

# **Videlectures ingredients that can make analytics effective**

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# Some numbers

MIT MOOC (MITx - 6.002x: Circuits and Electronics.),

- **154,763** registrants.
- 69,221 people (45% ) looked at the first problem set,
- **26,349** earned at least one point (17%)

Midterm assignment

- 13,569 people looked at it while it was still open
- 9,318 people got a passing score on the midterm (6%)
- **7,157** people earned the first certificate (4,6% of the enrolled, i.e. 27% of those who really manifested interest).

# Some numbers

- Coursera's Social Network Analysis class
- 61,285 students registered,
- 1303 (2%) earned a certificate,
- 107 earned "the programming (i.e. *with distinction*) version of the certificate" (0.17%).

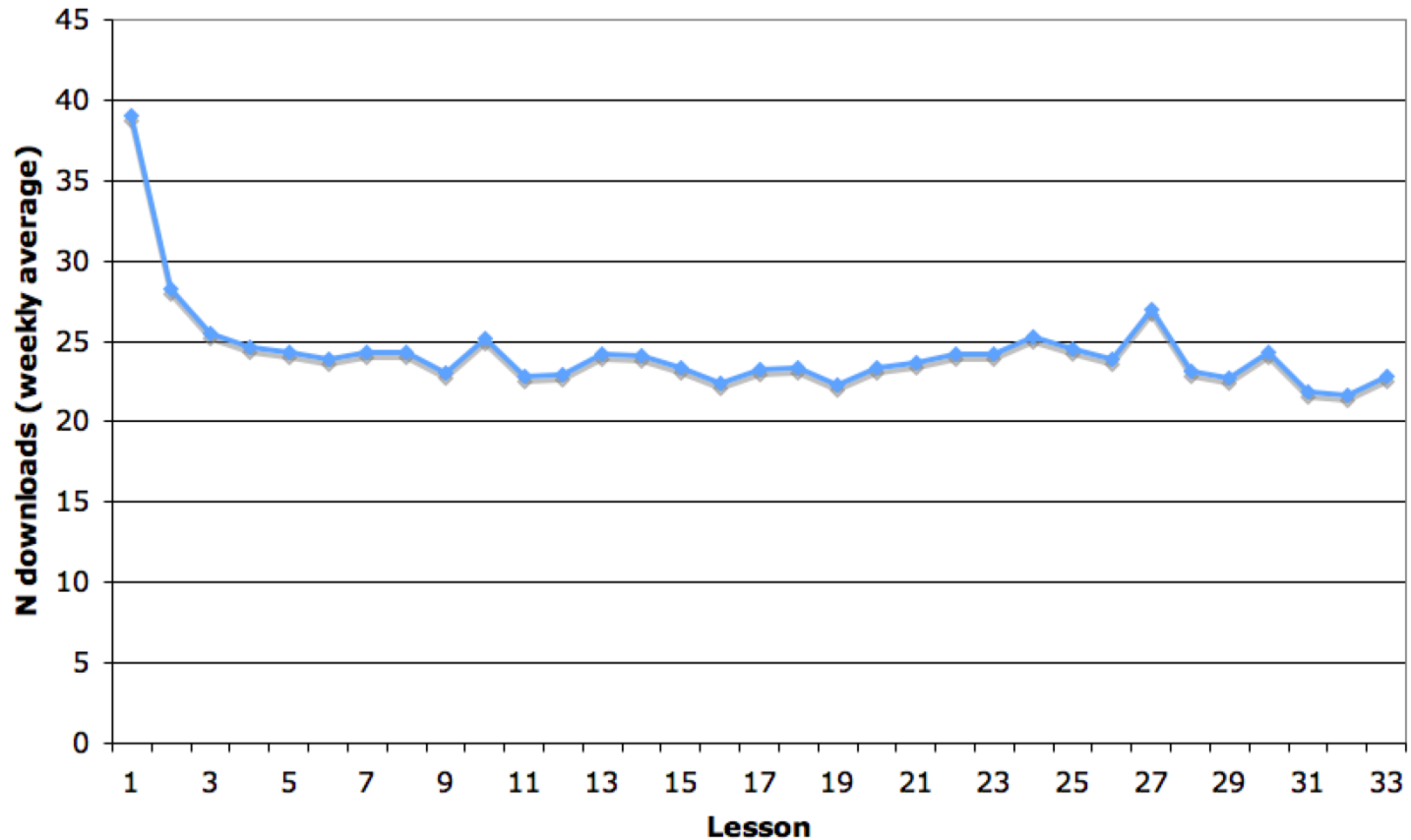
# Questions

- Where do the students come from?
- Which videos are most popular, and which ones attract little interest?
- Are students actually watching the videos on the assigned dates?
- Are viewers watching all the way through?
- At what point in the lecture, if any, do viewers stop watching?
- Are there any portions of the videos that are being watched repeatedly?
- Are the students watching the videos by the assigned deadlines?
- Do the videos generating active user engagement? Do students edit, share, download the material?

