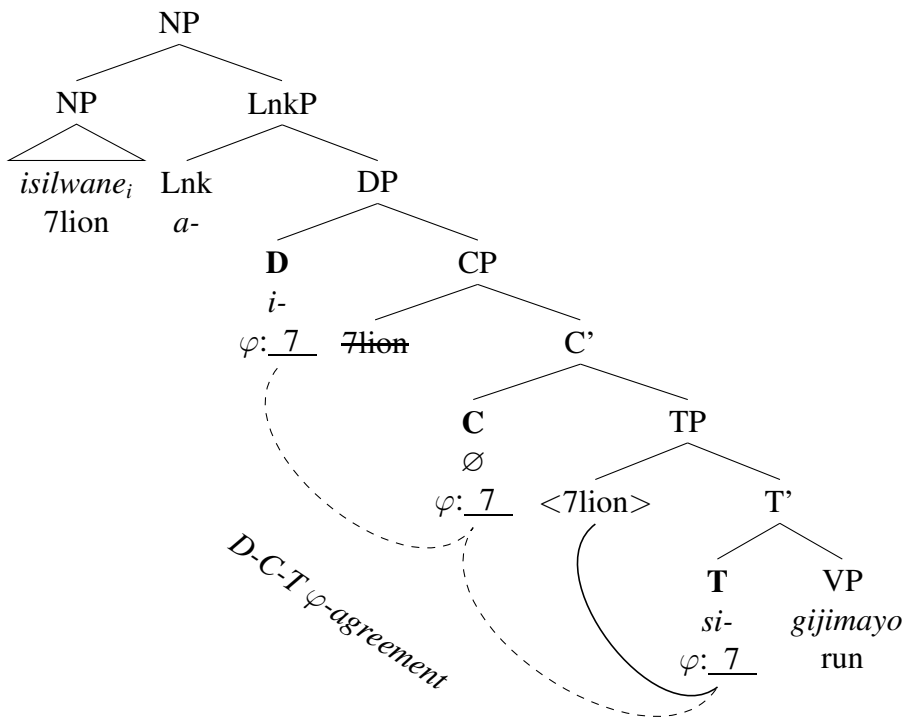
- a + u → o
- a + i → e
- $V_\alpha + V_\alpha \rightarrow V_\alpha$

- If RCs have the syntax in (32), there *is* an extra vowel – the augment exponing D.

(39) Proposal: The relative prefix is *trimorphemic*:  
 the linker **a-** + D<sup>0</sup> (augment vowel) + T<sup>0</sup> (regular S-Agr prefix)

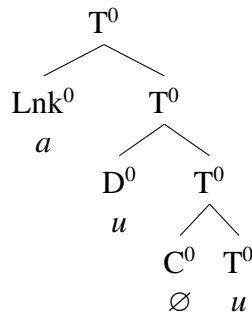
- The RC-external D (the augment) covaries with the RC-internal subject

(40) i- si- lwane **esi-**gijimayo  
 7aug- 7- lion 7rel-run  
 'the lion that is running'

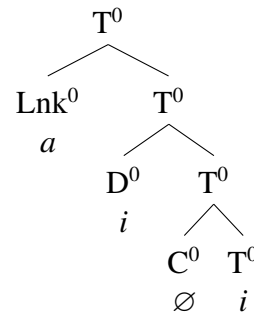


- The heads C, D and Lnk undergo cyclic lowering to T

(41) Class 1 relative prefix:  
a + (u+u) → a+u → o



(42) Class 9 relative prefix:  
a + (i+i) → a+i → e



(43) Vowel-coalescence derivation of relative prefixes from a trimorphemic structure

class	[ linker + [ augment + S-agr prefix ] ]	⇒	relative prefix
1	a- u- u-		<b>o-</b>
2	a- a- ba-		<b>aba-</b>
5	a- i- li-		<b>eli-</b>
6	a- a- a-		<b>a-</b>
7	a- i- si-		<b>esi-</b>
8	a- i- zi-		<b>ezi-</b>
9	a- i- i-		<b>e-</b>
15	a- u- ku-		<b>oku-</b>

