

LREC-Workshop on XML-based richly annotated corpora, Lisbon, 29 May 2004

# Transcribing and annotating spoken language with EXMARaLDA

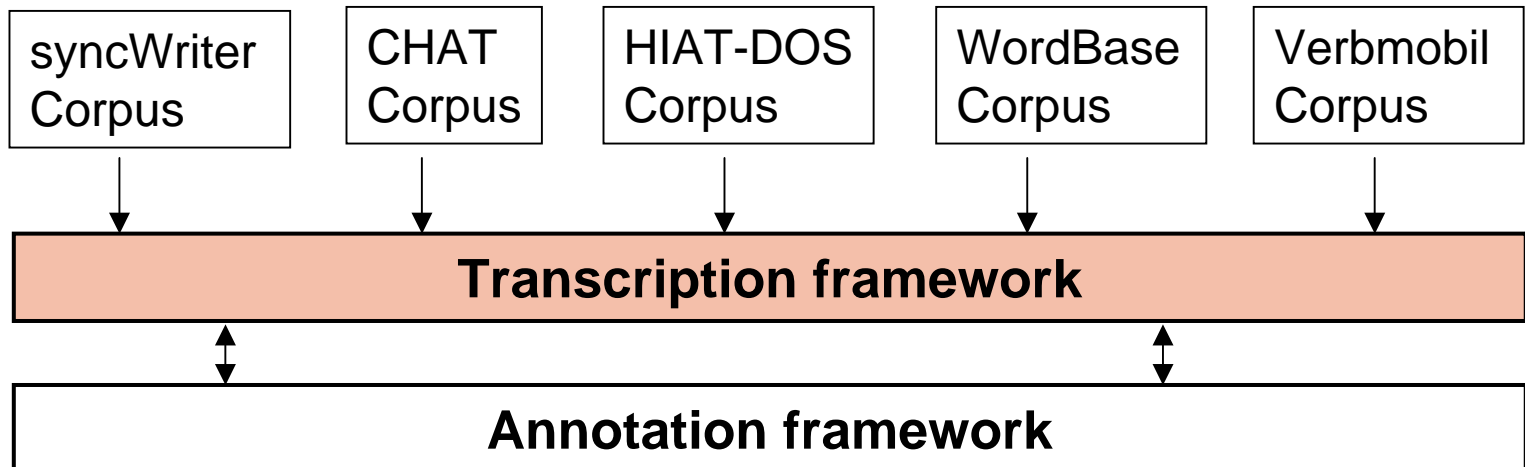
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- Richly annotated corpora?
- Richly **annotatable** corpora?
  - Corpus creation
  - Exchangeability
  - Framework for things to be annotated?
    - Framework for annotations



# Partitur Transcriptions

DS [sup]

*faster*

DS [v] Okay. D'accord d'accord.

DS [en] Okay. Agreed, agreed.

DS [nv]

*right hand raised*

FB [v]

Alors ça dépend ((cough)) un petit peu.

FB [en]

That depends then, a little bit.

FB [pho]

[étipø:]

# Partitur Transcriptions

DS [sup]	<i>faster</i>
DS [v]	Okay. D'accord d'accord.
DS [en]	Okay. Agreed, agreed.
DS [nv]	<i>right hand raised</i>
FB [v]	Alors ça dépend ((cough)) un petit peu.
FB [en]	That depends then, a little bit.
FB [pho]	[étipø:]

*Structural relations:*

1. Temporal sequence

# Partitur Transcriptions

DS [sup]	<i>faster</i>	
DS [v]	Okay. D'accord d'accord.	
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FB [v]		Alors ça dépend ((cough)) un petit peu.
FB [en]		That depends then, a little bit.
FB [pho]		[étipø:]

## *Structural relations:*

1. Temporal sequence
2. Simultaneity

# Partitur Transcriptions

DS [sup]	<i>faster</i>	
DS [v]	Okay. D'accord d'accord.	
DS [en]	Okay. Agreed, agreed.	
DS [nv]	<i>right hand raised</i>	
FB [v]	Alors ça dépend ((cough)) un petit peu.	
FB [en]	That depends then, a little bit.	
FB [pho]		[étipø:]

## Structural relations:

1. Temporal sequence
2. Simultaneity
3. Equivalence („Flat“ annotation)

# Single timeline, multiple tiers

DS [sup]

*faster*

DS [v]

Okay. D'accord d'accord.

DS [en]

Okay. Agreed, agreed.