# Do "students" take the entire course?

Stats over 15 weeks

**Lesson Download distribution**



# What do row data tell us?

- N students watched lecture K
- M students repeatedly watched the fragment between time T1 and T2 in lecture K

What do we need to make these data  
more meaningful?

**Semantics !**

But how do we get semantic  
information?

# Granularity

How is the (video)lecture structured?

- According to logistic constraints
- Divided in small chunks (10 min at most)



# How to generate semantic marking?

1. For ppt-based lectures, we can automatically extract markers from the slides

# LODE

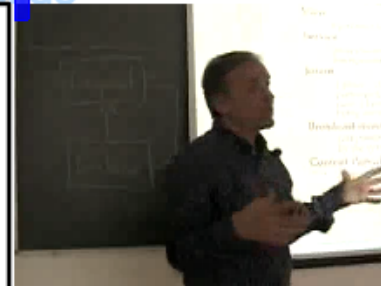

large video

move the cursor to resize video & slide

large slide

## The fundamental components

- **Activity**
  - an application component that provides a screen with which users can interact in order to do something, such as dial the phone, take a photo, send an email, or view a map.
- **Fragment** (since 3.0)
  - a behavior or a portion of user interface in an Activity
- **View**
  - equivalent to Swing Component
- **Service**
  - an application component that can perform long-running operations in the background and does not provide a user interface
- **Intent**
  - a passive data structure holding an abstract description of an operation to be performed. It activates an activity or a service. It can also be (as often in the case of broadcasts) a description of something that has happened and is being announced.
- **Broadcast receiver**
  - component that enables an application to receive intents that are broadcast by the system or by other applications.
- **Content Provider**
  - component that manages access to a structured set of data.



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- Activities • ...
- An application...
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Time: 49 of 1918 sec.

Activity

Laboratorio di programmazione di

Marco Ronchetti



Full size slide

About LODE

Slide<->Video

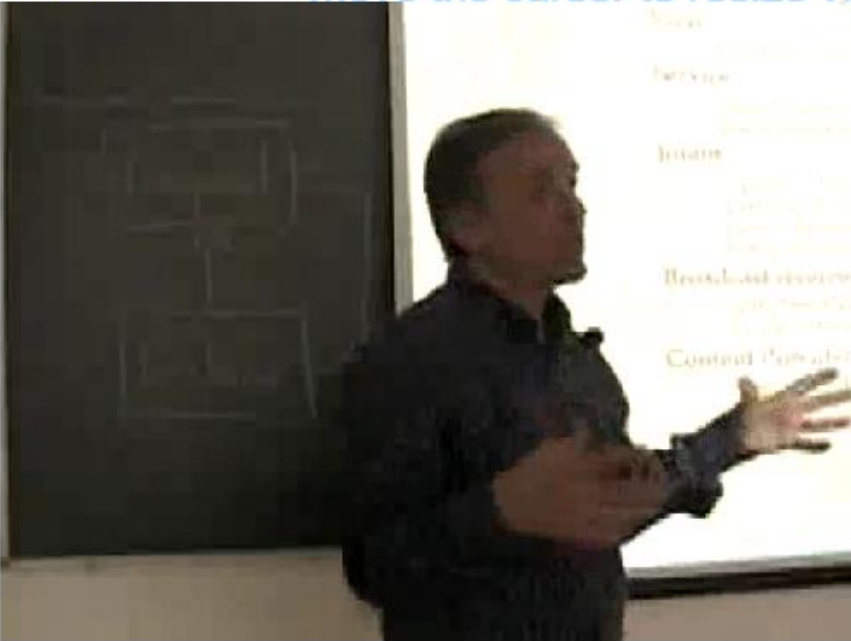
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# Multiple cognitive channels

