# Backward Control without A-movement of φ-agreement

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Slides: tinyurl.com/backward-control

## The phenomenon

*Ndebele* (Bantu, S44, Zimbabwe)

(1) **UZodwa** u-zam-e [uku-pheka].
1Zodwa 1-try-PST INF-cook
'Zodwa tried to cook.'

(2) Ku-zam-e [uku-pheka **uZodwa** ].
15-try-PST INF-cook 1Zodwa
'Zodwa tried to cook.'

*Terminological note*
"control" — obligatory sharing of a thematic argument

## Overview of claims and analysis

*Ndebele has Backward Control (BC) without:*
- i) covert A-movement
  (Polinsky & Potsdam 2002, Monahan 2003, Haddad 2011 a.o.)
- ii) ϕ-agreement
  (Tsakali et.al. 2017, Alexiadou & Anagnosopoulou 2019)

*Proposal:*
- BC is achieved via INDEX agreement
- A-movement is independent of control

*Deriving the properties of BC:*
- Exhaustiveness
- Obligatoriness
- Locality (CP-bound)
- Alternation with Forward Control

## Data analysis: It's control and it's backward

- Idiom chunks

(3) Isigogo si-a-goq-w-a sisemanzi.
7leather 7-PST-fold-PSV-FV wet.PTCP
**Lit**: 'Leather was folded while still wet'
**Idiom**: 'It was done at the right time.'

(4) Isigogo si-mele si-goq-w-e sisemanzi.
7leather 7-must 7-fold-PSV-SBJV wet.PTCP
**Lit**: 'Leather must be folded while still wet'
**Idiom**: 'It must be done at the right time.'

(5) Isigogo si-zama uku-goq-w-a sisemanzi.
7leather 7-try INF-fold-PSV-FV wet.PTCP
**Lit**: #'Leather is trying to be folded while still wet'
**No idiomatic meaning**

- Active-passive synonymy

(6) a. Umfana u-mele a-phek-e inyama.
1boy 1-must 1-cook-SBJV 9meat
'The boy must cook meat'

b. Inyama i-mele i-phek-w-e ng-umfana.
9meat 9-must 9-cook-PSV-SBJV by-1boy
'The meat must to be cooked by the boy' ≈ (6-a)

(7) a. Umfana u-zama uku-pheka inyama.
1boy 1-try INF-cook 9meat
'The boy is trying to cook meat'

b. #Inyama i-zama uku-phek-w-a ng-umfana.
9meat 9-try INF-cook-PSV-FV by-1boy
'The meat is trying to be cooked by the boy' ≉ (7-a)

→ **The verb *zama* ('try') has an external argument.**

## The relation is “backward”

**Forward Control: DP V V**

(8) **UZodwa** u-zam-e uku-pheka.
1Zodwa 1-try-PST INF-cook
‘Zodwa tried to cook.’

**Backward Control: V V DP**

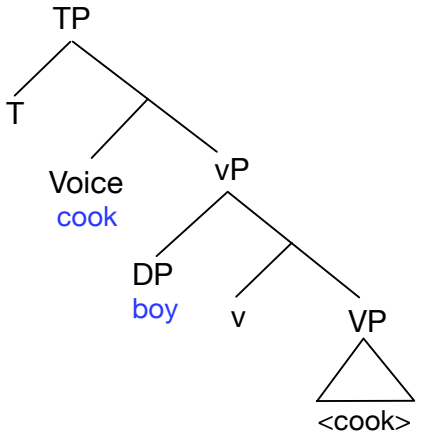
(9) Ku-zam-e uku-pheka **uZodwa**.
15-try-PST INF-cook 1Zodwa
‘Zodwa tried to cook.’

The shared argument in BC is postverbal.

# Two postverbal subject positions

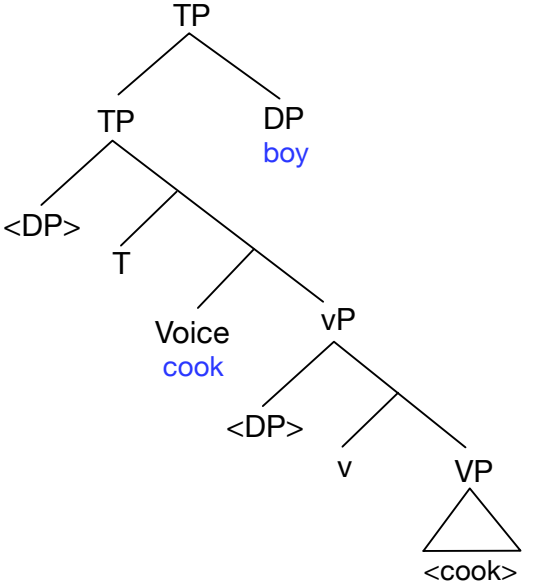
(10) *In-situ subject*

Ku-a-pheka umfana.
15-PST-cook 1boy
'The boy cooked.'