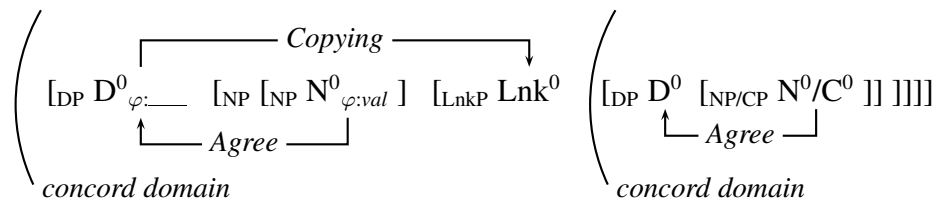
⇒ the DP shell hypothesis for relative clauses derives relative agreement from regular phonological rules

- Surprisingly, the linker shows no agreement in relative clauses

(44) a. i-moto **i-** a- u- mfana (> y-omfana) *linker agreement*  
 9-car 9- LNK- 1- boy  
 ‘the boy’s car’

b. u-mfana a- u-u-gijimayo. (> ogijimayo) *no linker agreement*  
 1aug-1boy LNK- 1aug-1s-run.REL  
 ‘the boy who is running’

(45) DP-internal concord in a linking structure:



- The lack of linker agreement in RCs is due to lowering on T

- (46) Ndebele  $\varphi$ -impoverishment on Lnk<sup>0</sup>:
- Structural description:  $[[\text{Lnk } \varphi], \text{T}]_{\text{complex head}}$
  - Structural change:  $[\text{Lnk } \varphi] \rightarrow [\text{Lnk}]$

### Coordination of RCs requires the nominal conjunction

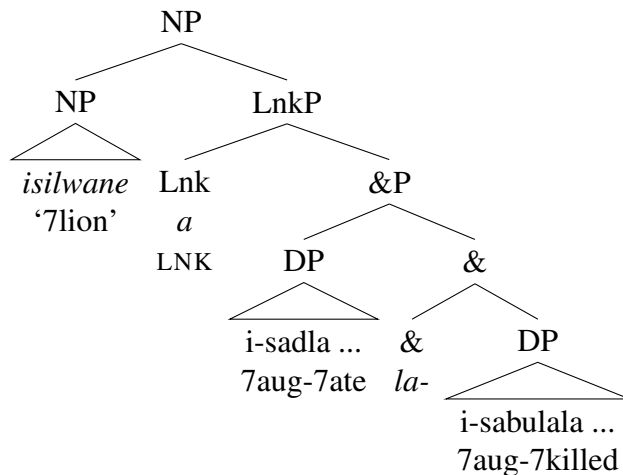
- (47) *Ngidinga isilwane esadla inkomo lesabulalainja.*

Ngidinga isilwane a- [DP i- sadla inkomo ] \*(la)- [DP i- sabulalainja.]  
 look-for.1sg 7lion LNK- 7aug- 7ate 9cow &- 7aug- 7killed 9dog  
 ‘I’m looking for the lion that ate the cow and killed the dog’

- (48) *Ngidinga isilwane esadla inkomo sabulalainja.*

Ngidinga isilwane a- i- [TP sadla inkomo]  $\emptyset$ /\*la [TP sabulalainja.]  
 look-for.1sg 7lion LNK- 7aug- 7ate 9cow & 7killed 9dog  
 ‘I’m looking for the lion that ate the cow and killed the dog’

