

The prosodic realisation of temporal clauses in English

Edward Göbbel
University of Wuppertal

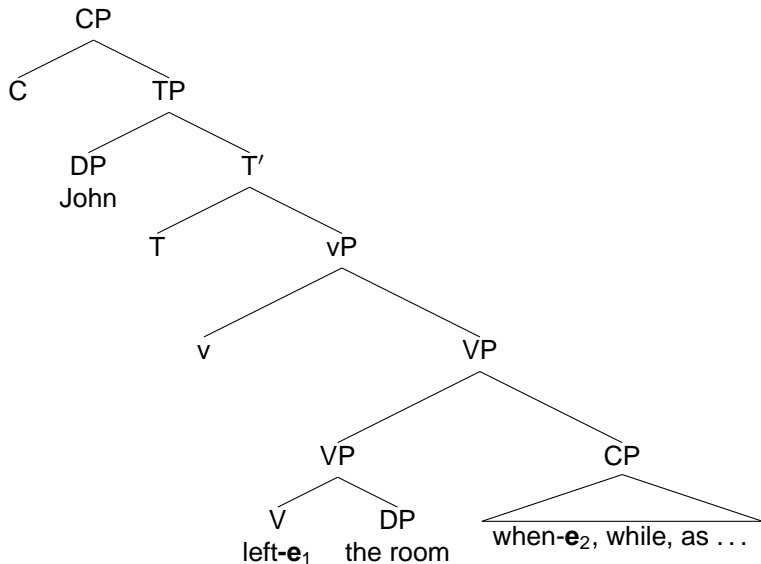
International Workshop on Adverbial Clauses and Prosody,
University of Potsdam, March 12–13, 2026

Preliminary remarks

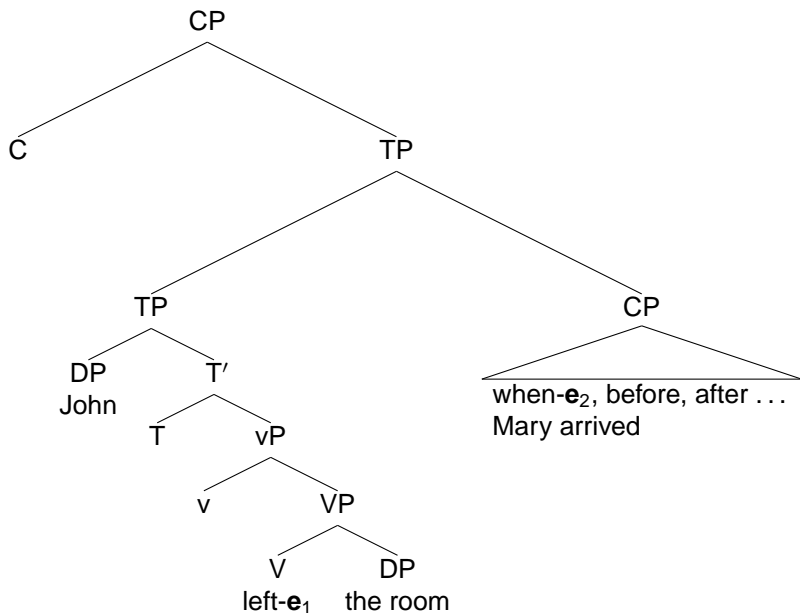
- ▶ investigation of the prosodic realisation of two types of TEMPC: when-clauses, mostly having a simultaneous event interpretation ($e = e_{TEMPC}$) and before-clauses with non-simultaneous event interpretation ($e < e_{TEMPC}$).
- ▶ TEMPC are central adverbial clauses, syntactically integrated in their host clause (Frey & Truckenbrodt 2015, Schönenberger & Haegeman 2023)
- ▶ Since prosodic structure is derived from the syntax, the prediction is that, if they have different syntactic representations, they might as well also have different prosodic representations
- ▶ Why TEMPC?
 - ▶ they occur in all positions in which temporal PP adverbials can occur, i.e., in 6 positions in a (complex) sentence, which makes a study of the syntax-phonology correspondence particularly interesting
 - ▶ the interpretation of *when*-clauses is not restricted to simultaneous events, which introduces further semantic, but also syntactic distinctions

Event-time adjuncts: $e_1=e_2$, essentially following Thomson (2005)

(1) John left the room when Mary arrived. (ambiguous)



Non-simultaneous: $e_1 > e_2$ (when=after); $e_1 < e_2$ (when=before)



Will we be getting more northern birds *when you move up here?* [2x]

Evidence for the two structures (Thompson 2005)

Quantifier Binding

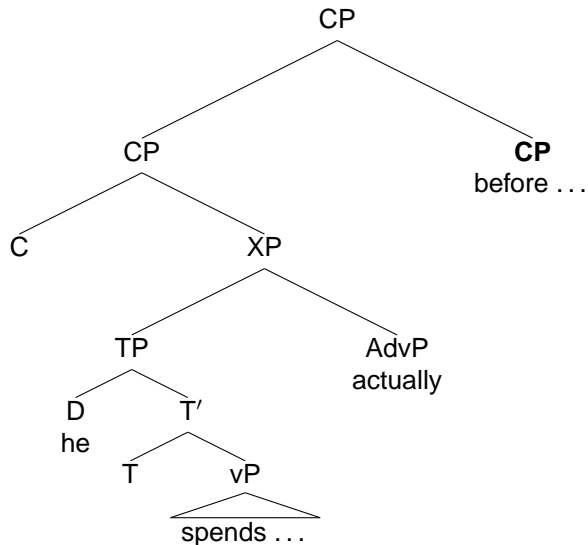
- a. Mary saw every worker_i as he_i was asking for a raise
- b. *Mary saw every worker_i before he_i asked for a raise

Negative Polarity Item Licensing

- a. John identified no problems while anyone was around.
- b. *John identified no problems after anyone left.

Extrapolated TEMPC: after parentheticals and S-adverbials

(cf. Bruening 2018)



- (2) He spends six weeks in London, actually, *before he goes to France in 1944.*

Left-adjoined TEMPC

Left edge of a root clause:

(3) [CP TEMPC C [TP ...]]

Shortly before we came on air, I asked him about the production.

Left edge of a subordinate clause:

(4) [CP C [TP T [vP v [VP V [CP that TEMPC [TP ...]]]]]]

(5) [TP T [vP [vP v [VP ...] [PP because [CP TEMPC [TP ...]]]]]]

You have to understand that, *when it first came out*, it kind of bombed here.

Left-adjoined TEMPC

Left edge of vP/IP-area:

(6) [CP C [TP T TEMPC [vP ...]]]

And so we then had hundreds of hours of actual Raoul Moat, plus he was also, *when he was on the run*, very interested in giving his side of the story.

Left edge of VP:

(7) [CP C [TP T [vP v [VP TEMPC ...]]]]

there were people, *when I saw them*, standing underneath it, who had never met each other before ...

Additional semantic distinctions of when-clauses

- ▶ specification of reference time, which is topical (left edge):

And I hadn't told my mum that I had auditioned.