DS [nv]

*right hand raised*

FB [v]

Alors ça dépend ((cough)) un petit peu.

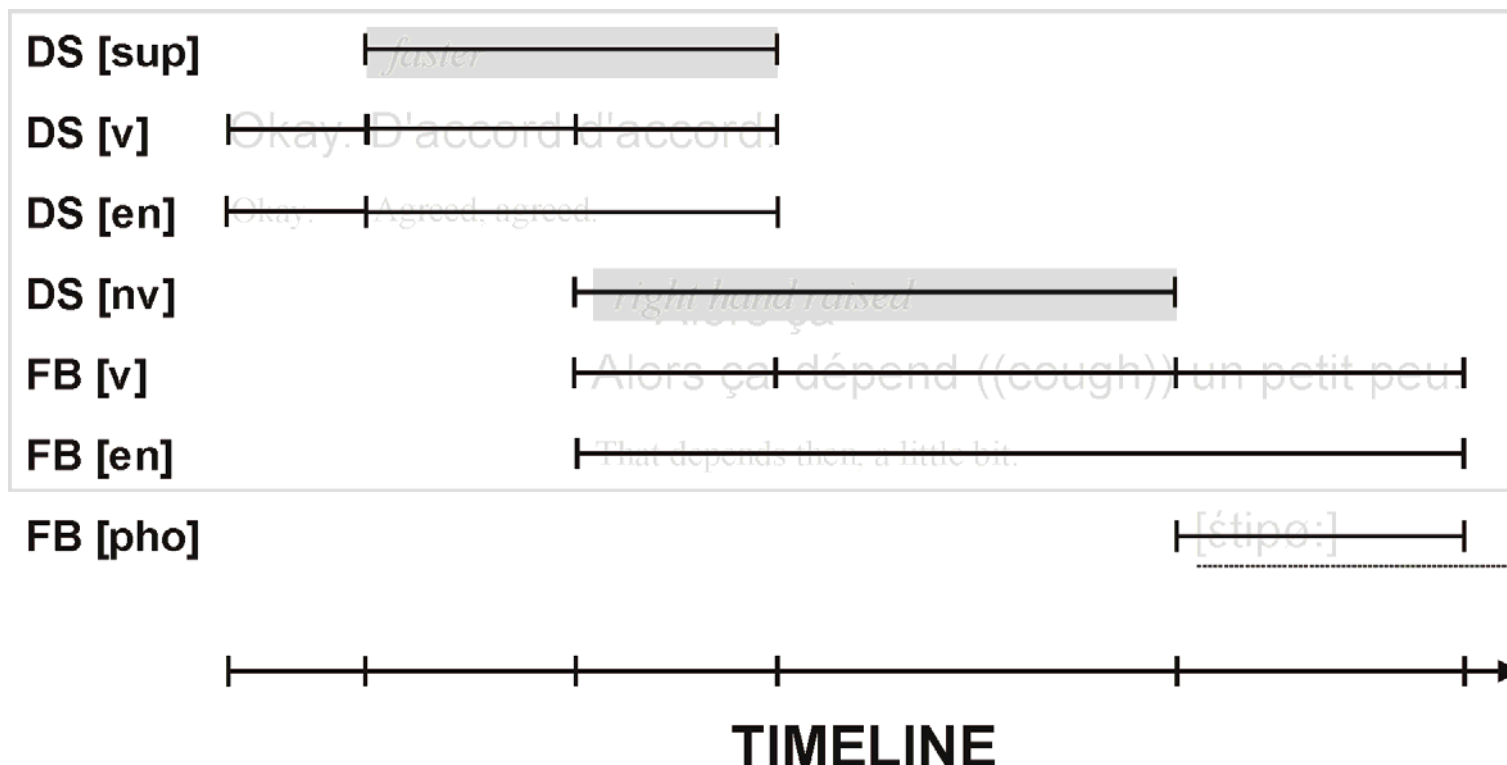
FB [en]

That depends then, a little bit.

