



# PROSODY AND CHUNKING

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# Overview

1. Definitions, inspiration, background
2. Material and method
3. Little insight into examples and analyses

# What is prosody and what does it do?

As always, there many many different definitions

"[Prosody is a] term used in suprasegmental phonetics and phonology to refer collectively to variations in **pitch**, **loudness**, **tempo** and **rhythm**. [...]" (Crystal 2008)

"[Prosody comprises] phonological features, i.e., language-specific features related to the planning of an utterance, include the **length of the intonation unit**, **choice of tone**, and **accent placement**, while phonetic features, i.e., features of speech production, comprise **duration**, **intensity** (i.e., loudness), and **pitch range**" (Wichmann 2005)



# What is prosody and what does it do?

"[T]he term prosody subsumes at least the following auditory aspects of speech: **loudness** (a component of 'stress'), **duration** (a component of 'rhythm' and 'tempo'), **pitch** (a component of 'intonation') and **pause**." (Couper-Kuhlen 1986)

etc. etc. (e.g., Crystal 1969, 1975, Chomsky & Halle 1968, Wells 2006, Carr 2020)

=> **Loudness** (intensity/amplitude), **duration** (time), **pitch** (f0 variations) are mentioned in all of these definitions

# What is prosody and what does it do?

Functional definition:

“‘Prosody’ is often used to refer to those phonetic and phonological properties of speech that are crucially not due to the choice of lexical items, but rather depend on other factors such as **how these items relate to each other** semantically and/or syntactically, **how they are grouped** rhythmically, **where the speaker places emphasis**, what kind of **speech act** the utterance encodes, whether **turn taking** in conversation is being negotiated, and they can reflect the **attitude and emotional state** of the speaker.” (Wagner & Watson 2010)



# Chunks and chunking

Chunk == unit of language

- (a) **A cognitive unit**, maximally consisting of one newly activated concept and (optionally) some already active (or semi-active) concepts;
- (b) **a textual unit**, consisting of a part typically carrying new information and optionally preceded by a part carrying given information;
- (c) **a prosodic unit**, manifested as a coherent intonation contour optionally bounded by a pause and containing (among other things) a salient pitch movement (the nucleus), normally at the end of the unit;
- (d) **a grammatical unit**, containing at least one phrase or clause element but often a more extensive grammatical structure." (Altenberg 1987)

# Chunks and chunking

Chunk == unit of language

Prosodic chunks, aka intonation units tend to correspond to grammatical structures (e.g., Crystal 1969, 2008, Couper-Kuhlen 1986)

"It is clear the [prosodic phrase-structure cues] do not simplify processing simply by providing (arbitrary) chunking of utterances, since prosodic phrasing is not as helpful if it is not **syntactically motivated**." (Warren 2013)

If prosody and grammar seemingly do not match, then this might reveal different syntactic structure than assumed (Wagner & Watson 2010)



# Chunks and chunking

"*chunking* is a **repetition-driven** routinization and usualization **process** driven by the **strengthening of syntagmatic associations between the elements of recurrent sequences**. It **develops gradually** over a potentially long period of time, marked by stages in which older and more advanced uses of a pattern coexist within communities and even within the usage repertoires of individual speakers." (Schmid 2020)

== the more often a specific string of linguistic items occurs, the more the boundaries between these items are reduced

Common example: compounding



# The problem

Chunking is usually studied using large language corpora to investigate frequently co-occurring patterns

Reliance on collocation

Reliance on spelling

=> But if we already know (or assume) that prosody chunks discourse into prosodic units which correspond to grammatical units and elements that frequently co-occur in a sequence, then prosody should be an important clue to figure out if elements are chunked, or how they are chunked

# Research question

What is the prosodic structure of previously identified chunking phenomena, and how did this prosodic structure develop over time?