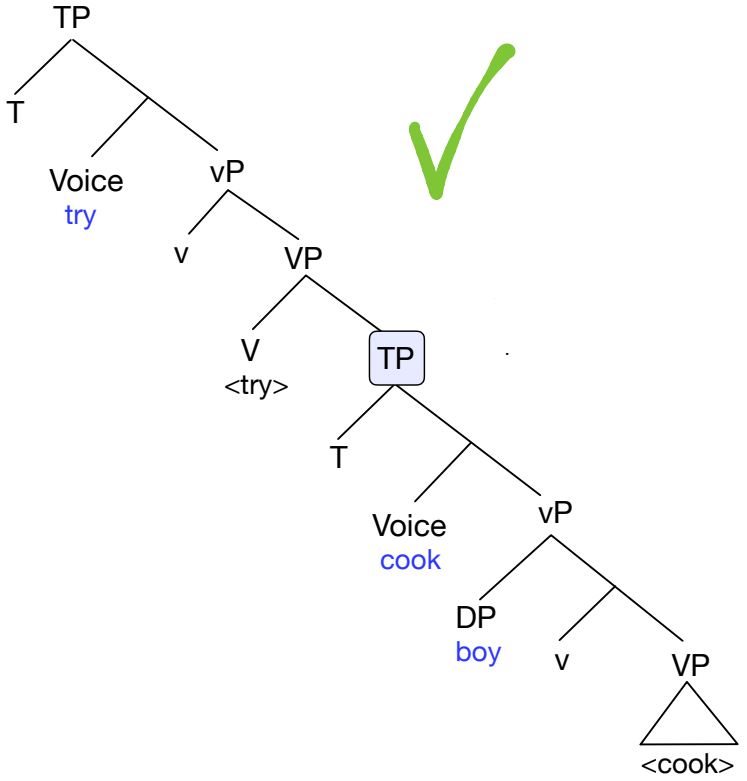


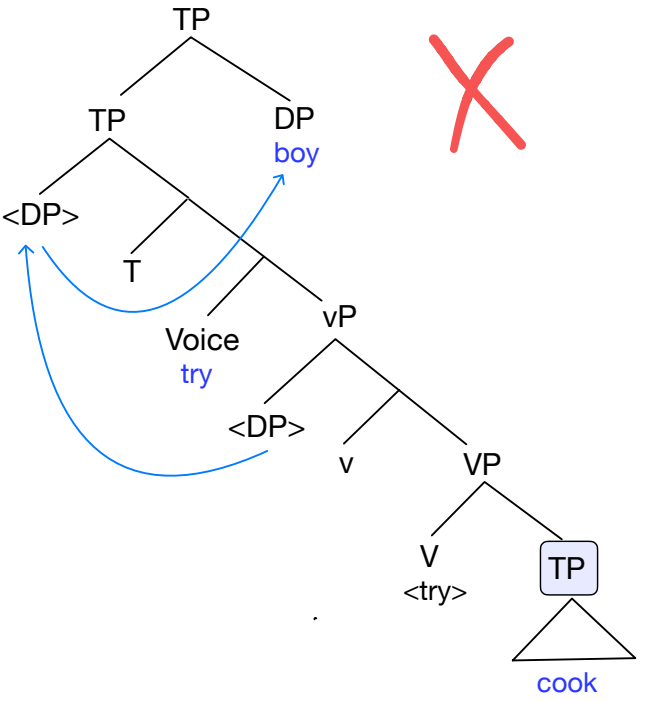

(11) *Dislocated subject*

U-a-pheka umfana.
1-PST-cook 1boy
'The boy cooked.'