large slide

move the cursor to resize video & slide

large video




**The fundamental components**

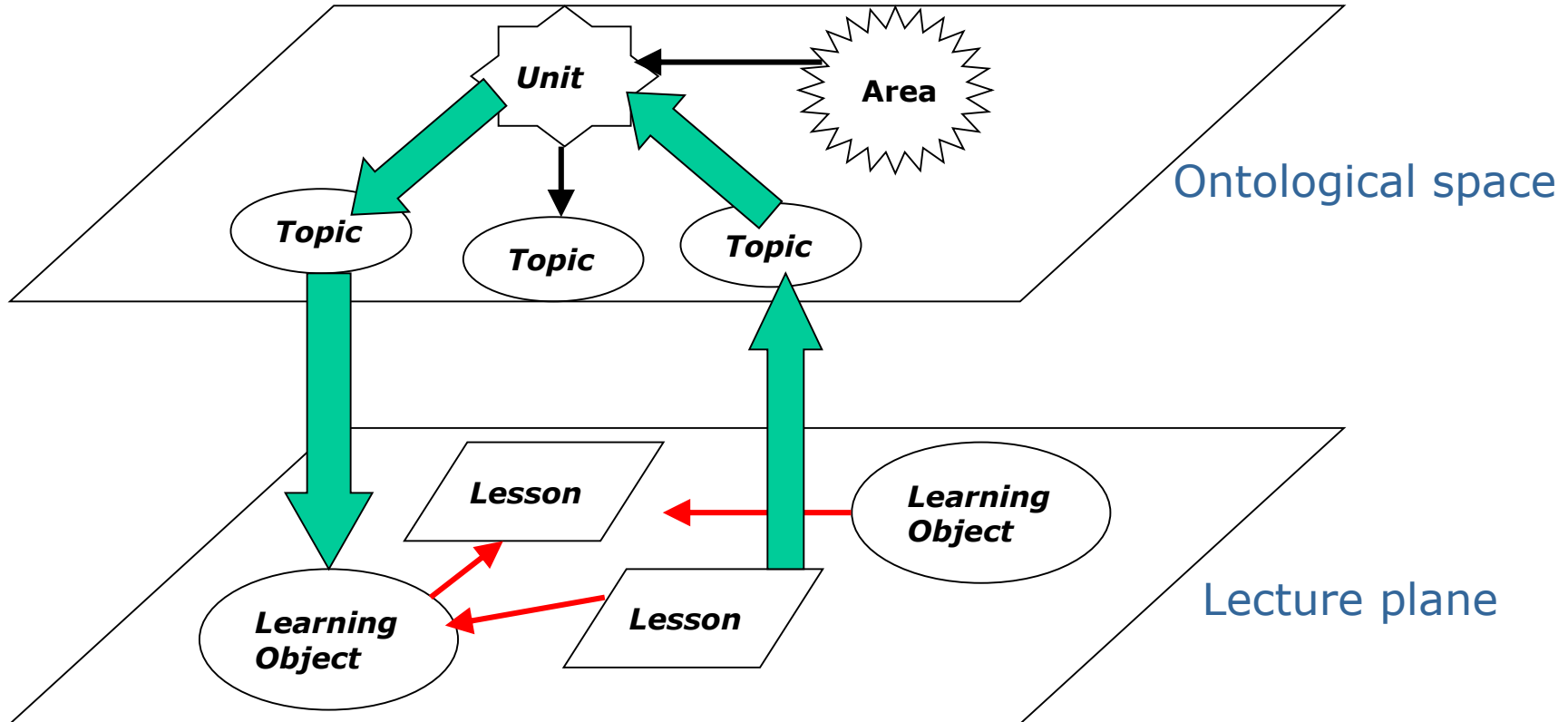
- Activity**  
An application component that provides a visual interface to the user. It is the primary building block of an application.
- Intent**  
A data structure that represents an abstract action to be performed by the system.
- Service**  
A component that performs long-running operations in the background and does not provide a user interface.
- BroadcastReceiver**  
A component that receives and responds to broadcast messages from other applications or the system.
- ContentProvider**  
A component that enables an application to manage data that is shared with other applications.

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Activity Laboratorio di programmazione di  
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 > << >> Full size slide About LODE Slide<->Video LODE home

# Ontological navigation



# A first step

Course name: Laboratorio di programmazione di sistemi mobili e tablet

Date	Lecturer	Contents (Tag Cloud)	Slides on line (Click to browse)	Downloadable slides (Click to download)	Video on line (Click to view)	Zipped video (Click to download)	Notes (Click to expand)
Lenght	Title						
2012-02-23	Marco Ronchetti	12 16 14 13 17		 <a href="#">Android1.pdf</a>		 <a href="#">01_Introduzione_2012-02-23.zip</a>	
2012-02-23	Marco Ronchetti	15 16 13 17		 <a href="#">Android1.pdf</a>		 <a href="#">02_Introduzione_2012-02-23.zip</a>	
2012-02-29	Marco Ronchetti	task helloandroid android lifec class application adv		 <a href="#">Android2.pdf</a>		 <a href="#">03_Applications-1_2012-02-29.zip</a>	
2012-02-29	Marco Ronchetti	fundamenta entry tasks app lifec task activity		 <a href="#">Android2B.pdf</a>		 <a href="#">04_Activity_2012-02-29.zip</a>	