So, *when I auditioned*, I had quit university to do this young ex-company ...

- ▶ 'syntactically non-integrated' modifier of the speech event, (left edge of root clause, cf. Haegeman et al forthcoming)

before we talk about the writers' room itself how did you end up on Succession?

TEMPC [let me ask the following question:] ROOTC

- ▶ domain adverbials (right/left edge, cf. Ernst 2002, 2004)

When it comes to Reality TV, we want to see the bride have a meltdown.

- ▶ interpretation as conditional

I think hotel design, *when it's done well*, is parallel.

Downing (1970): A phonological asymmetry

Left- and right-edge asymmetry in phrasing adverbial clauses, signalled by 'obligatory pauses'

- (8) a. We can talk **after we eat**.
b. **After we eat** / we can talk.

"pause is obligatory only in the cases where an adverbial is moved out of a root sentence" (p. 53)

- (9) **If you go to that meeting** / you may be arrested.

In (10), it is not moved out of a root sentence, hence separate phrasing is possible but not obligatory:

- (10) I wonder if you are aware of the fact that **if you go to that meeting** you may be arrested.

- ▶ This is not the whole story. The more complex the sentences, the more options you get even at the left edge of root clauses.

- (11) **Match**(α, π) [= S-P faithfulness]
The left and right edges of a constituent of type α in the input syntactic representation must correspond to the left and right edges of a constituent of type π in the output phonological representation. (Selkirk 2011: 451)
- a. **MATCHWORD**: a lexical word is matched with a phonological word (ω)
 - b. **MATCHPHRASE**: a lexical XP is matched with a phonological phrase (ϕ)
 - c. **MATCHCLAUSE**: a clause/CP is matched with an intonational phrase (ι)

Strong vs. weak MATCHCLAUSE

- ▶ Selkirk (2009): a need to distinguish between a **stronger** version of MATCHCLAUSE, applying to root clauses and subordinate constituents that make separate assertions, e.g. clausal parentheticals and appositions (cf. in particular Dehé 2009), and a **weaker** version applying to subordinate clauses more generally.
- ▶ there is evidence from Japanese embedded wh-clauses for the weaker version of MATCHCLAUSE
- ▶ Ishihara (2022): there is no evidence from Japanese for a weaker version of MATCHCLAUSE, Selkirk has misinterpreted the data. Only constituents representing separate speech acts are encoded as separate *ι*'s

Goals and data

- ▶ A systematic examination of complex sentences containing TEMPC for a more accurate description of the left-/right-edge asymmetry in phrasing, e.g., *What is the effect of multiple adjuncts at the left periphery?*
- ▶ This initial study will concentrate on the left and right periphery of root and subordinate clauses. For the other syntactic positions, I lack statistically relevant data.
- ▶ Since TEMPC are central adverbial clauses, their prosodic properties cannot be attributed to Selkirk's stronger MATCHCLAUSE, which applies to ROOTC.
- ▶ However, the data from English TEMPC does provide evidence for a weaker MATCHCLAUSE. Its effects are often masked by higher ranked markedness constraints.
- ▶ data extracted from BBC podcasts of interactive interviews with artists and discussions of cultural events. Currently, 40 POS-tagged podcasts, each approx. 40 min long

Data and conventions

- ▶ The database for TEMPC currently contains 110 pitch tracks of complex sentences, annotated with *Praat* using the ToBI annotation conventions.

Terminology:

- ▶ prosodically non-integrated = subordinate clause forms separate ι . There is a right and left edge of ι , separating the TEMPC from the rest of the sentence.

Right edges of ι signalled by boundary tones: L% and H%

Left edges signalled by pauses/ reset of pitch range

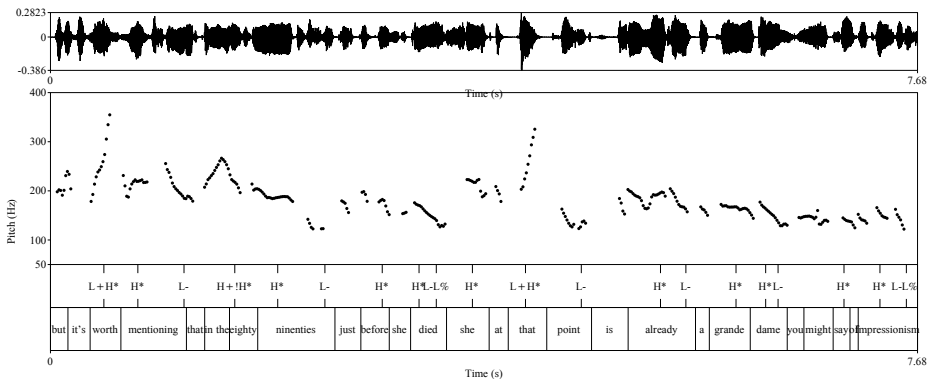
- ▶ prosodically integrated = subordinate clause forms one or more ϕ 's. It is phrased with material of the host clause with which it forms an ι .

Right edges of ϕ signalled by phrase accents: L- and H-

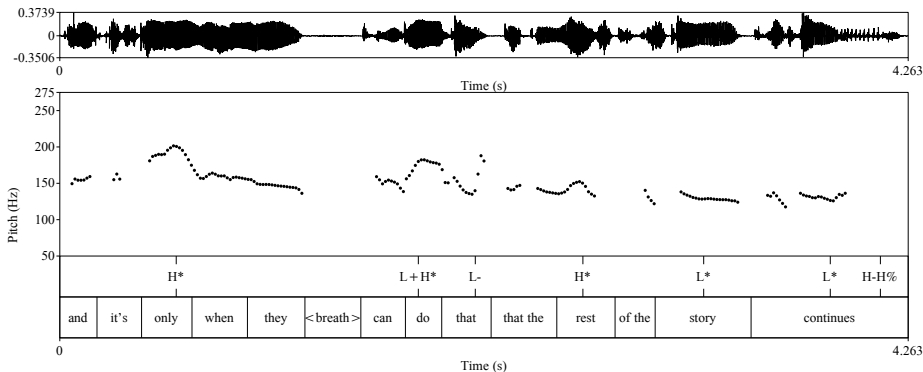
Left edges of ϕ not signalled phonologically

Left edge of ι signalled only by reset of pitch range Sound

[(but it's worth mentioning) (that in the 1890s) (*just before she died*)] $_{\iota}$ [(she at that point) (is already a grande dame) (you might say of Impressionism)] $_{\iota}$



