Stripping in Temporal Adverbial Constructions

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1 Overview

- **The Empirical Domain.** Temporal Adverbial Constructions (TACs) have full clausal forms (1) and phrasal forms (2):

  (1) Sue left [after Joe left].

  (2) Sue left [after Joe].

- **TAC-Stripping.** At least some phrasal TACs have a clausal source involving movement of the remnant and ellipsis of a *v*P (e.g., Pancheva 2009).

  (3) a. $[_{vP}\ [_{vP}$ Kim met Sue] $[_{after\text{P}}$ after $[_{\text{FocP}}$ Tom$_1$ $\langle_{vP}$ ~~x_1 met Sue~~ $\rangle]]]$

  b. $[_{vP}\ [_{vP}$ Kim met Sue] $[_{after\text{P}}$ after $[_{\text{FocP}}$ Tom$_1$ $\langle_{vP}$ ~~Kim meet x_1~~ $\rangle]]]$

- **Embedding Constraints.** Along with an articulated syntax-semantics for TACs, this provides an account for a surprising but familiar puzzle:

  (4) *No Asymmetric Embedding*
  A phrasal TAC and its antecedent must be at the same level of embedding.

- **Re-binding and Parallelism.** Binding of temporal operators by and within TACs disrupt ellipsis licensing (cf. Takahashi 2008).

2 TAC-Stripping: The Basic Analysis

- **Ingredients.** TAC-Stripping is:
  - Low-adjunction of a TAC with an extended *v*P (e.g., Pancheva 2009).
  - $\overline{\text{A}}$-Movement of a single remnant and subsequent *v*P-ellipsis.

- **Operator Movement.** Geis (1970) proposed movement of temporal operators (t_n) in TACs.

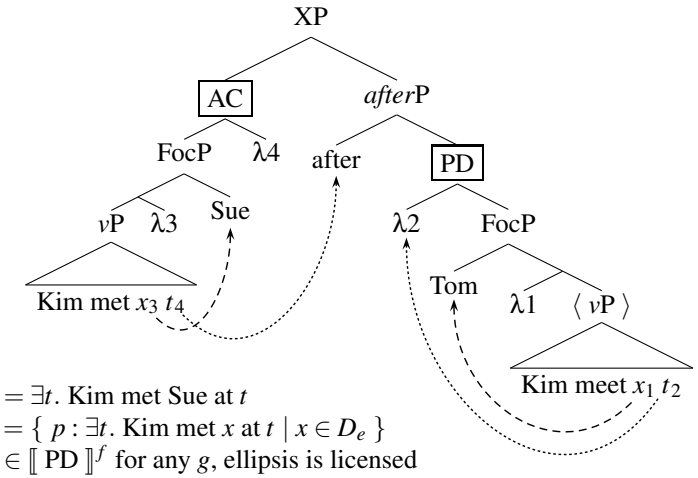
  (5) I saw Kim [after Op_1 she said t_1 [she would leave t_1]].
  a. 'I saw Kim after the time of saying that she would leave.'
  b. 'I saw Kim after the reported time of leaving.'

- **Temporal Re-binding** The resulting re-binding is resolved via Quantifier Raising of the TAC (ACD; Takahashi 2008).

  (6) a. Sue left after Joe did $\langle$ ~~leave~~ $\rangle$.
  b. $[_{after\text{P}}$ after λ1 Joe did $\langle$ leave t_1 $\rangle$] λ2 Sue $[_{vP}$ left t_2]

- **Ellipsis Parallelism.** Ellipsis is licensed according to Rooth 1992a.

  (7)



  (8) a. $[\![\ \text{AC}\ ]\!]^o = \exists t$. Kim met Sue at t
  b. $[\![\ \text{PD}\ ]\!]^f = \{\ p : \exists t$. Kim met x at $t \mid x \in D_e\ \}$
  c. $[\![\ \text{AC}\ ]\!]^o \in [\![\ \text{PD}\ ]\!]^f$ for any g, ellipsis is licensed

3 Movement and Ellipsis in Phrasal TACs

- **Focus Parallelism.** Like other ellipses, pitch accent in the matrix clause disambiguates the remnant (Rooth 1992b).