- 1) *Sort of/kind of/type of* (SKT) construction
- 2) *Every time/any time*
- 3) *NP is is that vs NP is that* construction



# Material: “historical” data

London-Lund-Corpus (Svartvik & Quirk 1980)

- Prosodically annotated corpus of British English
- Material from 1960s and 70s
- Different types of spoken language, e.g., face-to-face conversations, radio interviews, political debates, speeches (both spontaneous and prepared language)
- Mostly high register

London\_Lund\_Corpus\_1 - Editor

Datei Bearbeiten Format Ansicht Hilfe

3	5b	35	8800	1	1	A	11	2so ((I ^couldn't s\ay#)) .	/
3	5b	35	8810	1	1	B	11	2well ^which \others 'would you . {^ch\aracterize#}# /	
3	5b	35	8820	1	1	B	11	2as ^tragedies of !c\ircumstance# - -	/
3	5b	36	8830	1	1	A	11	2[a: ae] ^Antony and Cleo:p\atra# .	/
3	5b	36	8840	1	2	A	12	2I think ^taking [dhi:] . ^[dhi: @m] . !l\ove	/
3	5b	36	8840	1	1	A	12	2'story 'theme#	/
3	5b	36	8850	1	1	A	11	2^set beside :Romeo and !J\uliet# -	/
3	5b	36	8860	1	1	A	11	2[@:m] . I ^don't think . :{R\omeo} . or :J\uliet#	/
3	5b	36	8870	1	1	A	11	2are . are ex^plored very d/eePLY# .	/
3	5b	36	8880	1	1	A	11	2as ^ch\aracters# -	/
3	5b	36	8890	1	1	A	20	2*((as [@m]))*	/
3	5b	36	8900	1	2	B	11	2*do you* ^think that`s !n\ecessary +. {in a	/
3	5b	36	8900	1	1	B	11	2^tr\agedy#}#+	/
3	5b	36	8910	1	1	A	11	2+[@m] --+ ^n\o#	/
3	5b	36	8920	1	2	A	12	2^I [w - @] it ^is for [@] - the :t\ype of	/
3	5b	36	8920	1	1	A	12	2Shakes'pearian 'tragedy that# -	/
3	5b	37	8930	1	2	A	11	2((2 sylls)) de^velops . :l\ater than 'Romeo and	/
3	5b	37	8930	1	1	A	11	2J\uliet# .	/
3	5b	37	8940	1	2	A	11	2^[dhi: dhi:] . !character ((of)) . the :tr\agedy	/
3	5b	37	8940	1	1	A	11	2'whereby# .	/



# Material: contemporary data

London-Lund-Corpus 2 (Põldvere et al. TBD)

- Similar sociodemographic composition as LLC1
- Recorded between 2015 - 2017
- No prosodic annotation but audio files for acoustic analysis

# SKT constructions

Overall very well studied (Studies ranging from grammatical descriptions both synchronic and diachronic, semantic descriptions, pragmatic descriptions and also prosodic descriptions e.g., Aarts 1998, Aijmer 2002, Brems 2010, Brems 2012, Brems & Davidse 2010, **Dehé & Stathi 2016**, Fetzer 2010, Margerie 2010, **Traugott 2008** etc. etc.)

**[NP] [of NP] > [NP of] [NP] > [NP (of)] [X]**

- 1) *It's the [sort] [of book she likes.]*
- 2) *There are [these [sort of] restrictions.]*
- 3) *He's [sort of] [getting by.]*



# SKT constructions

1) *It's the [sort] [of book she likes.]*

**Binominal** (Dehé & Stathi 2016) or pre-partitive stage (Traugott 2008)

Denotes group membership, N1 full noun, N1 and N2 in number agreement, determiners in front of N1 agree with N1

2) *There are [these [sort of] restrictions.]*

**Qualifying** (Dehé & Stathi 2016) or partitive stage (Traugott 2008)

Denotes pseudo-group/non-prototypical group membership, N1 qualifier, downtoner, hedge, determiners in front of N1 usually agree with N2

3) *He's [sort of] [getting by.]*

**Adverbial** (Dehé & Stathi 2016) or degree adverb stage (Traugott 2008)

Denotes uncertainty, N1 discourse marker, "N2" becomes X, i.e., can belong to any word class

# SKT constructions

Prosodic pattern (Dehé & Stathi 2016)

Prosodic pattern 1: N1 or N1\_det or both are stressed. > binominals (30%)