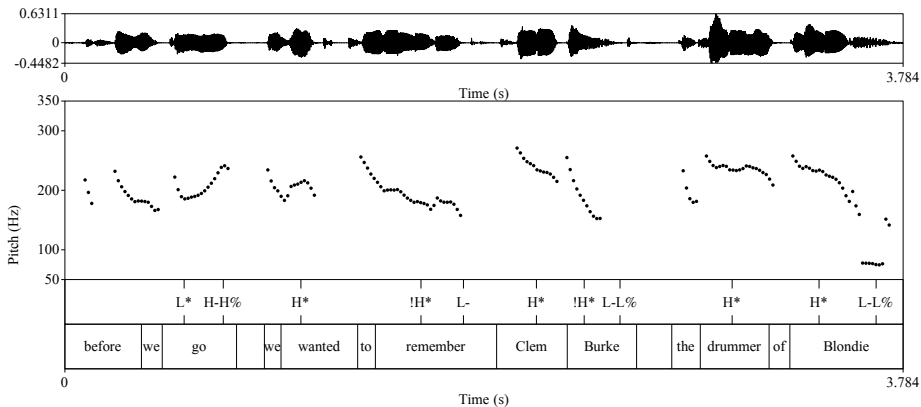
Performance pauses Sound



- ▶ In naturally occurring data there's variability that is absent in controlled production experiments
- ▶ Hesitations or pauses due to breath taking are not grammatically determined prosodic boundaries (Bing 1979, Dehé 2009)

Non-integrated TEMPC at the left edge of a root clause Sound

[(Before we go)]_L [(we wanted to remember) (Clem Burke)]_L
 [(the drummer of Blondie)]_L. He's died from cancer.



Stacking of adjunct clauses

TEMPC realised as separate ι 's (12), but phrased together with lighter conditional in (13)

- (12) I must ask you, Katie:
[when you go into those kind of big interviews] $_{\iota}$
[before you arrive in Seattle] $_{\iota}$ [are the terms of
engagement very much locked down] $_{\iota}$?
- (13) [(And if you think about it) (when you imagine
Impressionist paintings)] $_{\iota}$ [you imagine works that are
made with a very loose brush, often out of doors on
plein air] $_{\iota}$

More than one adjunct at the left edge

Evaluative and discourse-oriented adverbs (*ultimately*) form an ι and the TEMPC can, but need not, form one as well.

- (14) [Ironically] $_{\iota}$ [*when she first read the script*] $_{\iota}$ [she thought she was reading for the part that Roseanne Barr ultimately played] $_{\iota}$
- (15) [Interestingly] $_{\iota}$ [(*whén I fírst picked up this bóok*) (I was thóroughly intímided) (by the líst) (the helpful list)] $_{\iota}$

- ▶ no example in my DB in which such adverbs are phrased together with a TEMPC
- ▶ these adverbs (highest ones in the hierarchy of Cinque [1999]) are possibly in SpecForceP, while the TEMPC is adjoined to TP or as high as FocP (17).

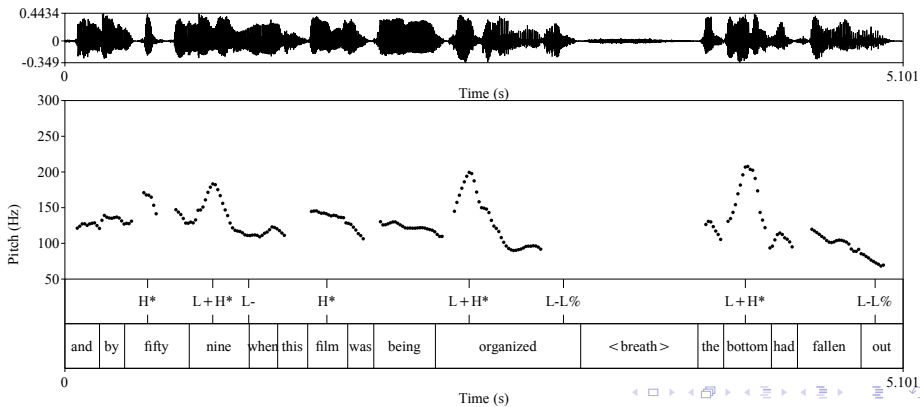
(16) [_{ForceP} AdvP_{EV} Force [_{TP} TEMPC [_{TP} she ...]]]

(17) [_{ForceP} Force [_{FocP} TEMPC [_{FocP} are [_{TP} you ...]]]]

More than one adjunct at the left edge: temporal adverbials and hanging topic Sound

[(And by '59) (when this film was being organised)]_L [the bottom had fallen out]_L. Two casinos actually went bankrupt.

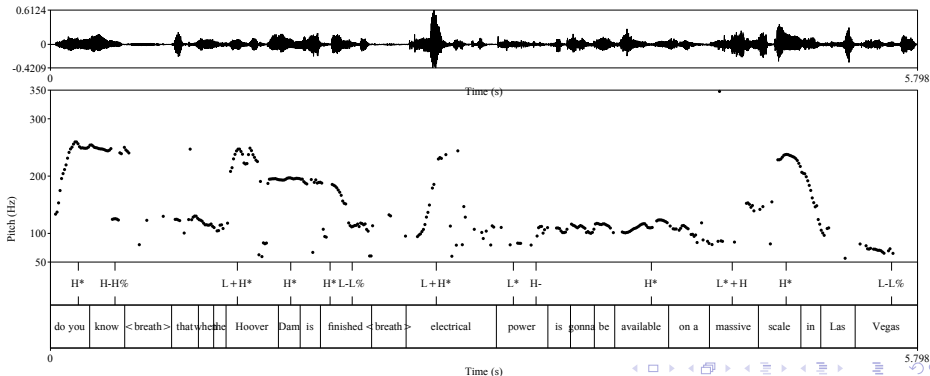
[(Guston) (when he begins to paint abstractly)]_L [he puts the canvas on the wall in front of him]_L



Non-integrated TEMPC at the left edge of subordinate clauses Sound

In 9 examples, the TEMPC forms an ι , and the material to the right and left of it forms one as well. Here the whole question intonation is realised on 'do you know.'

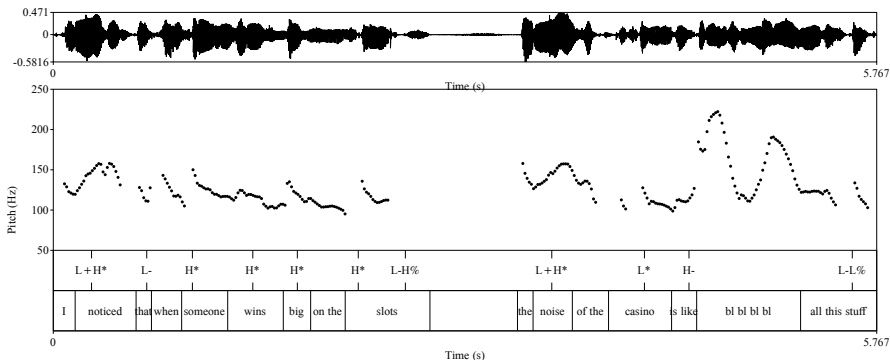
[Do you know] $_{\iota}$ [*that when the Hoover Dam is finished*] $_{\iota}$
[electrical power is going to be available on a massive scale in
Las Vegas] $_{\iota}$?