(9) $[_{\text{AC}}$ KIM met Sue $]$ after $[_{\text{PD}}$ TOM$_1$ $\langle$ ~~x_1 met Sue~~ $\rangle]$
$[\![\text{AC}]\!]^f = [\![\text{PD}]\!]^f = \{\ p\ :\ x \text{ met Sue} \mid x \in D_e\ \}$

(10) $[_{\text{AC}}$ Kim met SUE $]$ after $[_{\text{PD}}$ TOM$_1$ $\langle$ ~~Kim met x_1~~ $\rangle]$
$[\![\text{AC}]\!]^f = [\![\text{PD}]\!]^f = \{\ p\ :\ \text{Kim met } x \mid x \in D_e\ \}$

- **Binding Connectivity.** The remnant shows binding connectivity effects (Lechner 2004, Bhatt & Takahashi 2011).

(11) I took him$_1$ to Sue before
a. Joe$_1$'s boss$_2$ $\langle$ ~~x_2 take him$_1$ to Sue~~ $\rangle$
b. *Joe$_1$'s boss$_2$ $\langle$ ~~I take him$_1$ to x_2~~ $\rangle$

(12) I took Joe$_1$ to Sue before
a. his$_1$ boss$_2$ $\langle$ ~~x_2 take him$_1$ to Sue~~ $\rangle$
b. his$_1$ boss$_2$ $\langle$ ~~I take him$_1$ to x_2~~ $\rangle$

- **Islands.** The remnant's sensitivity to islands is consistent with movement (Merchant 2004).

(13) *Complex-NP Constraint*
I met $[_{\text{DP}}$ someone who knows Dutch $]$ before
a. $[_{\text{DP}}$ someone who knows Russian$]_1$ $\langle$ ~~I meet x_1~~ $\rangle$
b. *Russian$_1$ $\langle$ ~~I meet $[_{\text{DP}}$ someone who knows x_1~~ $]\rangle$

(14) *Left-Branch Extraction*
Tom read Kim's book after
a. $[_{\text{DP}}$ Ann's book $]_1$ $\langle$ ~~Bob read x_1~~ $\rangle$
b. *Ann$_1$ $\langle$ ~~Bob read $[_{\text{DP}}$ x_1's book~~ $]\rangle$

4 Restructuring and Low-Adjunction in TACs

- **Restructured Complements.** Phrasal TACs permit restructured complements.

(15) You should cook the dumplings before eating them.

(16) The dumplings were eaten after being cooked.

- **Scope of Negation.** Negation cannot be interpreted inside a phrasal TAC (e.g., Oehrle 1987).

(17) Tom didn't leave after his boss.
a. $\neq$ 'Tom left, but not after his boss didn't leave.'
b. $=$ 'Tom left, but not after his boss left.'

And phrasal TACs necessarily take scope below root negation.

(18) Tom didn't leave after his boss.
a. $\neg > \textit{after}$: 'Tom left, but not after his boss left.'
b. *$\textit{after} > \neg$: 'After his boss left, Tom didn't leave.'

- **Scope of Modals.** Epistemic modals resist being interpreted inside a phrasal TAC while circumstantial modals can be (cf. Siegel 1987).

(19) a. *Kim might leave after Joe $\langle$ ~~might leave~~ $\rangle$.
b. ?Kim can leave after Joe $\langle$ ~~can leave~~ $\rangle$.

- **Quantifier-Variable Binding.** A quantificational DP in subject position can bind a pronoun in a phrasal TAC (e.g., McCawley 1993).

(20) No employee$_1$ [left [after his$_1$ boss]].