## Two possible structures for V-V-DP control constructions



## Telling apart in-situ & right-dislocated subjects: 4 diagnostics

| | *in-situ* | *dislocated* |
|---|---|---|
| Controls agreement on T? | NO | YES |
| Position wrt the object | VSO | VOS |
| Blocks object agreement? | YES | NO |
| Can be an NPI? | YES | NO |

## Diagnostics 1 & 2: Agreement and word order

(12) *In-situ subject: No agreement + VSO*

**Ku**-pheke [$_{vP}$ {umfana✓} inyama] {*umfana} .
15-cook.PST 1boy 9meat 1boy
'The boy cooked meat.'

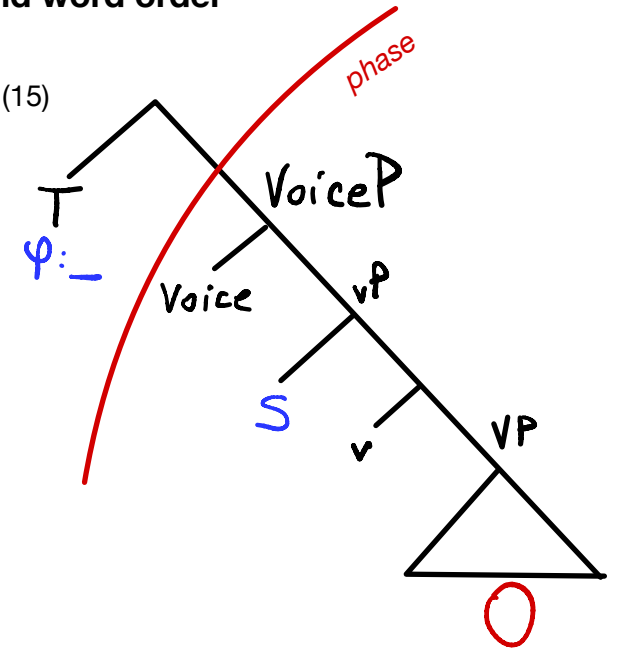
(13) *Dislocated subject: Agreement + VOS*

**U**-pheke [$_{vP}$ {*umfana} inyama] {umfana✓}.
1-cook.PST 1boy 9meat 1boy
'The boy cooked meat.'

(14) *Backward Control: No agreement + VSO*

**Ku**-zame uku-pheka [$_{vP}$ {umfana✓} inyama] {*umfana}.
15-try.PST INF-cook 1boy 9meat 1boy
'The boy tried to cook meat.'

(15)



# Diagnostic 3: Intervention in object agreement

(16) *In-situ subjects block object agreement*

**Ku**-a-(***yi**)-pheka umfana inyama.
15-PST-(*9o)-cook 1boy 9meat
'The boy cooked meat.'

(17) *Dislocated subjects do not block object agreement*

**U**-a-**yi**-pheka inyama umfana.
1-PST-9o-cook 9meat 1boy
'The boy cooked the meat.'

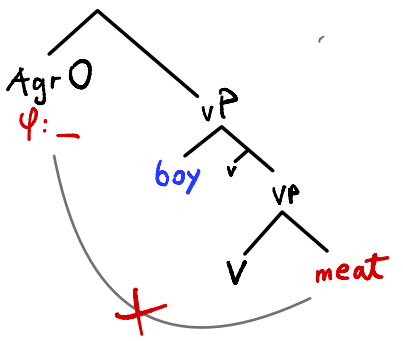
(18) *Backward Control subjects block embedded object agreement*

**Ku**-a-zama uku-(***yi**)-pheka umfana inyama.
15-PST-try INF-(*9o)-cook 1boy 9meat
'The boy tried to cook meat.'

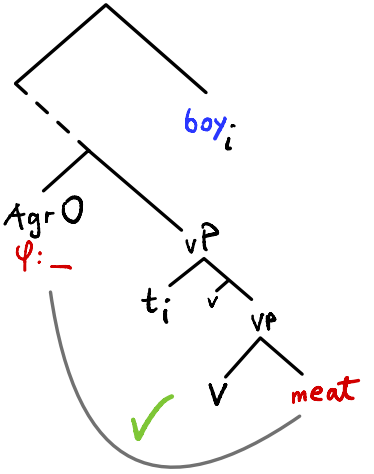
(19) *Forward Control subjects don't block embedded object agreement*

Umfana **u**-a-zama uku-**yi**-pheka inyama.
1boy 1-PST-try INF-9o-cook 9meat
'The boy tried to cook the meat.'