Integrated TEMPC: merger with a remnant ROOT Sound

- ▶ Light root remnants ($ROOT_L$) can only form a ϕ and merge with the TEMPC to form one ι

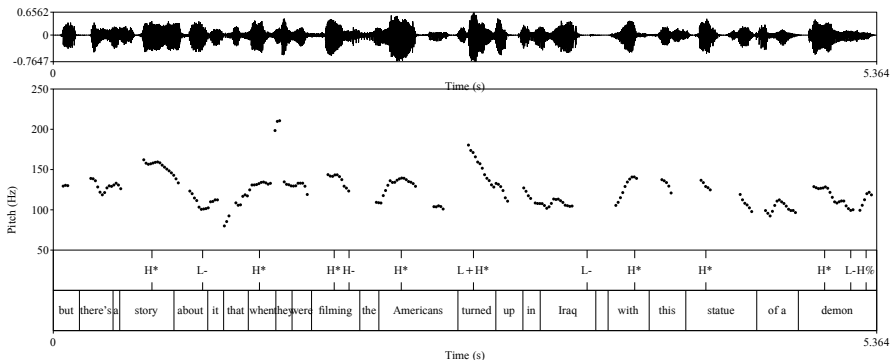
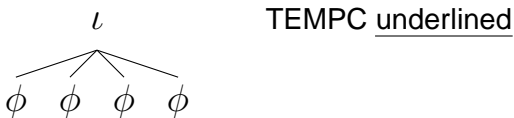
[(I noticed that) (when someone wins big on the slots)] _{ι} [the noise of the casino is like blblbl all this stuff] _{ι}



Integrated TEMPC: faster speech rate, only the ROOTC forms an l

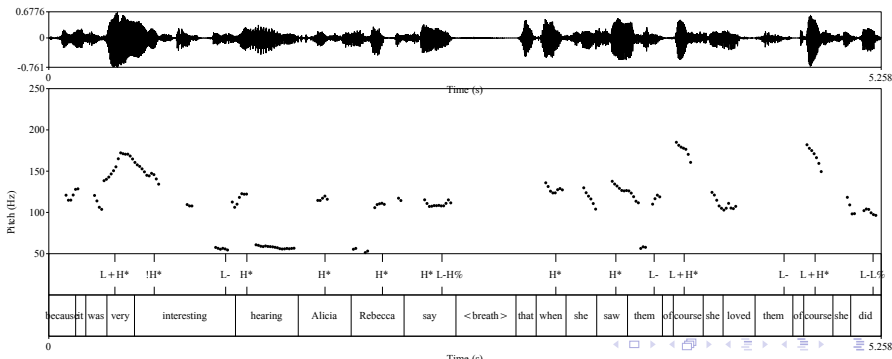
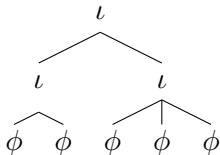
Sound

[(but there's a story about it) (*that when they were filming*) (the Americans turned up in Iraq) (with this statue of a demon)]_l



More complex examples realised as more than one l Sound

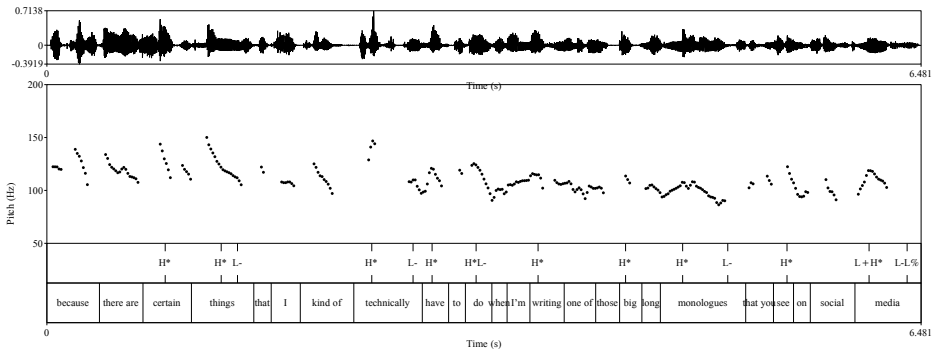
[(because it was very interesting) (hearing Alicia Rebecca say)] l [(that *when she saw them*) (of course she loved them) (of course she did)] l



Integrated TEMPC at the right edge Sound

► up to 5 ϕ 's in one ι

[(because there are certain things) (that I kind of technically) (have to do) (when I'm writing one of those big long monologues) (that you see on social media)] $_{\iota}$



Some statistics

TEMPC at the left edge of a root clause:

- ▶ non-integrated vs. integrated: 25 vs. 13
- ▶ non-integrated *when*-clauses: 80%
- ▶ non-integrated *before*-clauses: 67%

TEMPC at the right edge, right-adjoined to VP/TP

- ▶ non-integrated vs. integrated: 14 vs. 22
- ▶ non-integrated *when*-clauses: 33%
- ▶ non-integrated *before*-clauses: 36%

- ▶ The percentages of non-integrated *when*- and *before*-clauses do not warrant treating them separately.
- ▶ If TEMPC at the left edge is not outside ROOTC, i.e. adjoined to CP, then weaker MATCHCLAUSE can be made responsible for isolating them phonologically.

Some statistics

TEMPC at the left edge of a subordinate clause:

- ▶ non-integrated vs. integrated: 13 vs. 10
- ▶ non-integrated *when*-clauses: 47%
- ▶ non-integrated *before*-clauses: 66%

⇒ There's still a tendency for non-integration, but TEMPC at left edge of subordinate clauses are:

- ▶ generally less complex and prosodic restructuring with other constituents is expected
- ▶ also less frequent (only 3 *before*-clauses)

⇒ weaker MATCHCLAUSE must therefore be active in subordinate clauses, too

Alternative to MATCHCLAUSE: ALIGNTOPIC?

- ▶ Bianchi (2000): left peripheral TEMPC located in SpecTopP
- ▶ Although TEMPC are often recoverable from the previous discourse, they can be part of the focus of a specificational sentence:

And the other thing about Wolfgang was [_{CP} that, when he won the Turner Prize in 2000, there was this debate about whether that was OK, because he was German], which is really hard to imagine now.

- ▶ TEMPC can be an existential construction:

A: The very fact that you have that many opera houses across the country demonstrates just how well the arts are **funding** as a whole.

B: That's true, but when there are **cuts**, it also means when there's **austerity**, it also means that they're very hard hit by that.