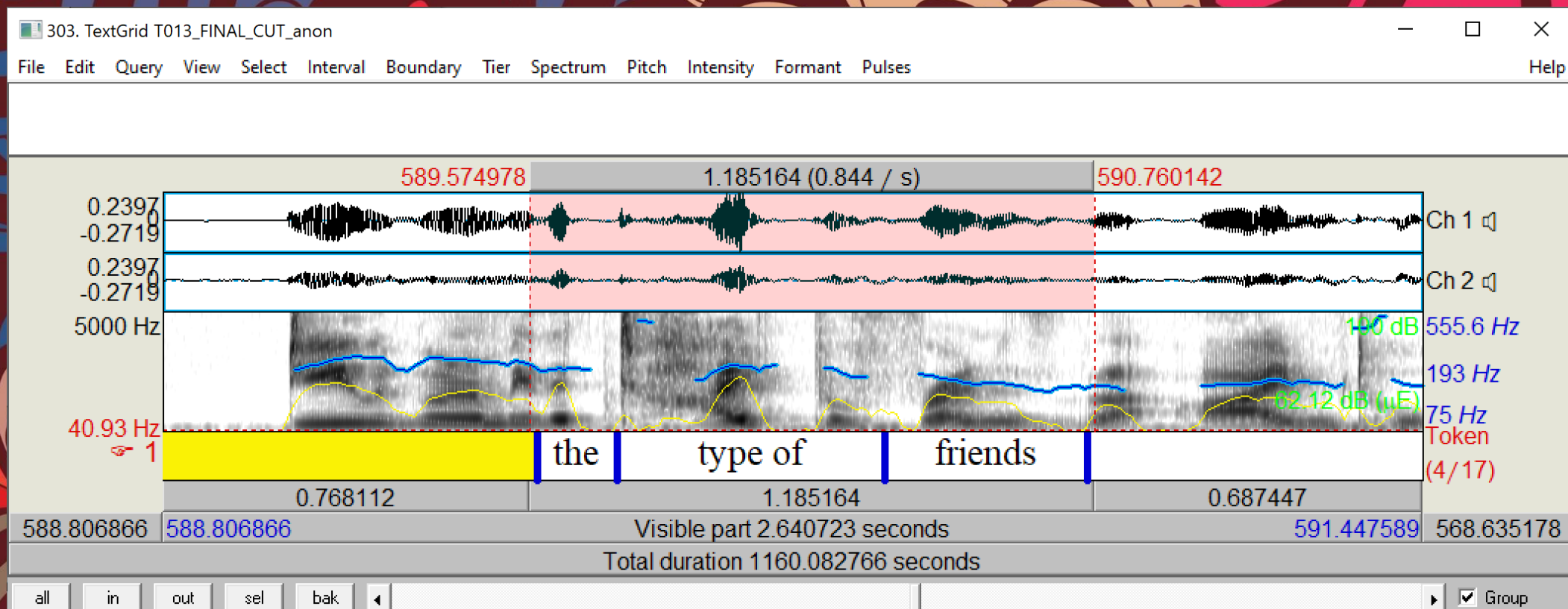
Prosodic pattern 2: N2 or N2\_det or both are stressed. > binominals (20%), qualifying (90%), adverbials (60%)

Prosodic pattern 3: N1 or N1\_det and N2 are stressed. > binominals (50%)