(20)




(21)



## Diagnostic 4: NPI-hood and negative scope

(22) *In-situ subjects can be NPIs*

A-**ku**-pheki muntu.
NEG-15-cook person.NPI
'Nobody is cooking'

(23) *Dislocated subjects cannot be NPIs*

*A-**ka**-pheki muntu.
NEG-1-cook person.NPI
'Nobody is cooking'

(24) *BC subjects can be NPIs*

a. A-**ku**-zami uku-pheka muntu.
NEG-15-try INF-cook person.NPI
'Nobody is trying to cook'

b. **Ku**-zama uku-nga-pheki muntu.
15-try INF-NEG-cook person.NPI
'Nobody is trying to cook'

**Summary: BC subjects are in the embedded in-situ position**

| | *in-situ* | *dislocated* | BC |
|---|---|---|---|
| Controls agreement on T? | NO | YES | NO |
| Position wrt the object | VSO | VOS | VSO |
| Blocks object agreement? | YES | NO | YES |
| Can be an NPI? | YES | NO | YES |

## It's not restructuring

(25) *Inyama$_i$ i-a-zany-w-a [uku-pheka $t_i$]. *no long passive*
9meat 9-PST-try-PSV-FV INF-cook
Lit. 'The meat was tried to cook'

(26) Ku-zame [uku-nga-pheki umfana]. *embedded negation*
15-try.PST INF-NEG-cook. 1boy
'The boy tried to not cook'

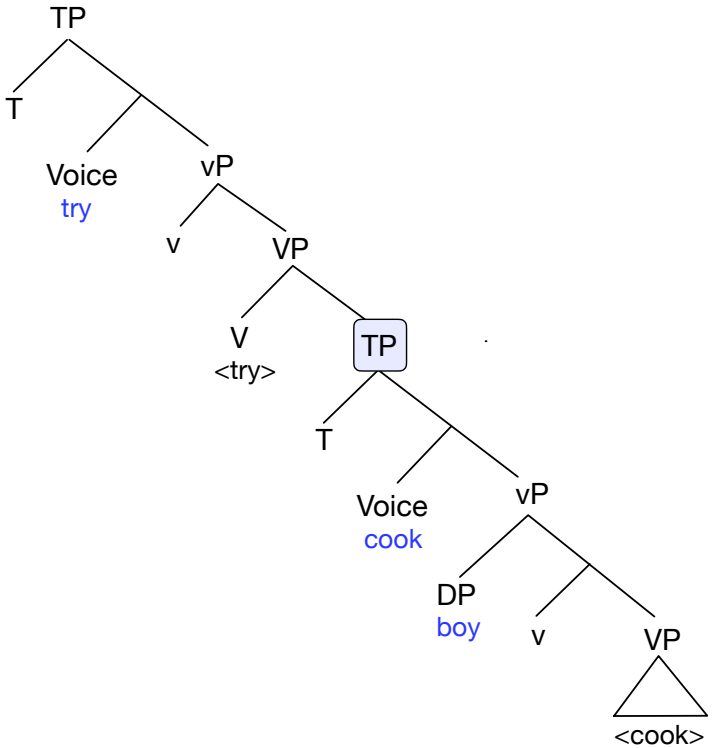
(27) Ku-zame [uku-be ku-pheka umfana]. *embedded progressive aspect*
15-try.PST INF-AUX 15-cook.PROG 1boy
'The boy tried to be cooking.'

**Backward Control is allowed across a complement as large as AspP**

## Summary of data description: It's control and it's backward

The verb *zama* ('try')
i) selects for a TP/AspP
ii) has a thematic subject, which
iii) can appear in the embedded clause.

→ ***Backward Control***



## What does Backward Control tell us about control more generally?

**Backward Control = Covert A-movement**

Polinsky & Potsdam 2002, Monahan 2003, Fujii 2004, Homer 2009, Potsdam 2009, Haddad 2011

→ A-movement is the underlying mechanism in Control (Hornstein 1999).

**Backward Control = ϕ-agreement**

Tsakali et.al. 2017, Alexiadou & Anagnosopoulou 2019 (in a way also Alboiu 2007)

→ A-movement is *not* the underlying mechanism for Control.

**Evidence from Ndebele**

Backward Control is neither A-movement nor ϕ-agreement.
→ Neither is the underlying mechanism in Control.

Forward Control *does* involve A-movement.

**BC in Ndebele is not covert A-movement**
*No matrix anaphor binding*

(28) Abafana ba-zam-el-an-a [uku-klina].
2boy 2-try-APP-REC-A INF-clean
'The boys are trying for each other to clean.'