Positional restrictions for fronted TEMPC

TEMPC occur at the left edge of clauses that make (independent) assertions and permit root transformations (Hopper & Thomson 1973)

- ▶ main clauses
- ▶ *that*-complements of non-factive predicates (*say, suppose, think*)
- ▶ adverbial *because*-clauses
- ▶ concessive clauses
- ▶ extraposed subject-clauses

[I wanted very much for the ending to remain the same]_ℓ [**even though** when I was writing the book]_ℓ [I was initially both surprised and appalled by my own ending]_ℓ

[(but it's worth mentioning) (**that in the 1890s**) (just before she died)]_ℓ [(**she at that point**) (**is already a grande dame**) (**you might say of Impressionism**)]_ℓ

Phonologically protected positions

TEMPC in initial position of a root clause or clause with root (i.e. assertive) properties are

- ▶ prosodically salient
- ▶ perceptually identifiable
- ▶ largely protected against phonological integration

The same holds for evaluative adverbs, which form an ι in S-initial position, but not in S-final position, where they form at most a ϕ (audio material in Wells 2006):

- (19) a. [Unfortunately] $_{\iota}$ [I lost your letter] $_{\iota}$
b. [(I lost your letter)(unfortunately)] $_{\iota}$

Positional faithfulness

Striking similarity to phonologically protected positions in the segmental domain, the asymmetry between root-initial and non-initial syllables

Root-initial syllables:

- ▶ exhibit a larger number of vocalic and consonantal contrasts than non-initial syllables
- ▶ are protected against neutralisation of segmental contrasts (e.g., vowel harmony, vowel reduction, assimilation)
- ▶ play a key role in lexical access, word recognition and speech production

Positional faithfulness (Beckman 1999):

(20) IDENT- σ_1 (F) \gg Markedness constraint(s) \geq Ident(F)

Positional faithfulness at the syntax-phonology interface

Extending this analysis to root-initial clauses:

$\text{MATCHCLAUSE}_{\text{byPosition}} \gg \text{M. constr.} \gg \text{MATCHCLAUSE}$

Generalisations to be accounted for:

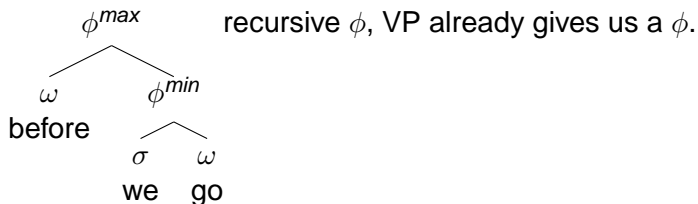
- ▶ A TEMPC at the left-edge of a root clause forms an ι even if it is not complex.
- ▶ Only if the left edge of the root clause is shared with other constituents can it lose its prosodic integrity.
- ▶ At the left edge of a subordinate clause the TEMPC and the remnant host clause form a ϕ or ι depending on their size.
- ▶ The markedness constraint is therefore a size constraint:

(21) $\text{BIN-}\iota$: An ι is binary branching.

The ranking allows TEMPC to form an ι even if it contains only one ϕ

Positional faithfulness in root clauses: (short) TEMPC realised as an ι

[(Before we go)] ι [(we wanted to remember) (Clem Burke)] ι
[(the drummer of Blondie)] ι . He's died from cancer.



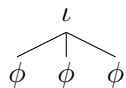
EQUALSISTERS: Sister nodes in prosodic structure are instantiations of the same prosodic category. (Myrberg 2013)

NONRECURSIVITY ι : Recursive ι 's are banned. (Selkirk 1995)
(cf. also Dehé 2009, Hamlaoui & Szendrői 2017, Göbbel 2024)

Positional faithfulness in root clauses: (short) TEMPC realised as an ι

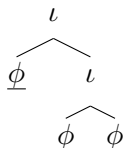
[(Before we go)] ι [(we wanted to remember) (Clem Burke)] ι
 [(the drummer of Blondie)] ι . He's died from cancer.

a.



MATCHCL_{byP}*

b.

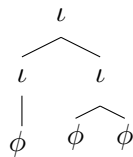


EQSIS*


MATCHCL_{byP}*

NONREC*

c.

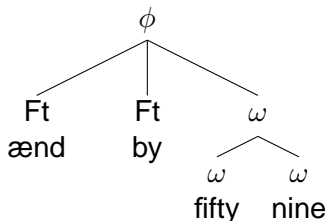


NONREC*

[_{CP} TEMPC [_{TP} ROOT]]	EqSis	MatchCl _{byP}	Bin- ι	MatchCl	NonRec
[ι $\boldsymbol{\varphi}$ φ ...] a.		*!	*	*	
[ι $\boldsymbol{\varphi}$ [ι φ ...]] b.	*!	*		*	*
 [ι [ι $\boldsymbol{\varphi}$] [ι φ ...]] c.			*		*

Restructuring: Temp. adverbial merged with a TEMPC into one ι

[(And by '59) (when this film was being organised)] $_{\iota}$, [(the bottom had fallen out)] $_{\iota}$. Two casinos actually went bankrupt.

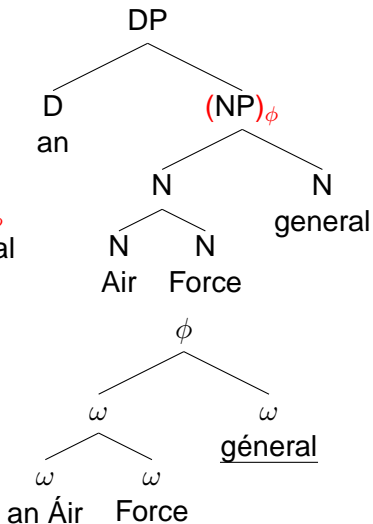
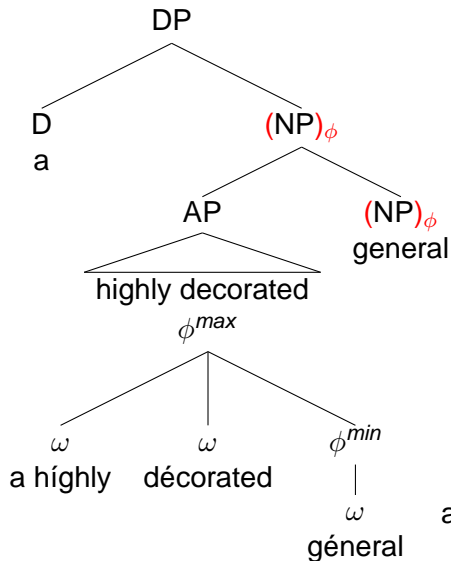


Minimal size constraint for ι required to prevent PP to form an ι .
Göbbel (2024): HNPS across a complex adverbial is possible if NP forms an ι :

(22) [The minister fired nine weeks before elections to Parliament] $_{\iota}$...

- a. *(a general) $_{\phi}$
- b. *(a decorated general) $_{\phi}$
- c. *(an Air Force general) $_{\phi}$
- d. [a highly decorated general] $_{\iota}$

Applying MATCHPHRASE



recursive ϕ can form an ι

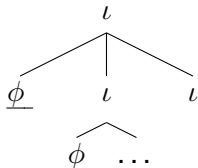
compound cannot form an ι

MIN- ι : An ι contains at least a recursive ϕ (i.e., a ϕ^{max})

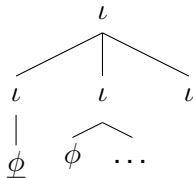
Restructuring: Temp. adverbial merged with a TEMPC into one ι

[(And by '59) (when this film was being organised)] ι , [(the bottom had fallen out)] ι . Two casinos actually went bankrupt.