5 The Eliminative Puzzle of TAC-Truncation

- **Embedding Constraints.** Phrasal TACs show the constraints against embedding the ellipsis site and antecedent observed with Gapping (Hankamer 1979) and other bare argument ellipses (Rooth 1992b), but not necessarily with VP-Ellipsis (VPE).

(21) *Embedded Adjunction; Matrix Antecedent*
  a. Kim heard [that Sue had left after Joe heard that she had left].
  b. *Kim heard [that Sue had left after Joe (did) ⟨ ~~hear that Sue had left~~ ⟩]
  'Kim heard that, after Joe heard Sue had left, Sue had left.'

(22) *Matrix Adjunction; Embedded Antecedent*
  a. Kim heard [that Sue had left] after Joe had left.
  b. Kim heard [(that) Sue had left] after Joe *(had) ⟨ ~~left~~ ⟩.
  'After Joe left, Kim heard that Sue had left.'

adjunction	*antecedent*	*TAC*	*VPE*
embedded	matrix	*	*
matrix	embedded	*	✓

Table 1: Possible source of antecedent as a function of adjunction site.

- **Not ATB-Movement (Johnson 2009).** ATB-movement is restricted to coordinations (Postal 1993, but cf. Munn 1992).

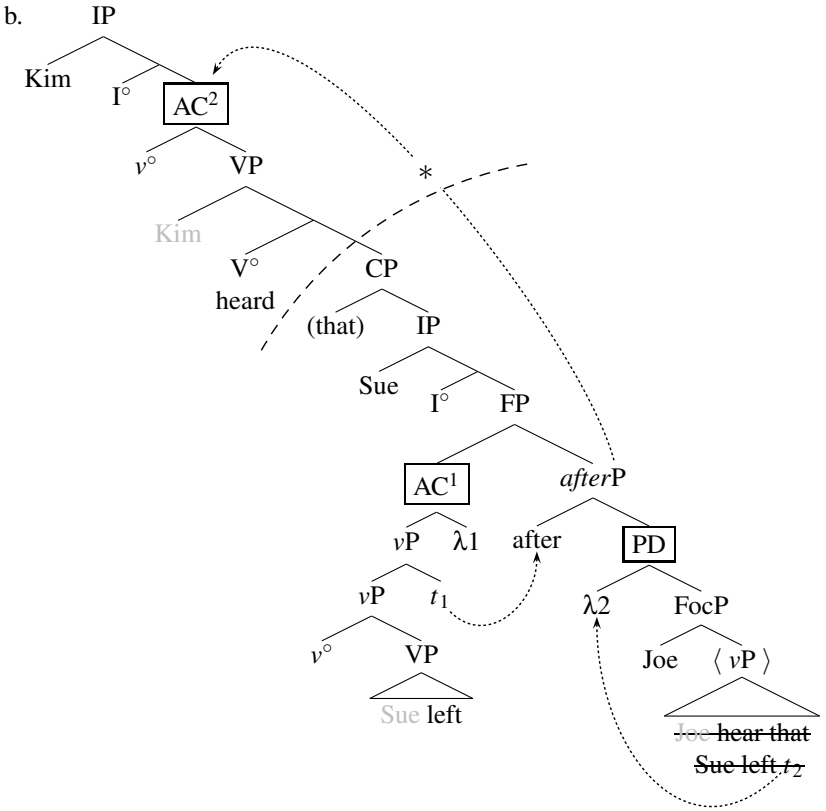
- **Not *v*P-Parallelism (Toosarvandani 2016).** Weakening *v*P-Parallelism to include TACs weakens it beyond utility.

- **Not Complementizers (Wurmbrand 2017).** The presence of a complementizer (i) does not affect the status of an embedded ellipsis site and (ii) is not relevant for an embedded antecedent site.

6 Re-binding and Parallelism

- **Embedding the Ellipsis Constituent.** Resolving the ellipsis site to the matrix predicate results in irreparable Antecedent-Containment (Larson & May 1990, Fox 2002).

(23) a. *Kim heard [$_{CP}$ that Sue had left after Joe ⟨$_{vP}$ ~~heard that Sue had left~~ ⟩].

b.