(29) *Ku-zam-el-an-a [uku-klina abafana].
15-try-APP-REC-A INF-clean 2boy
'The boys are trying for each other to clean.'

(30) Ku-zama [uku-klin-el-an-a abafana].
15-try INF-clean-APP-REC-FV 2boy
'The boys are trying to clean for each other.'

**BC in Ndebele is not covert A-movement**
*A-movement can cross CPs, BC cannot*

(31) *Raising out of CPs:*

a. UZodwa$_i$ u-fanele [$_{CP}$ ukuthi $t_i$ a-pheke].
1Zodwa 1-must COMP 1-cook.SBJV
'Zodwa must cook.'

b. Ku-fanele [$_{CP}$ ukuthi uZodwa a-pheke].
15-must COMP 1Zodwa 1-cook.SBJV
'Zodwa must cook.'

(32) ***No** BC across CPs:*

a. UZodwa u-zama [$_{CP}$ ukuthi a-pheke].
1Zodwa 1-try COMP 1-cook.SBJV
'Zodwa is trying cook.'

b. *Ku-zama [$_{CP}$ ukuthi uZodwa a-pheke].
15-try COMP 1Zodwa 1-cook.SBJV
'Zodwa is trying to cook.'

**BC in Ndebele is not covert A-movement**
*A-movement gaps control agreement*

(33) UZodwa$_i$ u-fanele [$_{CP}$ ukuthi **t$_i$** {**a**/***ku**}-pheke inyama].
1Zodwa 1-must COMP {**1**/***15**}-cook.SBJV 9meat
'Zodwa must cook meat.'

(34) **t$_i$** {**ku**/***u**}-zama [uku-pheka uZodwa$_i$ inyama].
{**15**/***1**}-try INF-cook 1Zodwa 9meat
'Zodwa is trying to cook meat.'

The lack of agreement additionally rules out the analysis of BC as φ-agreement between matrix and embedded T (Tsakali et.al. for Greek and Romanian)

## Summary

Backward control in Ndebele involves

- neither A-movement
- nor $\phi$-agreement

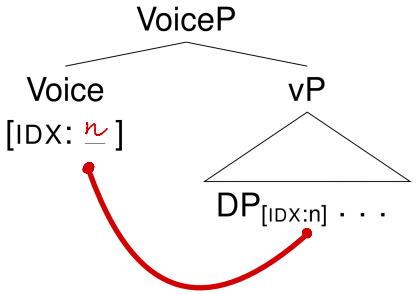
*Remaining question*

Why is the embedded subject interpreted as matrix subject?

## Proposal: control as index agreement

**1. Voice has an INDEX probe** (Ershova 2019, building on Landau 2000)

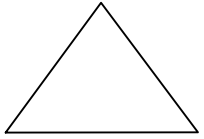
*Index agreement:* Rezac 2004, Kennedy 2014, Grosz 2015, Arregi and Hanink 2018, 2020 a.o.




$[\![\text{Mary}_{\text{IDX:2}}]\!]^g = m = g(2)$

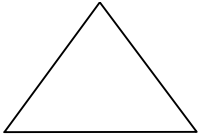
**2. Exhaustive Control predicates have incorporated subjects** (Grano 2015)

$[\![\text{VP}]\!]^g = \lambda x.\lambda e.\text{COOK}(e)(x)$



cook . . .