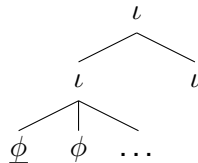
a.




b.



c.



[_{CP} PP TEMPC [_{TP} ROOT]]	EqSis	Min- ι	MatchCl _{byP}	Bin- ι
[_{\iota} $\boldsymbol{\phi}$ [_{\iota} ϕ ...] [_{\iota} ϕ ...]] a.	*			
[_{\iota} [_{\iota} $\boldsymbol{\phi}$] [_{\iota} ϕ ...] [_{\iota} ϕ ...]] b.		*		*
 [_{\iota} [_{\iota} $\boldsymbol{\phi}$ ϕ ...] [_{\iota} ϕ ...]] c.			*	*

Upgrading the default ϕ for PP to ι prevented by MIN- ι .

Generalisations on the prosodic effect of EQSIS

- ▶ A TEMPC preceded by a constituent not eligible to be mapped to an ι can also not form an ι
- ▶ Any prosodic constituent following an ι , must also be able to form an ι



a. [(And if you think about it) (*when you imagine Impressionist paintings*)] ι [you imagine works that are made with a very loose brush, often out of doors on plein air] ι

b. [Ironically] ι [*when she first read the script*] ι [she thought she was reading for the part that Roseanne Barr ultimately played] ι

b. [Interestingly] ι [(*whén I fírst picked up this bóok*) (I was thóroughly intéimidated) (by the líst) (the hélpful líst)] ι

Information-structural factors causing restructuring in root clauses/ preventing TEMPC to form an ι

- ▶ recoverability from context, e.g., when Bill Gates says:

[(*When I started Microsoft*) (I had this crazy view) (that we didn't need)] $_{\iota}$ [to have an office in Washington DC] $_{\iota}$ and ...

- ▶ defocussing with a default accent:

Yeah, we're used to thinking of them as public libraries.

[(*But before they were known as **p**ublic libraries*) (they were génerally known as frée libraries)] $_{\iota}$

TEMPC can still be realised as an ι :

But 40 was coming at me pretty swiftly and **I decided really to give up**.

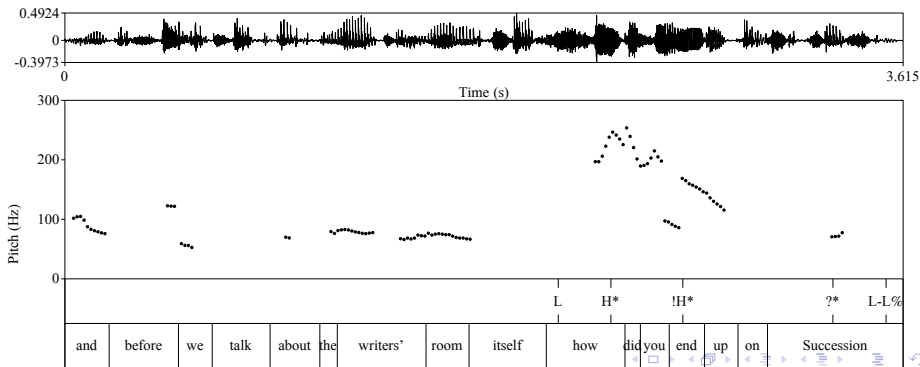
[**But when you decide to give up**] $_{\iota}$ [kind of all the jeopardy is gone] $_{\iota}$

Prosodic integration of 'syntactically non-integrated' modifier Sound

- ▶ deaccenting due to a 'late' prominent constituent
- ▶ TEMPC patterns with peripheral adverbial clauses, adjoined to CP (cf. Frey & Truckenbrodt 2015)

Written by a team of writers led by the series creator Jesse Armstrong

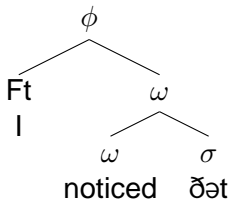
and before we talk about the writers' room itself HOW did you end up on Succession?




TEMPC at the left edge of a subclause is also subject to MATCHCL_{byP}

Restructuring light ROOT remnant with a TEMPC into one ι as a consequence of EQSIS

[(I noticed that) (when someone wins big on the slots)] _{ι} [the noise of the casino is like blblbl all this stuff] _{ι}



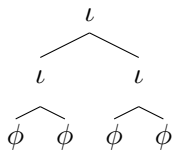
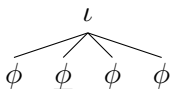
[_{CP} ROOT _L [_{CP} TEMPC [_{TP} COMPL]]]	EqSis	Min- ι	MatchCl _{byP}
[_{ι} $\boldsymbol{\varphi}$ ι ι] a.	*		
[_{ι} [_{ι} $\boldsymbol{\varphi}$] ι ι] b.		*	
 [_{ι} [_{ι} $\boldsymbol{\varphi}$ φ ...] ι] c.			*

Recursive vs. non-recursive ι 's: the relevance of BIN- ι


MATCHCLAUSE_{byPosition} \gg BIN- ι \gg MATCHCLAUSE

[(but there's a story about it) (*that when they were filming*) (the Americans turned up in Iraq) (with this statue of a demon)] ι

[(I assumed that) (*when I grew up*)] ι [(my life) (would then transition into Notting Hill)] ι



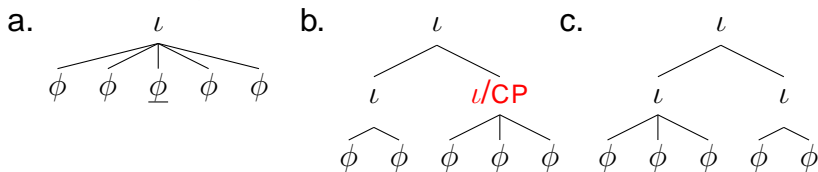
MATCHCL is violated whenever MATCHCLAUSE_{byPosition} is violated, but it also applies to complement clauses


[_{CP} ROOT [_{CP} TEMPC [_{TP} COMPL]]]	MatchCl _{byP}	Bin-t	MatchCl	NonRec
[_ι φ φ φ φ] a.	*	*!	**	
 [_ι [_ι φ φ] [_ι φ φ]] b.	*		**	*

Recursive ι 's: the relevance of weaker MATCHCL

- ▶ If possible, a sequence of ϕ 's will be split up in such a way that the complement clause forms an ι