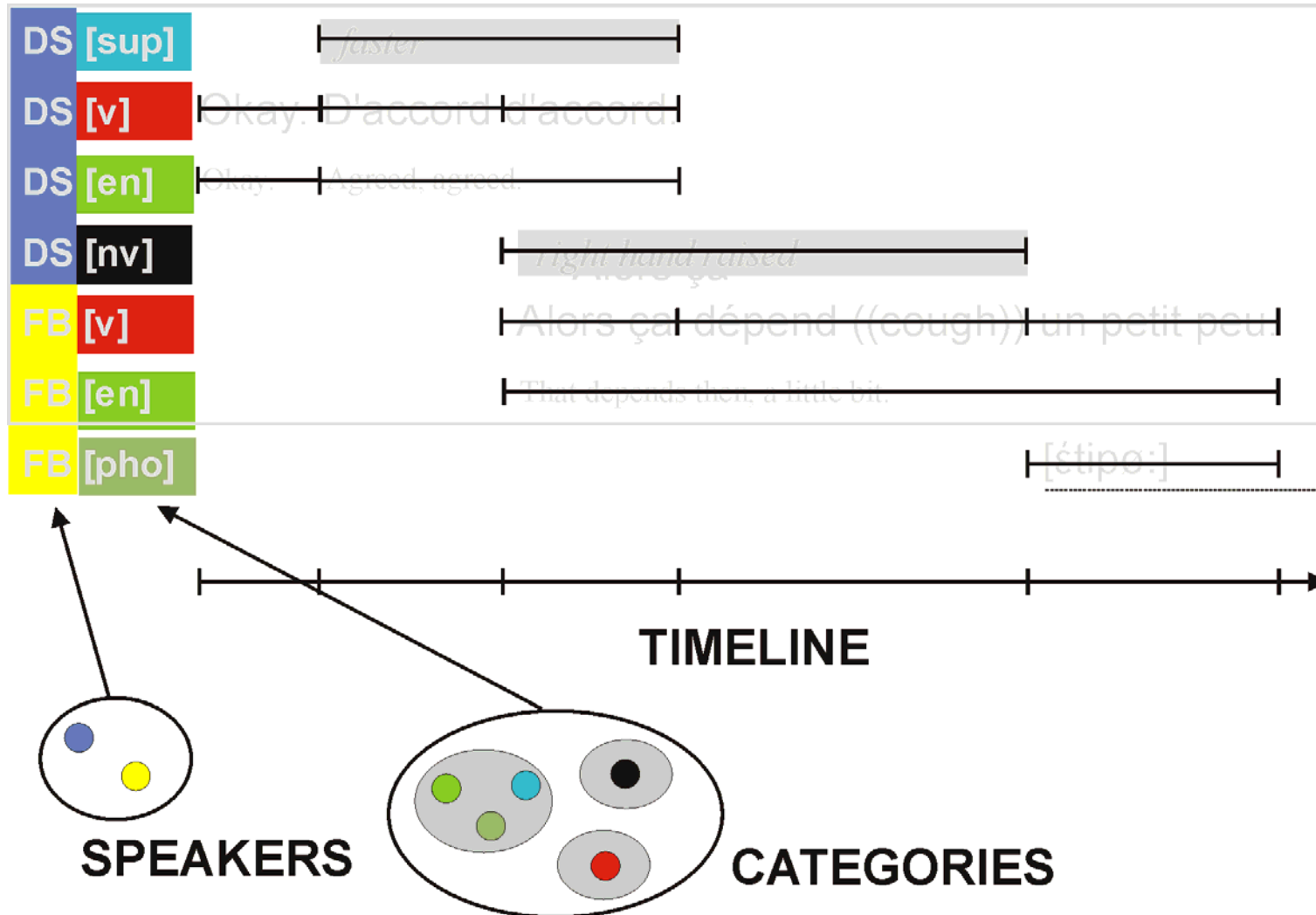
FB [pho]

[étipø:]

# Single timeline, multiple tiers



# Single timeline, multiple tiers



# EXMARaLDA Partitur-Editor

EXMARaLDA Partitur-Editor 1.2.7. [D:\LREC\Example.xml]

File Edit View Tier Event Timeline Format Segmentation Help








[ɛtipø:]





	p [1..2]	1	2	3	4	5	6
DS [sup]		faster					
DS [v]	Okay.	D'accord	d'accord.				
DS [en]	Okay.	Agreed, agreed.					
DS [mv]			right hand raised				
FB [v]			Alors ça	dépend ((cough))	un petit peu.		
FB [en]			That depends, then, a little bit				
FB [pho]					[ɛtipø:]		












Done.