$[\![\text{VP}]\!]^g = \lambda e.\text{TRY}(E)(e)(x)$

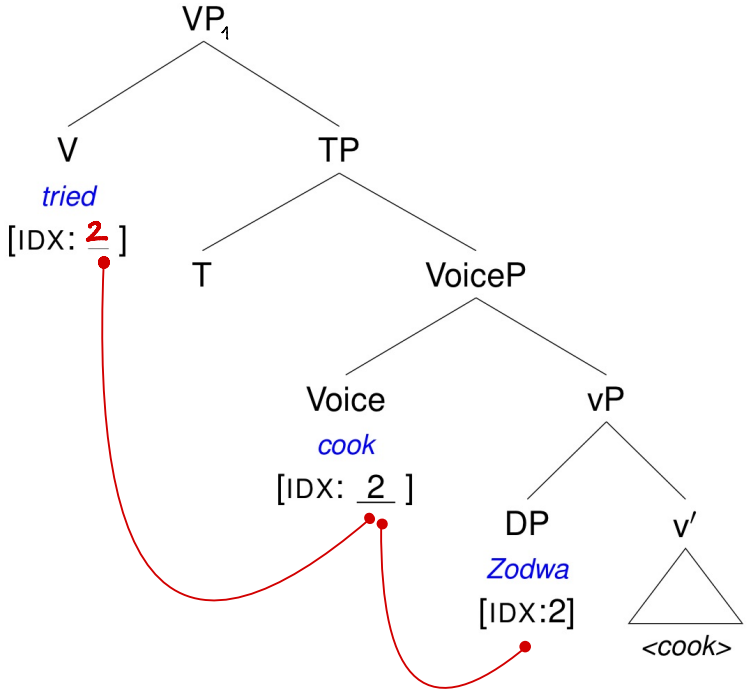


try . . .

Grano 2015: *dependent variable*
Here: *index*

**EC verbs like *try* have an IDX-probe, whose value g(n) saturates their e-type argument:**

$$[\![\text{TRY}_{\text{IDX:n}}]\!]^g = \lambda E.\ \Big[\lambda x.\ \lambda e.\ \text{TRY}(E)(e)(x)\Big]\Big(g(n)\Big)$$



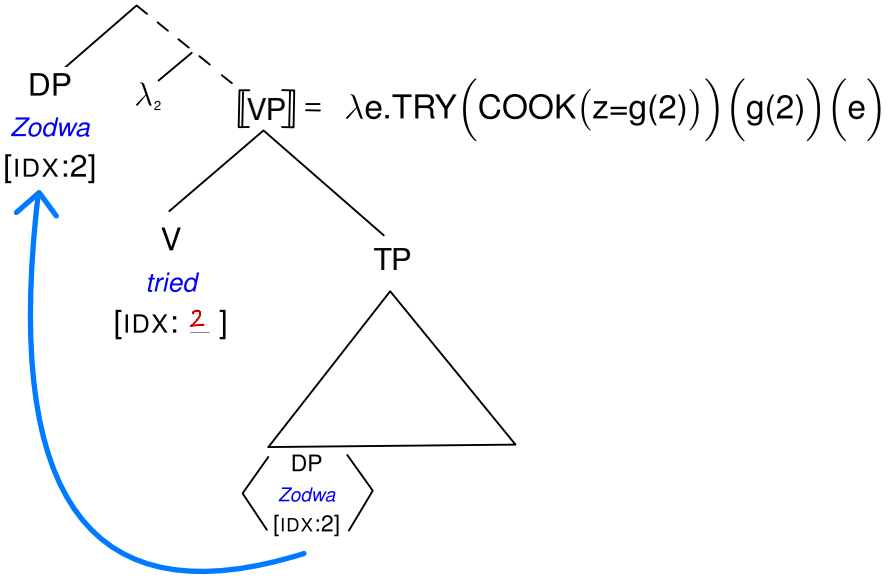

$$[\![\text{TRY}_{\text{IDX:2}}]\!]^g = \lambda E.\ \Big[\lambda x.\ \lambda e.\ \text{TRY}(E)(e)(x)\Big]\Big(g(2)\Big)$$
$$= \lambda E.\ \ \lambda e.\ \text{TRY}(E)(e)(g(2))$$

$$[\![\text{TP}]\!]^g = \lambda e'.\ \text{COOK}(e')(z{=}g(2))$$

$$[\![\text{VP}_1]\!]^g = \lambda e.\ \text{TRY}\Big(\lambda e'.\ \text{COOK}(e')(z{=}g(2))\Big)(e)\Big(g(2)\Big)$$
$$= \lambda e.\ \text{TRY}\Big(\text{COOK}(z{=}g(2))\Big)(e)\Big(g(2)\Big)$$