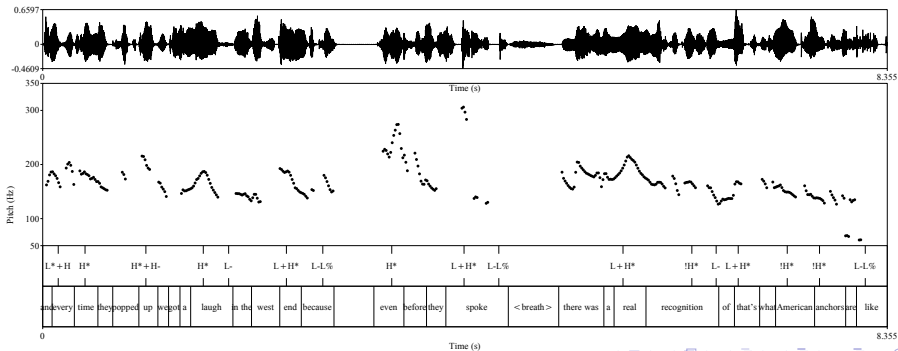
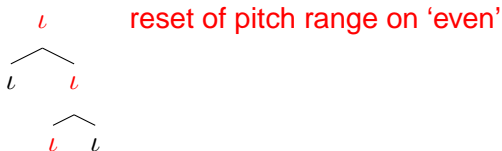
[(because it was very interesting) (hearing Alicia Rebecca say)] ι [(that when she saw them) (of course she loved them) (of course she did)] ι



[_{CP} ROOT [_{CP} TEMPC [_{TP} COMPL]]]	EqSis	MatchCl _{byP}	Bin-t	MatchCl	NonRec
[_{\iota} ϕ ϕ ϕ ϕ ϕ] a.		*	*	**!	
 [_{\iota} [_{\iota} ϕ ϕ] [_{\iota} ϕ ϕ ϕ]] b.		*	*	*	*
[_{\iota} [_{\iota} ϕ ϕ ϕ] [_{\iota} ϕ ϕ]] c.		*	*	**!	*

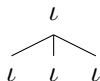
ROOTC, subclause and TEMPC form ι 's Sound

[[and every time they popped up we got a laugh in the West End because] _{ι} [[*even before they spoke*] _{ι} [there was a real recognition of that's what American anchors are like] _{ι}] _{ι}] _{ι}



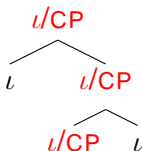
Recursive vs. non-recursive ι : the relevance of weaker MATCHCL

[Do you know] _{ι} [*that when the Hoover Dam is finished*] _{ι}
 [electrical power is going to be available on a massive scale in
 Las Vegas?] _{ι}

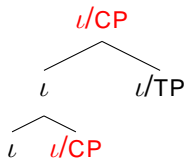



[[and every time they popped up we got a laugh in the West
 End because] _{ι} [[*even before they spoke*] _{ι} [there was a real
 recognition of that's what American anchors are like] _{ι}] _{ι}] _{ι}

a.



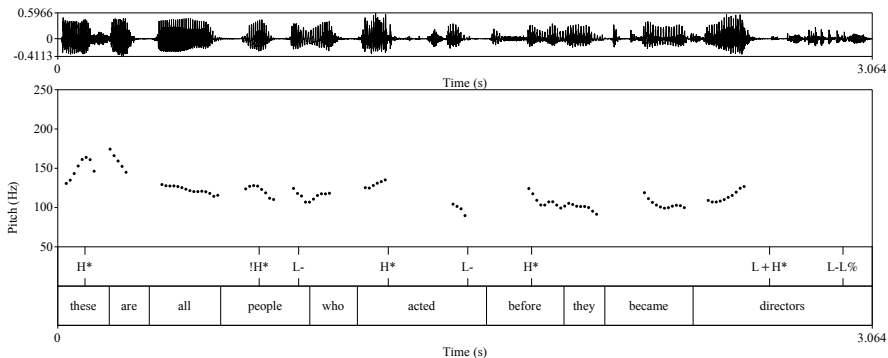
b.



[_{CP} ROOT [_{CP} TEMPC [_{TP} COMPL]]]	MatchCl _{byP}	MatchCl	NonRec
 [_ι [_ι [_ι]]] a.			**
[_ι [_ι [_ι]]] b.		*!	**

TEMPC at the right edge: normal or faster speech rate Sound

[(these are all people) (who acted) (before they became directors)]_ℓ

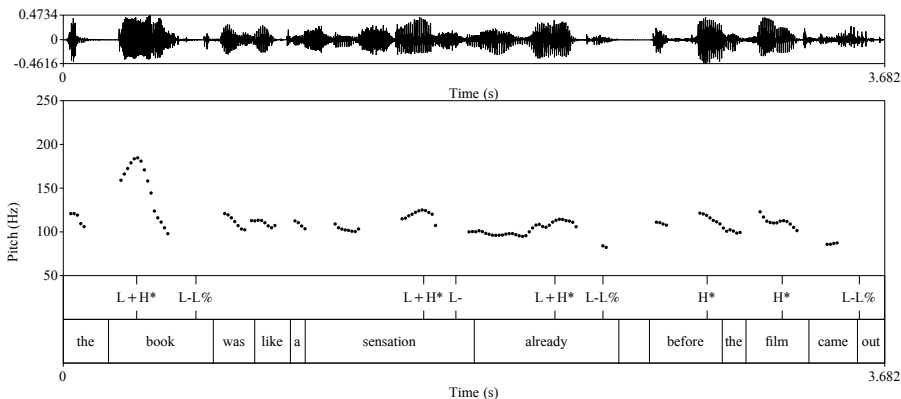


Main task: the conditions under which TEMPC forms separate ℓ

TEMPC at the right edge: slower speech rate Sound

But I didn't love that film.

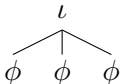
[(the book)]_L [(was like a sensation) (already)]_L [(before the film came out)]_L



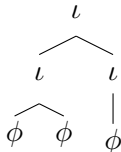
Ranking for normal / faster speech rate: NONREC \gg MATCHCL

Ranking for slower speech rate: MATCHCL \gg NONREC

a.



b.

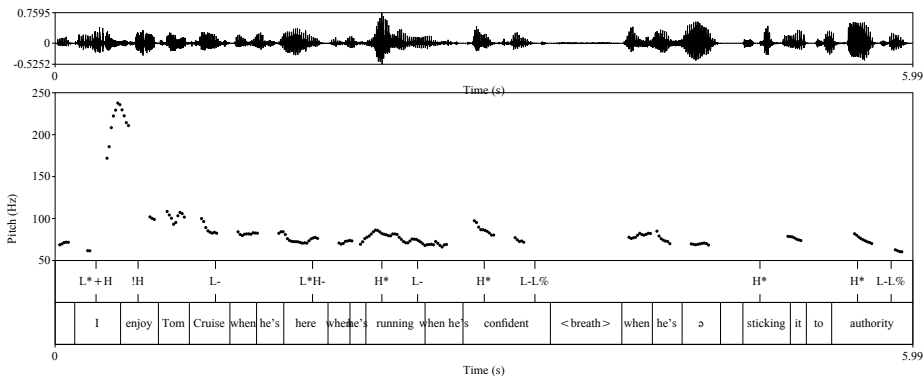


these are all people who acted before they became directors	MatchCl _{byP}	Bin-t	NonRec	MatchCl
[l (these are all people) (who acted) (before they became directors)] a.		*		*
[l (these are all people) (who acted)] [l (before they became directors)] b.		*	*!	