## Graphical User Interface

# EXMARaLDA Partitur-Editor

Tier	Event	Timeline	Format	Segmentation
	Tier properties...			
	Add tier...			Strg+A
	Insert tier...			Strg+I
	Remove tier...			
	Move tier upwards			Strg+Oben
	Change tier order...			
	Hide tier			Strg+Alt+H
	Show all tiers			
Remove empty events				

Timeline	Format	Segmentation	Help
	Edit timeline item...		
	Insert timeline item		
	Remove gap		
Remove all gaps			
	Remove unused timeline items		
Make timeline consistent			
Interpolate timeline			
Remove interpolated times			

Event	Timeline	Format	Segmentation	Help
Event properties...				Strg+Eingabe
	Shift characters to the right			Strg+Umschalt+R
	Shift characters to the left			Strg+Umschalt+L
	Merge events			Strg+1
	Split			Strg+2
Double split				Strg+3
	Remove			Strg+D
	Extend to the right			Strg+Umschalt+Rechts
	Extend to the left			Strg+Umschalt+Links
	Shrink on the right			Strg+Alt+Rechts
	Shrink on the left			Strg+Alt+Links
	Move to the right			Strg+Rechts
	Move to the left			Strg+Links

**Manipulating tiers, the timeline and events**

# EXMARaLDA Partitur-Editor

[1]

DS [sup]	<i>faster</i>
DS [v]	Okay. D'accord d'accord.
DS [en]	Okay. Agreed, agreed.
DS [nv]	<i>right hand raised</i>
FB [v]	Alors ça dépend
FB [en]	That depends, then, a little bit

[2]

DS [nv]	
FB [v]	((cough)) un petit peu.
FB [en]	
FB [pho]	[ɛ̃tipø:]

**Visualization  
as a wrapped partitur**

DS [*right hand raised*]  
 Okay. D'accord d'accord.  
*{faster}*  
 Okay. | Agreed, agreed. }

FB Alors ça dépend ((cough)) un petit peu.  
 {That depends, then, a little bit  
 [ɛ̃tipø:]}

	DS [sup]	DS [v]	DS [en]	DS [nv]	FB [v]	FB [en]	FB [pho]
0		Okay.	Okay.				
1		D'accord	Agreed, agreed.				
2	faster	d'accord.			Alors ça		
3				right hand raised	dépend ((cough))	That depends, then, a little bit	
4					un petit peu.		[ɛ̃tipø:]
5							
6							