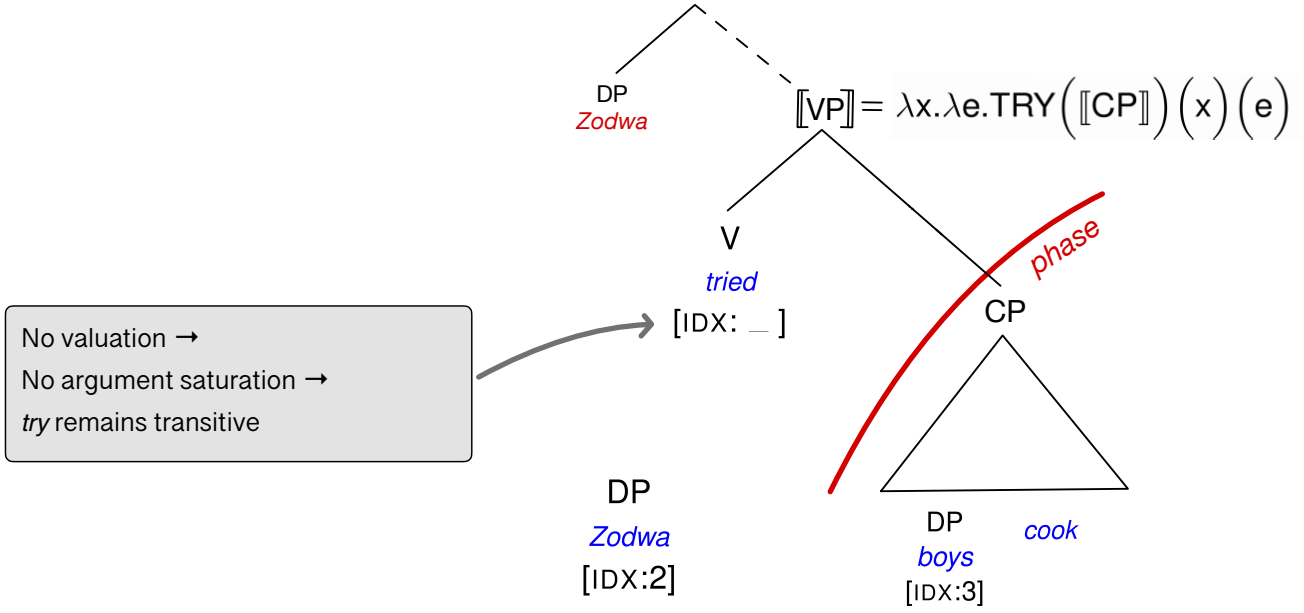
*Argument sharing*

## Subsequent A-movement is orthogonal to argument sharing




**Extension to English Exhaustive Control:** IDX-agreement + obligatory A-movement

**“try” selecting a CP → no IDX-agreement → no control**




(35) UZodwa u-zam-e [$_{CP}$ ukuthi abafana a-pheke].
1Zodwa 1-try-PST COMP 2boy 1-cook.SBJV
‘Zodwa tried for the boys to cook.’

## Property 1: Backward Control is CP-bound

(36) *No BC across CPs*

*Ku-zama [$_{CP}$ ukuthi uZodwa a-pheke].
15-try COMP 1Zodwa 1-cook.SBJV
'Zodwa is trying to cook.'

(37) *No $\phi$-agreement across CPs*

a. Be-ngi-(**m**)-funa uZodwa$_i$ [$_{CP}$ ukuthi t$_i$ a-pheke].
AUX-1sg-(1o)-want 1Zodwa COMP 1-cook.SBJV
'I wanted Zodwa to cook.'

b. Be-ngi-(***m**)-funa [$_{CP}$ ukuthi uZodwa a-pheke].
AUX-1sg-(1o)-want COMP 1Zodwa 1-cook.SBJV
'I wanted Zodwa to cook.'

**Explanation:** agreement is CP-bound

## Property 2: Backward Control is obligatory control

(38) *IDX-agreement **im**possible → argument sharing optional*

a. *Ku-zam-e [$_{CP}$ ukuthi abafana a-pheke].
15-try-PST COMP 2boy 1-cook.SBJV
'The boys tried to cook.'

b. UZodwa u-zam-e [$_{CP}$ ukuthi abafana a-pheke].
1Zodwa 1-try-PST COMP 2boy 1-cook.SBJV
'Zodwa tried for the boys to cook.'

c. UZodwa$_i$ u-zam-e [$_{CP}$ ukuthi *pro$_i$*/*t$_i$* a-pheke].
1Zodwa 1-try-PST COMP 1-cook.SBJV
'Zodwa tried to cook.'

(39) *IDX-agreement possible → argument sharing obligatory*

a. Ku-zam-e [uku-pheka abafana].
15-try-PST INF-cook 2boy
'The boys tried to cook.'

b. *UZodwa u-zam-e [uku-pheka abafana].
1Zodwa 1-try-PST INF-cook 2boy
'Zodwa tried for the boys to cook.'