these are all people who acted before they became directors	MatchCl _{byP}	Bin-t	MatchCl	NonRec
[l (these are all people) (who acted) (before they became directors)] a.		*	*!	
[l (these are all people) (who acted)] [l (before they became directors)] b.		*		*

Stacking of TEMPC Sound

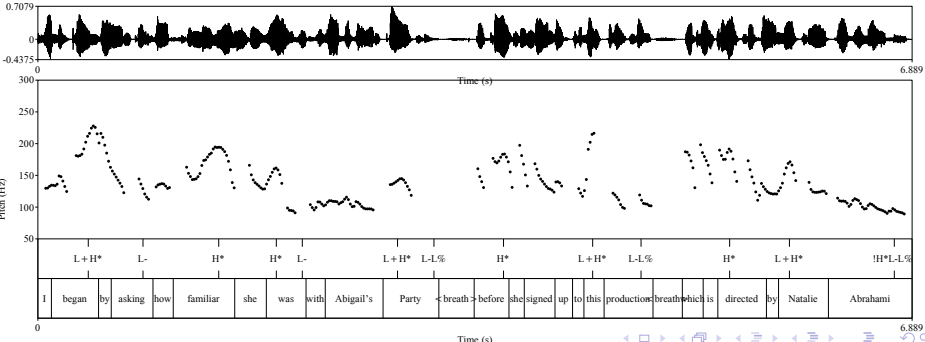
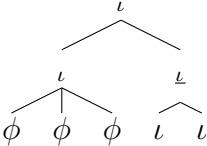
you can enjoy Tom Cruise in this mode and
[(I enjoy Tom Cruise) (when he's here) (when he's running)
(when he's confident)]_L [(when he is sticking it to authority)]_L



EQSis effect: TEMPC forced to form an ι by final appositive Sound

[(I began by asking) (how familiar she was) (with Abigail's Party)] $_{\iota}$ [[(before she signed up to this production)] $_{\iota}$ [(which is directed by Natalie Abrahami)] $_{\iota}$] $_{\iota}$

reset of pitch range within TEMPC



TEMPC contains an emphatically accented constituent Sound

- ▶ the TEMPC forms a separate ι and is detached from the ROOTC if the latter is not defocused.
- ▶ the TEMPC is the **prosodic head** of a recursive ι (i.e., ι^{max})

Here's Venice and here's Rome, which wasn't built in a day and here –

[you're about five ten minutes into it] _{ι} [before you realise it's a JOKE] _{ι} It's a Monty Python spoof ...

ι^{max}

ι ι

Conclusions

This study of TEMPC focused mainly on the left periphery of root and subordinate clauses. The goal was to shed some light on Downing's phrasing asymmetry, with the following results:

- ▶ There are no clear prosodic differences between *when*- and *before*-clause, neither at the left nor at the right periphery. Particularly the different adjunction sites at the right periphery (VP/TP) have no prosodic effect.
- ▶ Downing's left-right asymmetry can certainly be upheld, but additional adjuncts at the left edge or the size of the material preceding TEMPC in subordinate clauses affects their realisation as separate *ι*'s
- ▶ The account of prosodic non-integrativity at the left edge has implemented *positional faithfulness* for intonational phrasing, i.e., the (weaker) MATCHCLAUSE has a higher ranked variant for the left edge of root clauses and clauses with root/assertive properties.
- ▶ I have also identified some causes for separate phrasing of TEMPC at the right edge

References

- Beckman, Jill N. 1999. Positional Faithfulness: An Optimality Theoretic Treatment of Phonological Asymmetries. Routledge.
- Bianchi, Valentina. 2000. On time adverbials. Italian Journal of Linguistics 12(1): 77–106.
- Bing, Janet M. 1979. Aspects of English prosody. Ph.D. thesis, University of Massachusetts, Amherst.
- Bruening, Benjamin. 2018. CPs move rightward, not leftward. Syntax 21(4): 362–401.
- Dehé, Nicole. 2009. Clausal parentheticals, intonational phrasing, and prosodic theory. J. Ling. 45(03): 569–615.
- Downing, Bruce T. 1970. Syntactic structure and phonological phrasing. Ph.D. thesis, University of Texas at Austin.
- Ernst, Thomas. 2002. The Syntax of Adjuncts. Cambridge: Cambridge University Press.
- Ernst, Thomas. 2004. Principles of adverbial distribution in the lower clause. Lingua 114(6): 755–777.
- Frey, Werner & Hubert Truckenbrodt. 2015. Syntactic and prosodic integration and disintegration in peripheral adverbial clauses and in right dislocation/afterthought. Syntactic Complexity across Interfaces, edited by Andreas Trotzke & Josef Bayer, 75–106, Walter de Gruyter.
- Göbbel, Edward. 2024. Heavy NP shift in English: Phonological solutions. Phonological Externalization vol. 9, edited by Hisao Tokizaki, 39–74, Sapporo: Sapporo University.

- Haegeman, Liliane, Eric T Lander & Manuela Schönenberger. Forthcoming. Adverbial clauses: Some speculations on the division of labour between sentence and discourse. Handbook of Clausal Embedding, edited by Anton Benz, Werner Frey, Hans-Martin Gärtner, Manfred Krifka, Mathias Schenner & Marzena Żygis, Berlin: Language Science Press.
- Hamlaoui, Fatima & Kriszta Szendrői. 2017. The syntax-phonology mapping of intonational phrases in complex sentences: A flexible approach. Glossa 2(1).
- Hooper, Joan B & Sandra A Thompson. 1973. On the applicability of root transformations. Linguistic inquiry 4(4): 465–497.
- Ishihara, Shinichiro. 2022. On the (lack of) correspondence between syntactic clauses and intonational phrases. Prosody and Prosodic Interfaces, edited by Haruo Kubozono, Junko Ito & Armin Mester, 420–456, Oxford University Press.
- Kratzer, Angelika & Elisabeth Selkirk. 2020. Deconstructing information structure. Glossa 5(1): 1–53.
- Myrberg, Sara. 2013. Sisterhood in prosodic branching. Phonology 30(1): 73–124.
- Schönenberger, Manuela & Liliane Haegeman. 2023. English rationale *since* and a reassessment of the typology of adverbial clauses. Micro- and Macro-variation of Causal Clauses: Synchronic and Diachronic Insights, edited by Łukasz Jędrzejowski & Constanze Fleczyreck, 129–166, John Benjamins.
- Selkirk, Elisabeth. 2009. On clause and intonational phrase in Japanese: The syntactic grounding of prosodic constituent structure. Gengo Kenkyu 136: 36–73.
- Selkirk, Elisabeth. 2011. The syntax-phonology interface. The Handbook of Phonological Theory, 2nd edition, edited by John A. Goldsmith, Jason Riggle & Alan C. L. Yu, 435–486, Oxford and Malden, Mass.: Wiley-Blackwell.
- Thompson, Ellen. 2005. Time in Natural Language: Syntactic interfaces with semantics and discourse. Walter de Gruyter.