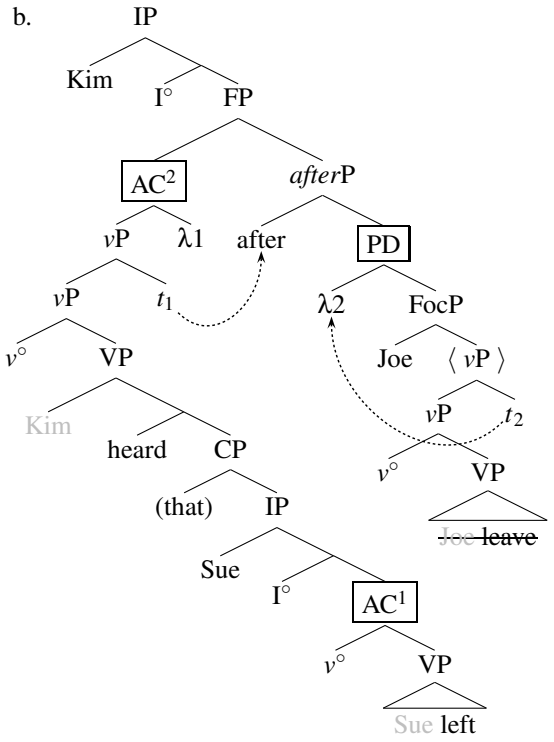
- **No Parallelism.** Ellipsis in PD cannot be licensed under containment.

(24) a. $[\![\text{AC}^1]\!]^o = \exists t$. Sue left at t
  b. $[\![\text{PD}]\!]^f = \{ p : \exists t.\ x \text{ hear Sue leave at } t \mid x \in D_e \}$
  c. $[\![\text{AC}^1]\!]^o \notin [\![\text{PD}]\!]^f$ for any g, ellipsis is not licensed

- **Embedding the Antecedent Constituent.** The locality of QR forces high-generation of the TAC. This precludes the presence of a relevant temporal trace in the embedded clause.

(25) a. *Kim heard [$_{CP}$ that Sue had left] after Joe ⟨$_{vP}$ ~~leave~~ ⟩

b.



- **No Parallelism.** No AC is generated that allows licensing of ellipsis.

(26) a. $[\![\text{AC}^1]\!]^o = \text{Sue left}$
b. $[\![\text{PD}]\!]^f = \{ p : \exists t.\ x \text{ leave at } t \mid x \in D_e \}$
c. $[\![\text{AC}^1]\!]^o \notin [\![\text{PD}]\!]^f$ for any g, ellipsis is not licensed

- **Why Can VPE Not Target TACs?** Focus movement of the remnant induces re-binding that triggers a MAXELIDE effect (Merchant 2008, Messick & Thoms 2016).

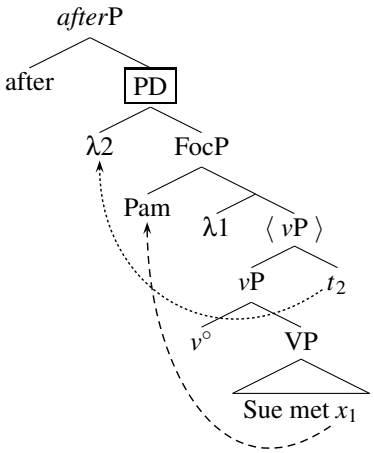
Appendix A: Embedding and VPE

- **VPE Is Not Eliminative.** Standard VP-Ellipsis allows a matrix adjunct to contain an ellipsis site with an embedded antecedent.