**Explanation:** agreement is obligatory when possible

## Property 3: Backward Control is exhaustive control

(40) *No partial control: "try"*

a. *Ku-**zama** [$_{TP}$ uku-buthana umphathisikolo ]
15-try INF-meet 1headmaster
'The headmaster is trying to meet.'

b. *Umphathisikolo u-**zama** [$_{TP}$ uku-buthana]
1headmaster 1-try INF-meet
'The headmaster is trying to meet.'

(41) *No partial control: "want"*

a. *Ku-**funa** [$_{TP}$ uku-buthana umphathisikolo ]
15-want INF-meet 1headmaster
'The headmaster wants to meet.'

b. *Umphathisikolo u-**funa** [$_{TP}$ uku-buthana]
1headmaster 1-want INF-meet
'The headmaster wants to meet.'

**Explanation:** exhaustiveness is a consequence of sharing a referential index

**Property 4:**
**The position of the shared argument falls out from independent properties of A-movement**

(42) *BC is optional*

a. Ku-**zama** [$_{TP}$ uku-pheka uZodwa ]
15-try INF-cook 1Zodwa
'Zodwa is trying to cook.'

b. UZodwa$_i$ u-**zama** [$_{TP}$ uku-pheka $t_i$ ]
1Zodwa 1-try INF-cook
'Zodwa is trying to cook.'

(43) *Raising is optional*

a. Ku-**jayela** [$_{TP}$ uku-pheka uZodwa ]
15-usually INF-cook 1Zodwa
'Zodwa usually cooks.'

b. UZodwa$_i$ u-**jayela** [$_{TP}$ uku-pheka $t_i$ ]
1Zodwa 1-usually INF-cook
'Zodwa usually cooks.'

**Explanation:** A-movement is not required for control.

(44) *English EC: Forward Control is required because raising is required*

a. *There/It tried [$_{TP}$ {Zodwa} to cook {Zodwa}].

b. *There/It seemed [$_{TP}$ {Zodwa} to cook {Zodwa}].

**Bottom line**

Backward Control requires neither A-movement nor ϕ-agreement.

**Crosslinguistic perspective**

IDX-agreement
ϕ-agreement
Covert A-movement
} **different paths to Backward Control? → TBD**

BUT:

IDX-agreement
ϕ-agreement
(Cover) A-movement
} **same locality → likely to cooccur**

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(45)

a. Ku-zame [uku-be ku-pheka umfana].
15-try.PST INF-AUX 15-cook.PROG 1boy
'The boy tried to be cooking.'

b. *Ku-zame [uku-be **u**-pheka umfana].
15-try.PST INF-AUX 1-cook.PROG 1boy
'The boy tried to be cooking.'

c. ***U**-zame [uku-be **u**-pheka umfana].
1-try.PST INF-AUX 1-cook.PROG 1boy
'The boy tried to be cooking.'

d. ***U**-zame [uku-be ku-pheka umfana].
1-try.PST INF-AUX 15-cook.PROG 1boy
'The boy tried to be cooking.'

(46)

a. *Umfana ku-zame [uku-be ku-pheka].
1boy 15-try.PST INF-AUX 15-cook.PROG
'The boy tried to be cooking.'

b. *Umfana ku-zame [uku-be **u**-pheka ].
1boy 15-try.PST INF-AUX 1-cook.PROG
'The boy tried to be cooking.'

c. Umfana **u**-zame [uku-be **u**-pheka ].
1boy 1-try.PST INF-AUX 1-cook.PROG
'The boy tried to be cooking.'

d. *Umfana **u**-zame [uku-be ku-pheka ].
1boy 1-try.PST INF-AUX 15-cook.PROG
'The boy tried to be cooking.'

(47) a. *Ku-zame umfana [uku-be ku-pheka].
15-try.PST 1boy INF-AUX 15-cook.PROG
'The boy tried to be cooking.'

b. Ku-zame umfana [uku-be **u**-pheka].
15-try.PST 1boy INF-AUX 1-cook.PROG
'The boy tried to be cooking.'

c. ***U**-zame umfana [uku-be **u**-pheka].
1-try.PST 1boy INF-AUX 1-cook.PROG
'The boy tried to be cooking.'

d. ***U**-zame umfana [uku-be ku-pheka].
1-try.PST 1boy INF-AUX 15-cook.PROG
'The boy tried to be cooking.'