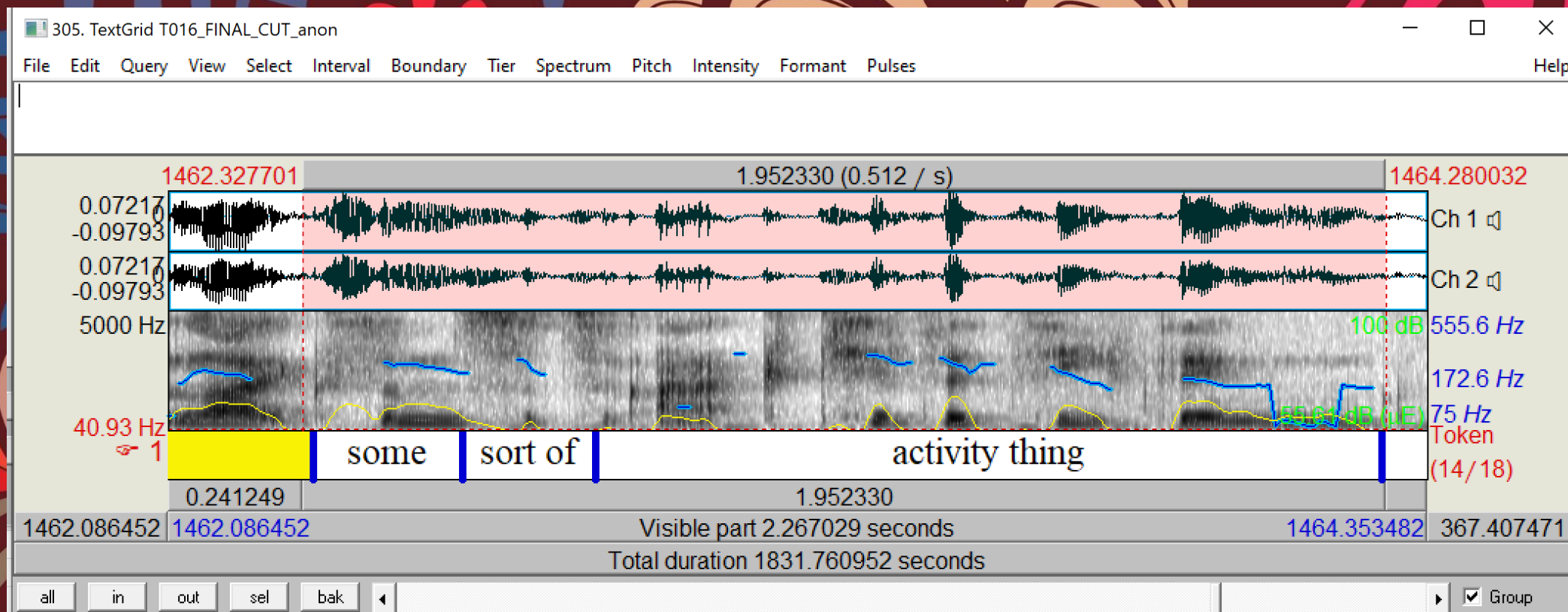
Prosodic pattern 4: unstressed > adverbial constructions



# Example: binominal

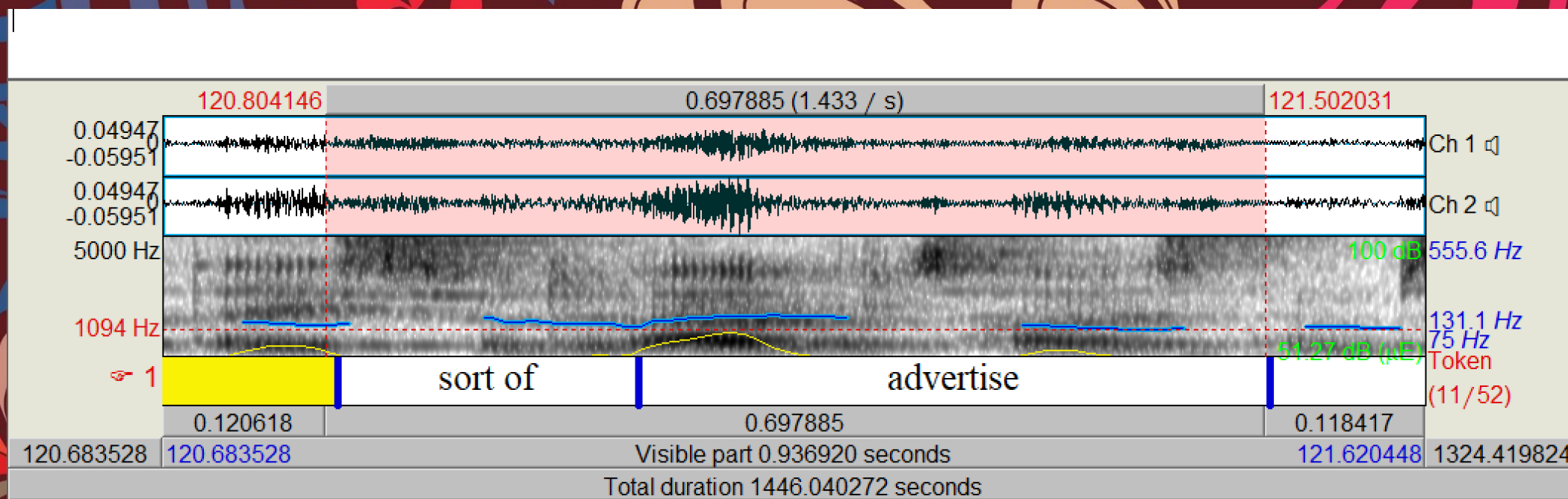


# Examples: qualifying





# Examples: adverbial





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