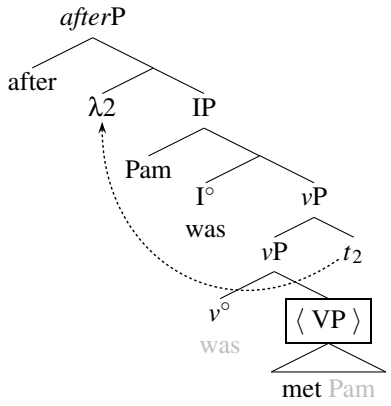
(27) *Matrix Adjunction; Embedded Antecedent*
Kim heard [(that) Sue had left] after Joe had ⟨ ~~left~~ ⟩.
'After Joe had left, Kim heard that Sue had left.'

- **Different Ellipses.** This is a result of the fact that TAC-Stripping is ellipsis of a constituent larger than standard VPE.

(28) *TAC-Stripping*



(29) *VP-Ellipsis*



Neither A-movement nor X°-movement can induce re-binding (cf. Hartman 2011, Messick & Thoms 2016).

- **Voice Mismatches.** The voice of truncated TACs must match the voice of the matrix clause. This is not so for VPE.

(30) a. ?The photos must be found before the police$_1$ do ⟨ ~~x_1 find them~~ ⟩.
b. *The photos must be found before the police$_1$ ⟨ ~~x_1 find them~~ ⟩.

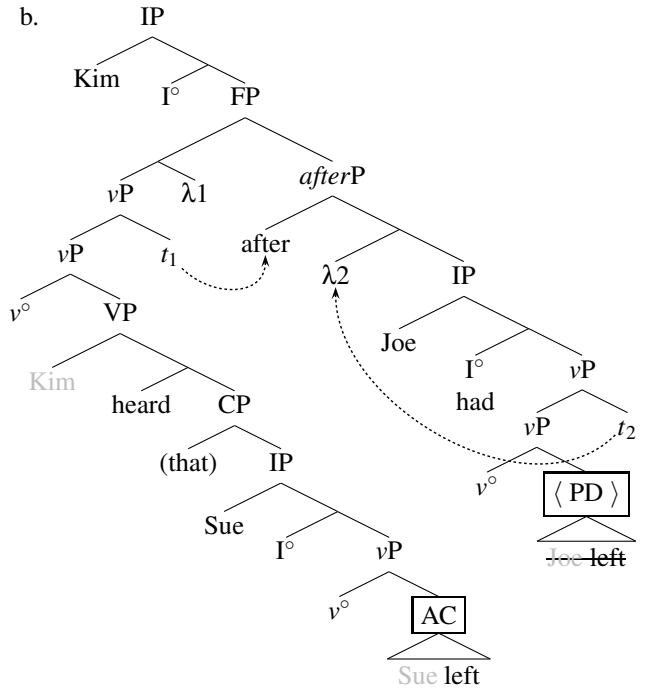
- **The Passive Auxiliary.** The passive auxiliary cannot escape TAC-Stripping but it can escape VPE.

(31) a. The recycling should emptied before the trash$_1$ should be ⟨ ~~emptied x_1~~ ⟩.
b. *The recycling should be emptied before the trash$_1$ being ⟨ ~~emptied x_1~~ ⟩.

- **Embedding the VPE Antecedent.** The ability to identify a smaller deletable constituent results in a smaller EC that is able to find an AC.

(32) a. Kim heard [$_{CP}$ (that) Sue had [$_{vP}$ left]] after Joe had ⟨$_{vP}$ ~~left~~ ⟩

b.



- **Parallelism.** Ellipsis parallelism can be satisfied.

(33) a. $[\![\text{ AC }]\!]^o = \text{Sue left}$
b. $[\![\text{ PD }]\!]^f = \{\ p : x \text{ left} \mid x \in D_e\ \}$
c. $[\![\text{ AC }]\!]^o \in [\![\text{ PD }]\!]^f$ for any g, ellipsis is licensed

Appendix B: Embedding the Ellipsis Site?

- **An Objection.** The examples from (21) are ruled out as irreparable antecedent-containment, independent of re-binding.