**... as a line transcript**

**... in column notation**

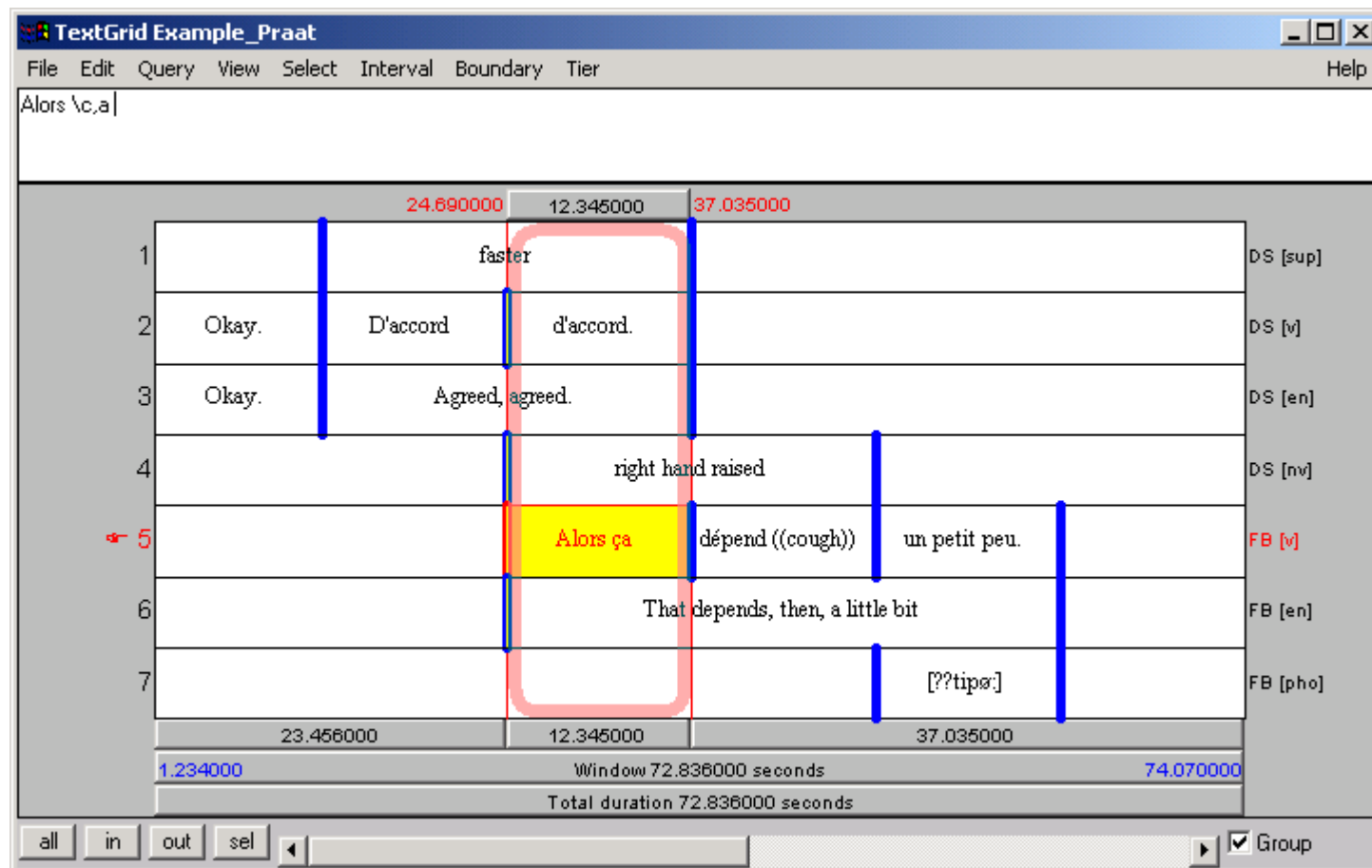
# TASX-Annotator

The screenshot displays the TASX-Annotator software interface. At the top, there is a menu bar with options: File, Edit, Tier, Element, Meta\_data, Options, Tools, and Help. Below the menu bar is a toolbar containing various icons for file operations, navigation, and editing. The main window is divided into several sections. The top section shows the current view mode: "Time aligned view", "HTML View", "Text view", and "Table View". Below this is a timeline with a scale from 0.0 to 7.0. The timeline is populated with several rows of data, each representing a different tier or element. The data is as follows:

Time	0.0	1	2	3	4	5	6	7
DS			faster					
DS		Okay.	D'accord	d'accord.				
DS		Okay.	Agreed, agreed.					
DS				right hand raised				
FB				Alors ça	dépend ((cou un petit peu.			
FB				That depends, then, a little bit				
FB							[ētipø:]	

At the bottom of the window, there is a status bar that reads: "Status: content = "faster", length = 2,00".

# PRAAT



# ELAN

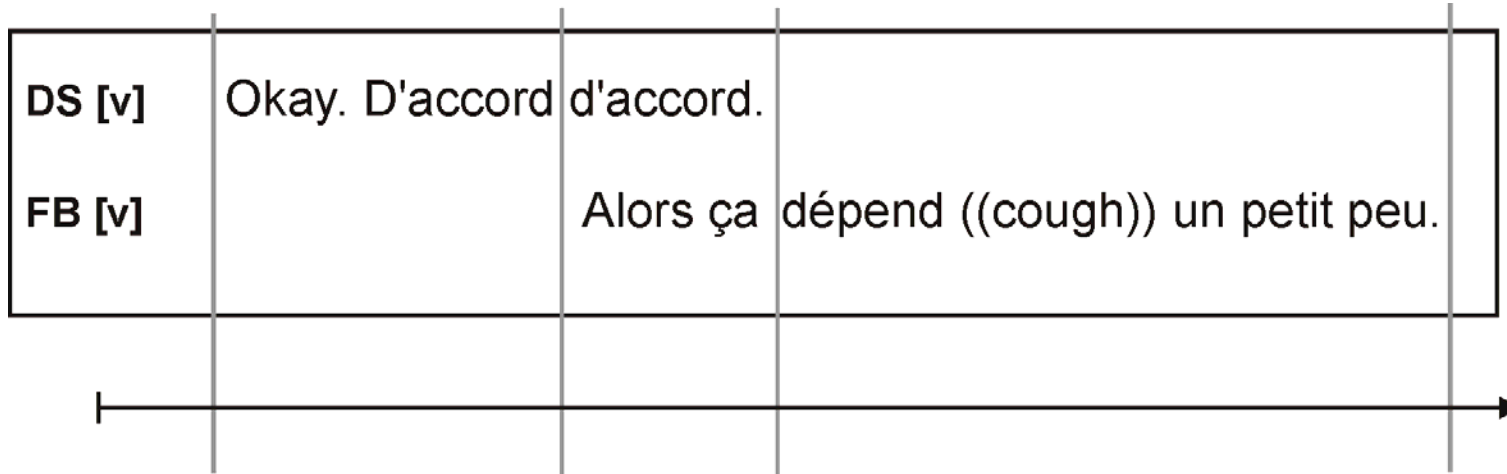
The screenshot displays the ELAN software interface for a file named "Elan - Example\_ELAN.eaf". The interface includes a menu bar (File, Edit, Search, View, Options, Help) and a toolbar with various editing and navigation tools. A central timeline shows a selection from 00:00:24.690 to 00:00:37.035. Below the timeline, several tracks are visible, each with a label and a corresponding transcription or annotation. A blue shaded region highlights a specific time interval across all tracks.