- (49) Relative Clause coordination



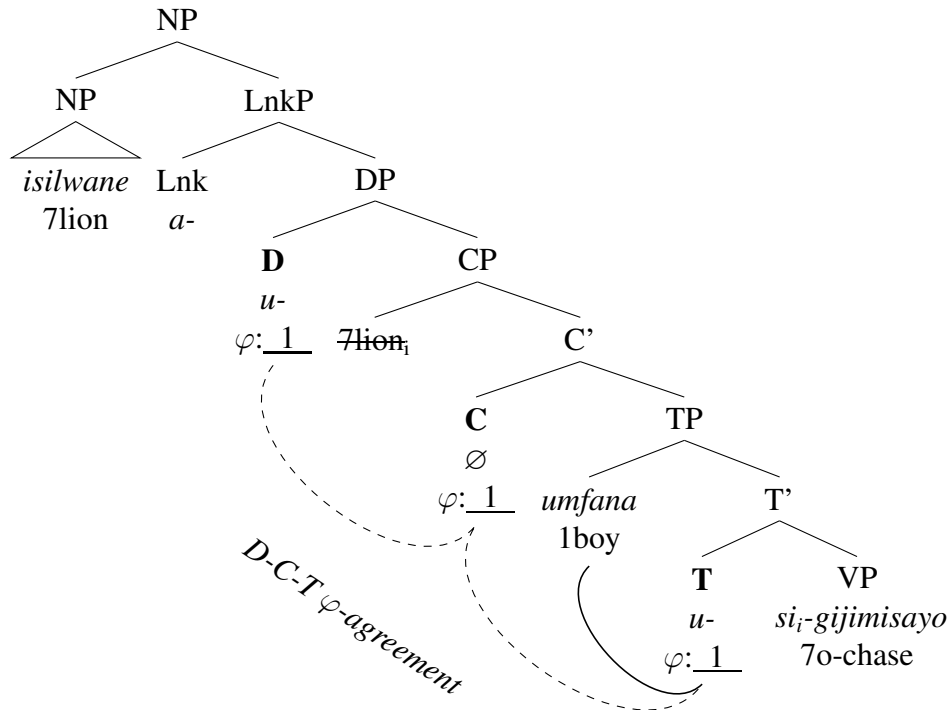
## 5 Conclusion

Can the extended projection-violating structure:  $[_{\text{DP}} \text{D} [_{\text{CP}} ]]$  always be reanalyzed as

- last-resort insertion of DP-layer, or
  - $[_{\text{DP}} \text{D} [_{\text{NP}} \text{N}_{\emptyset} [_{\text{CP}} ]]]$  ?
- Ndebele embedded clauses have a detectable DP layer in both DP positions (e.g. sentential subjects) and CP-positions (complements of bridge predicates). This suggests that clausal DP shell in this language is not a last resort phenomenon.
  - DP-shell is obligatory even in "problematic contexts": in N-attached clauses, DP-insertion doesn't help since DPs cannot be direct adnominals
  - The null N hypothesis finds no support: no cases of CP complements to overt nouns
- Base generation of  $[_{\text{DP}} \text{D} [_{\text{CP}} ]]$  must be allowed.**

## Appendix A: Object relatives

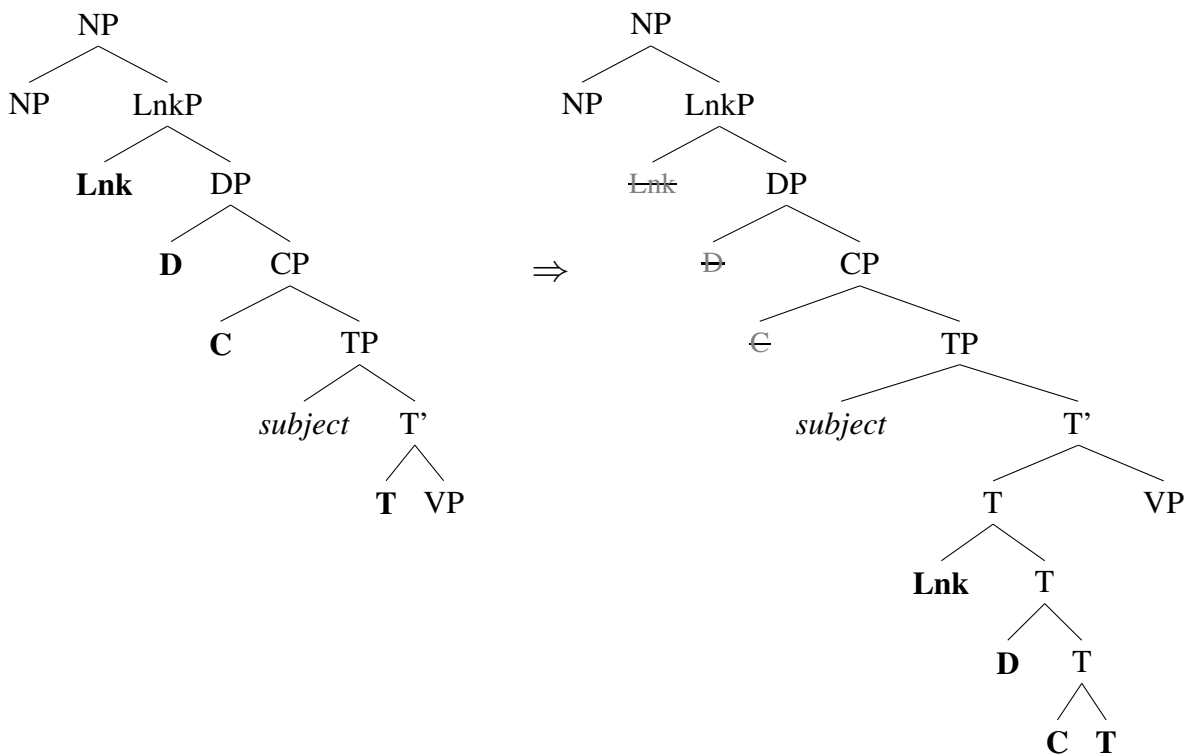
- (50) i-si-lwane u-m-fana a- u- u- si- gijimisayo. (> o-sigijimsayo)  
 7aug-7-lion 1aug-1-boy LNK- 1aug- 1s- 7o- chase.REL  
 ‘the lion that the boy is chasing’
- (51) i-si-lwane a-ba-fana a- a- ba- si- gijimisayo. (> aba-sigijimsayo)  
 7aug-7-lion 2aug-2-boy LNK- 2aug- 2s- 7o- chase.REL  
 ‘the lion that the boys are chasing’
- (52) The structure of (50)