(21) *Embedded Adjunction; Matrix Antecedent*
a. Kim heard [that Sue had left after Joe heard that she had left].
b. *Kim heard [that Sue had left after Joe (did) ⟨ ~~hear that Sue had left~~ ⟩]
'Kim heard that, after Joe heard Sue had left, Sue had left.'

Thus, these example does not directly test the ability to embedded the ellipsis site as a function of re-binding.

- **A More Representative Experiment.** The small clause compliment to light verbs is an embedded *v*P that would not be antecedent-contained.

(34) *Kim [left] after Sue made Joe ⟨ ~~leave~~ ⟩.
'After the time that Sue made Joe leave at, Kim left.'

It appears that this *v*P cannot be targeted for TAC-Stripping.

- **A Confound.** The absence of the Geis ambiguity in (35) suggests that temporal operator movement out of a small clause is not even possible.

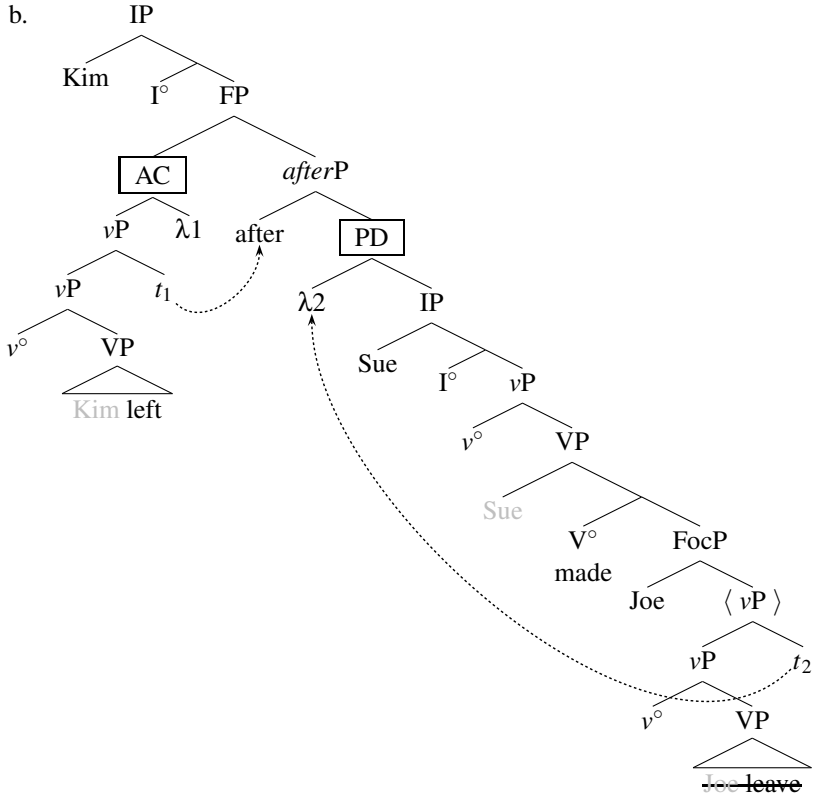
(35) Kim left [after Op_1 Sue made t_1 [Joe leave t_1]].
a. 'Kim left after the time of Sue making Joe leave.'
b. *'Kim left after the time of Joe leaving.'

The source structure for (34) may be independently unavailable as a result of some constraint on the relevant operator movement, not necessarily re-binding.

- **Correct, Regardless.** The relevant operator movement is expected to induce rebinding that would be expected to disrupt ellipsis-licensing.

(36) a. Kim $[_{vP}$ left $]$ after Sue made Joe $\langle_{vP}$ ~~leave~~ $\rangle$

b.



- **No Parallelism.** No AC is generated that allows licensing of ellipsis.

(37) a. $[\![\text{ AC }]\!]^o = \exists t$. Kim left at t
b. $[\![\text{ PD }]\!]^f = \{\ p : \exists t$. Sue made x leave at $t \mid x \in D_e\ \}$
c. $[\![\text{ AC }]\!]^o \notin [\![\text{ PD }]\!]^f$ for any g, ellipsis is not licensed

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