Track Label	Annotation
p] (TIE_SUP_SPK0)	faster
DS [M] (TIE_V_SPK0)	Okay. D'accord d'accord.
DS [en] (TIE0)	Okay. Agreed, agreed.
DS [nv] (TIE2)	right hand raised
FB [M] (TIE_V_SPK1)	Alors ça dépend ((cough)) un petit peu.
FB [en] (TIE1)	That depends, then, a little bit
[pho] (TIE_K_SPK1)	[&time;]

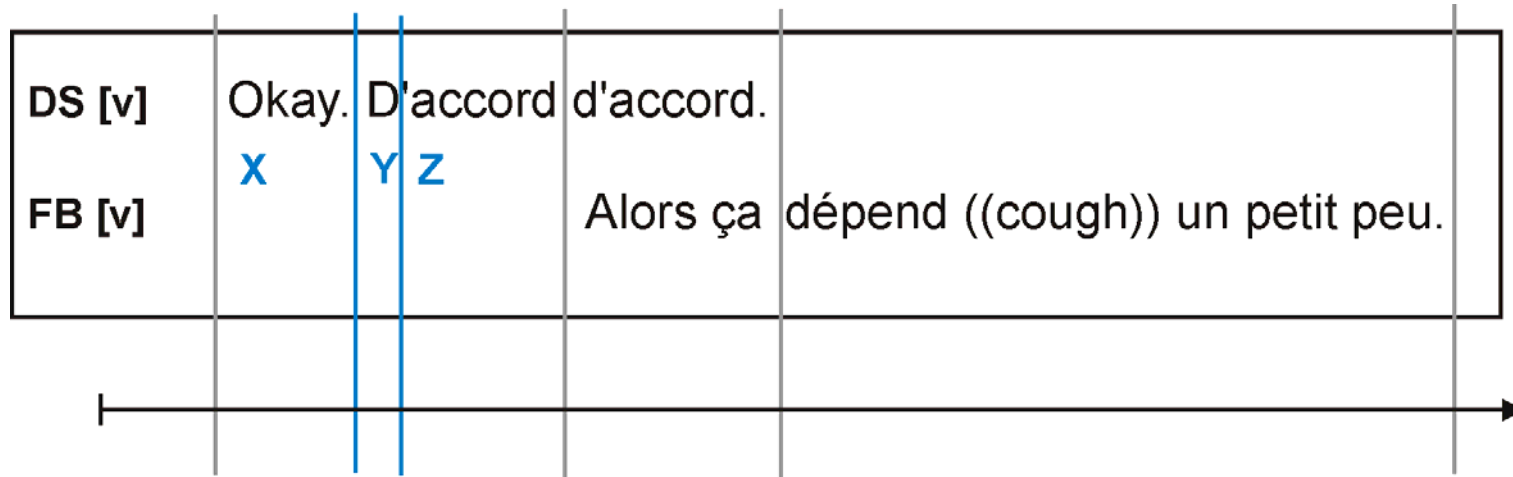
## Variants of „single timeline, multiple tiers“

	EXMARaLDA	TASX	Praat	ELAN
<b>Tier classification</b>	Types, Categories and speakers	Tier names	Tier names	Stereotypes, Linguistic Types and Participants
<b>Timeline</b>	Relative and/or absolute	Absolute	Absolute	Relative and/or absolute
<b>Overlap within tier</b>	No	Yes	No	Yes („Bulldozer mode“)
<b>Link to media</b>	Optional (Audio only)	Required (Video and Audio)	Required (Audio only)	Optional (Video and Audio)
<b>Extensions</b>	<b>Segmented Transcription</b>	TASX Level 2	None	Symbolic subdivisions, symbolic associations