## Appendix B: Lowering

- (53) [NP [NP Rel-head ] [LnkP **linker** [DP **augment** [CP  $\emptyset$  [TP *subject* [T<sup>0</sup> ... ]]]]]]
- (54) i-si-lwane u-m-fana a- u- u- si- gijimisayo. (repeated from (50))  
 7aug-7-lion 1aug-1-boy LNK- 1aug- 1s- 7o- chase.REL  
 ‘the lion that the boy is chasing’

(55) Postsyntactic derivation of relative prefixes



- Alternative: The relative prefix is formed by head movement of the verb to Fin – the head hosting the relative marker *a*. The subject precedes the verb in RCs because it is in a topic position, higher than the relative marker (Henderson, 2007):

(56) [ForceP Rel-NP [TopP *subject* [FinP COMP<sub>rel</sub> *a*-agr-V [TP <agr-V> ]]]]

- However, while subjects of root clauses are indeed topical in Ndebele, subjects of relative clauses are not. This asymmetry is evident from the fact that subjects of root clauses cannot be in focus (they are necessarily topical), but subjects of relative clauses can appear with narrow focus.

(57) a. \**Ubani* u- pheké inyama?  
 1who 1s- cook.PST 9meat  
 ('Who cooked the meat?')

b. U- dlé inyama [<sub>rel-clause</sub> *ubani* a- a- yi- phekileyo? ]  
 2sg.S- eat.PST 9meat 1who REL- 1s- 9o- cook.PST.REL  
 'Who is such that you ate the meat that they cooked?'

- (58) a. \**Umama kuphela u- pheké inyama.*  
 1mother only 1s- cook.PST 9meat  
 ('Only mom cooks meat.')
- b. *Leyo y-inyama [rel-clause umama kuphela a- a- yi- phékileyo. ]*  
 9DEM COP-9meat 1mother only REL- 1s- 9o- cook.PST.REL  
 'This is the meat that only mom cooks.'

### Appendix C: Alternative derivation of relative prefixes: vowel raising

(59) The Vowel Raising analysis (Khumalo, 1992)

- a. Vowel Raising:  $a_{REL} \rightarrow V_{[mid, \alpha back]} / \_\_ (C)V_{[high, \alpha back]}$   
 b. V-Subject Prefix Deletion:  $V_{SP} \rightarrow \emptyset / REL \_\_$

- The raising and deletion rules in (59) are not regular; they are specific to the relative marker *a*.

(60) No vowel raising in the negative prefix *a*:

- a. *a- si- pheki > asipheki (\*esipheki)*  
 NEG- 2pl.S- cook  
 'It is not running'
- b. *a- ku- la-manzi > akulamanzi (\*okulamanzi)*  
 NEG- 17S- COP-water  
 'There is no water'

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