# Beyond the single timeline

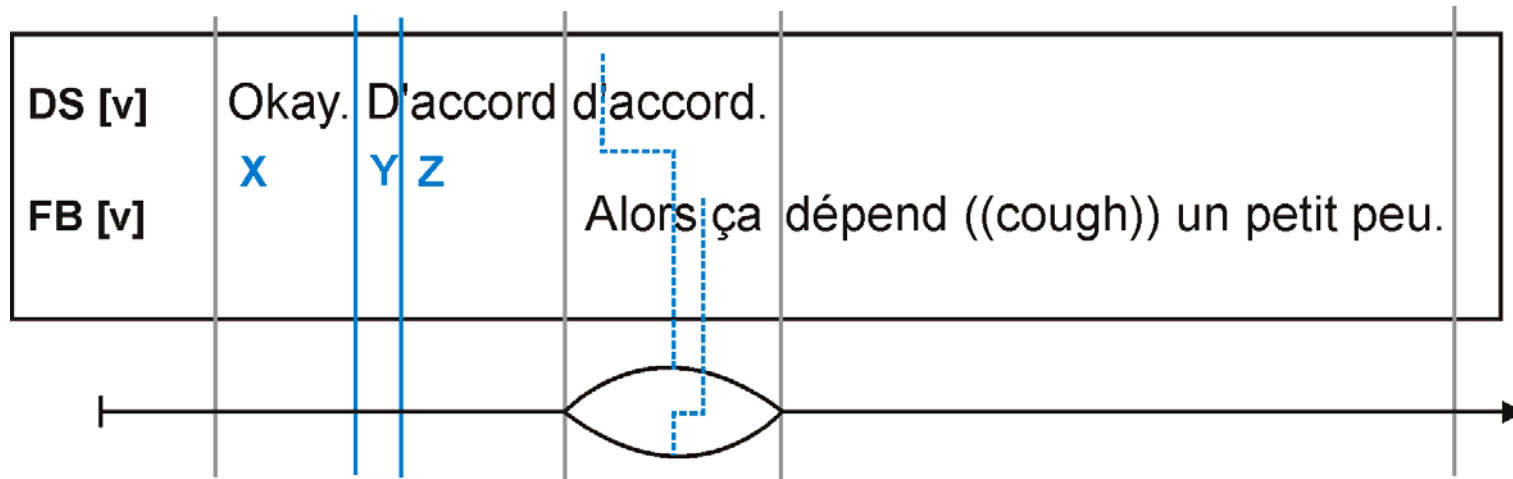


# Beyond the single timeline



- Simple annotation: Part of speech tagging**
- each word a single entity
  - add suitable points to the timeline

# Beyond the single timeline



Determine order of words (syllables, phonemes, ...) in overlaps

*or*

Allow **bifurcations** of the timeline

# Segmentation

## **EXMARaLDA Basic Transcription**

„Single timeline, multiple tiers“

- Intuitive transcription of verbal and non-verbal behaviour
- Visualization
- Exchange with TASX, PRAAT and ELAN
- Simple (utterance level) annotation, e.g.:
  - Utterance translation
  - Prosody (Dynamic Modulation etc.)

**Finite State Machine**  
(HIAT, GAT, DIDA, CHAT, ...)

## **EXMARaLDA Segmented Transcription**

„Bifurcated timeline, multiple tiers“

- Advanced (word, syllable, phoneme level) annotation, e.g.:
  - POS-Tagging
  - Morphological transliteration
  - Intonation contour
  - Tone

# Meta Data

The screenshot displays the CoMa (EXMARaLDA Corpus Manager) interface. The main window is titled 'Coma 2' and features a menu bar with 'Datei' and 'Werkzeuge'. Below the menu is a toolbar with icons for file operations and a tabbed interface with 'Korpus', 'Kommunikation', 'Person', 'Aufnahme', 'Transkription', and 'Suchen' tabs. The 'Person' tab is active, showing a list of speakers on the left and a detailed view of the selected speaker 'LAL (Lala)' in the center. The speaker list includes names like OHR (Maxim Ohrmann), RAF (Nirina Rafanosen), RAN (Randriamaka), TOM (Tombo), RAJ (Rajemison), RAV (Ravonirina), RAL (Ralalarison), LAL (Lala), MON (Monique), RAM (Tuwi Ramilison), RAT (Ratefison), MAL (Maleh), MEY (Meyer), HOF (Hoffmann), HAN (Handke), FRA (Franza), and BRB (Bremer). The detailed view for 'LAL (Lala)' shows a table of metadata:

Schlüssel	Wert
Sigle	LAL
KnownHuman	true
Pseudo	Lala
Sex	m
Location (Madagascar)	Location bearbeiten
+Location	Neue Location hinzufügen
Description	Description bearbeiten
Language (MEX MG)	Language bearbeiten
Language (FRN FR)	Language bearbeiten
Language (GER DE)	Language bearbeiten
+Language	Language hinzufügen

Below the table are buttons for 'neue Zeile', 'OK', 'abbrechen', and 'Description löschen'. To the right of the main window is a list of years from 2000 to 2012, with a button 'Kommunikationen zuordnen' above it. At the bottom left, there is a text area showing 'IDSpeaker54', 'Button hashCode: 29533738', and '[Element: <Description/>]'. The interface is designed for managing and annotating speaker data and interactions within a corpus.

**EXMARaLDA Corpus Manager (CoMa):  
Annotation of speakers and whole interactions**

# Summary

## EXMARaLDA Transcription Framework

### **„Single timeline, multiple tiers“ data model:**

- Common basis for different existing transcription system
- Intuitive, efficient data model suitable for
  - User-friendly input
  - Flexible visualization
  - Simple flat annotations
- Exchange with other tools

### **Extended data model „Segmented transcription“:**

- Automatically generated from „Basic transcription“
- More advanced flat annotations

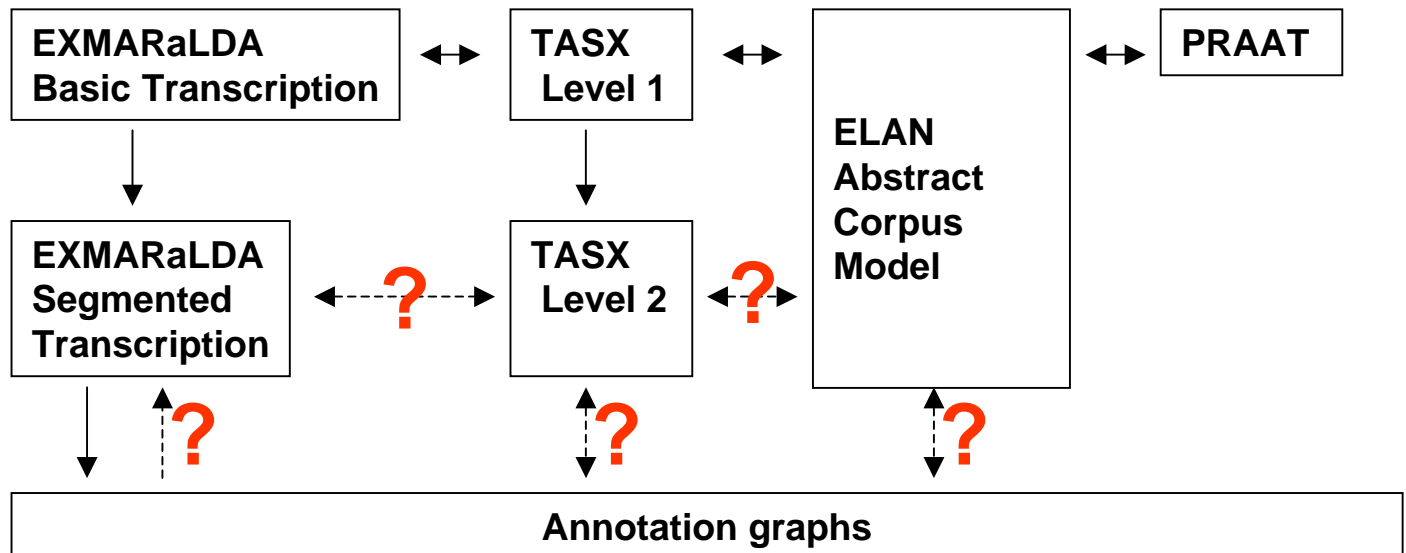
### **Meta data annotation**

# Open questions 1

## Limitations

- Hierarchical annotation (e.g. Phrase structure)?
- Discontinued constituents (e.g. German particle verbs)?
- „Cross level“ (= cross tier) annotation?
- Visualization?

## Exchange



# Open questions 2

## Hierarchy Based Data

### Models:

- XML: standardized storage
- DTDs/Schemas: validity check
- XSLT: transformation
- XPath / XQuery: query
- DOM / NOM: in-memory representation

## Time based data

### models:

- XML: standardized storage
- How to check validity?
- How to transform?
- How to query?
- AGLIB?

- First step: Understand differences and commonalities between existing time-based data models
- Second step: „Harmonize“ existing time based models