# Using ASR to extract some meaning

## 1. Automatic speech recognition

### WORD RECOGNITION PERFORMANCE

Percent Total Error	=	43.3%	( 862)
Percent Correct	=	60.0%	(1195)
Percent Substitution	=	29.7%	( 592)
Percent Deletions	=	10.3%	( 205)
Percent Insertions	=	3.3%	( 65)
Percent Word Accuracy	=	56.7%	
<hr/>			
Ref. words	=		(1992)
Hyp. words	=		(1852)
Aligned words	=		(2057)

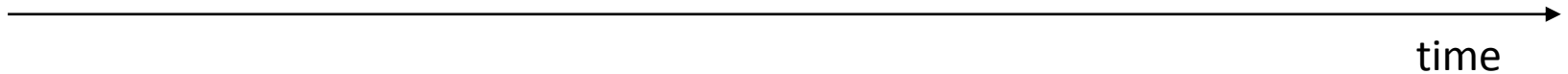
# Multimedia Indexing

(speech driven)

Speech

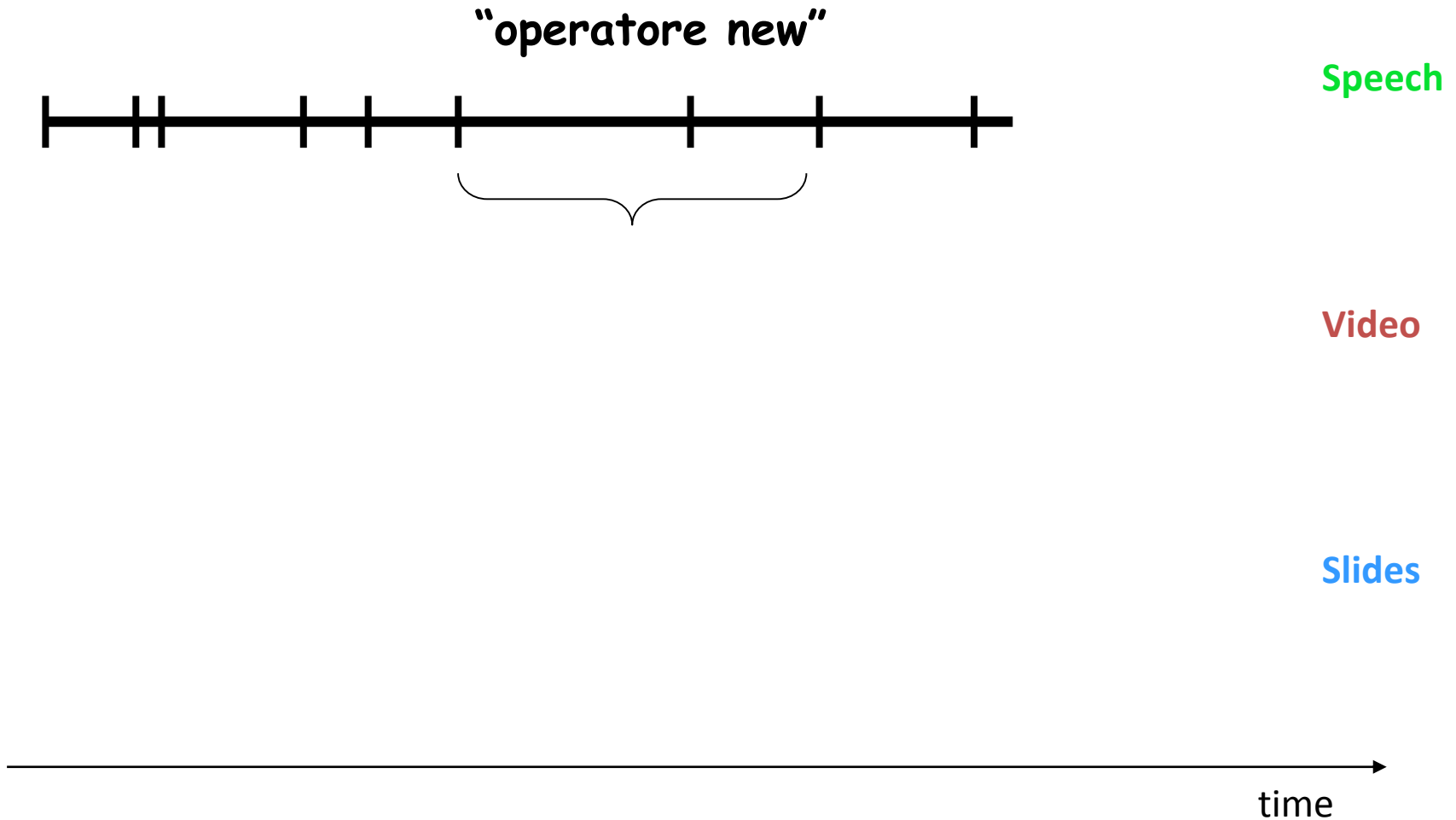
Video

Slides



# Multimedia Indexing

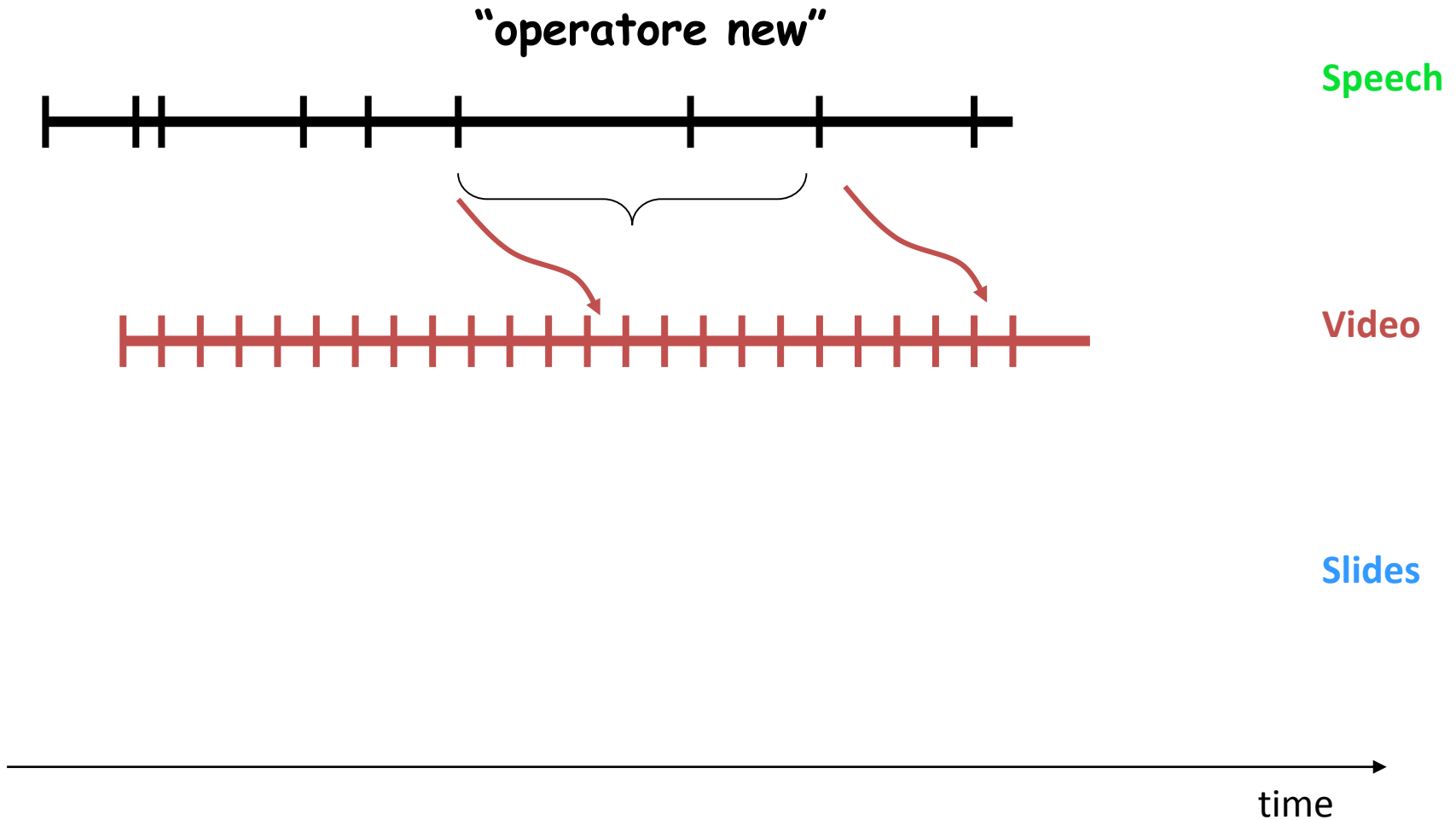
(speech driven)





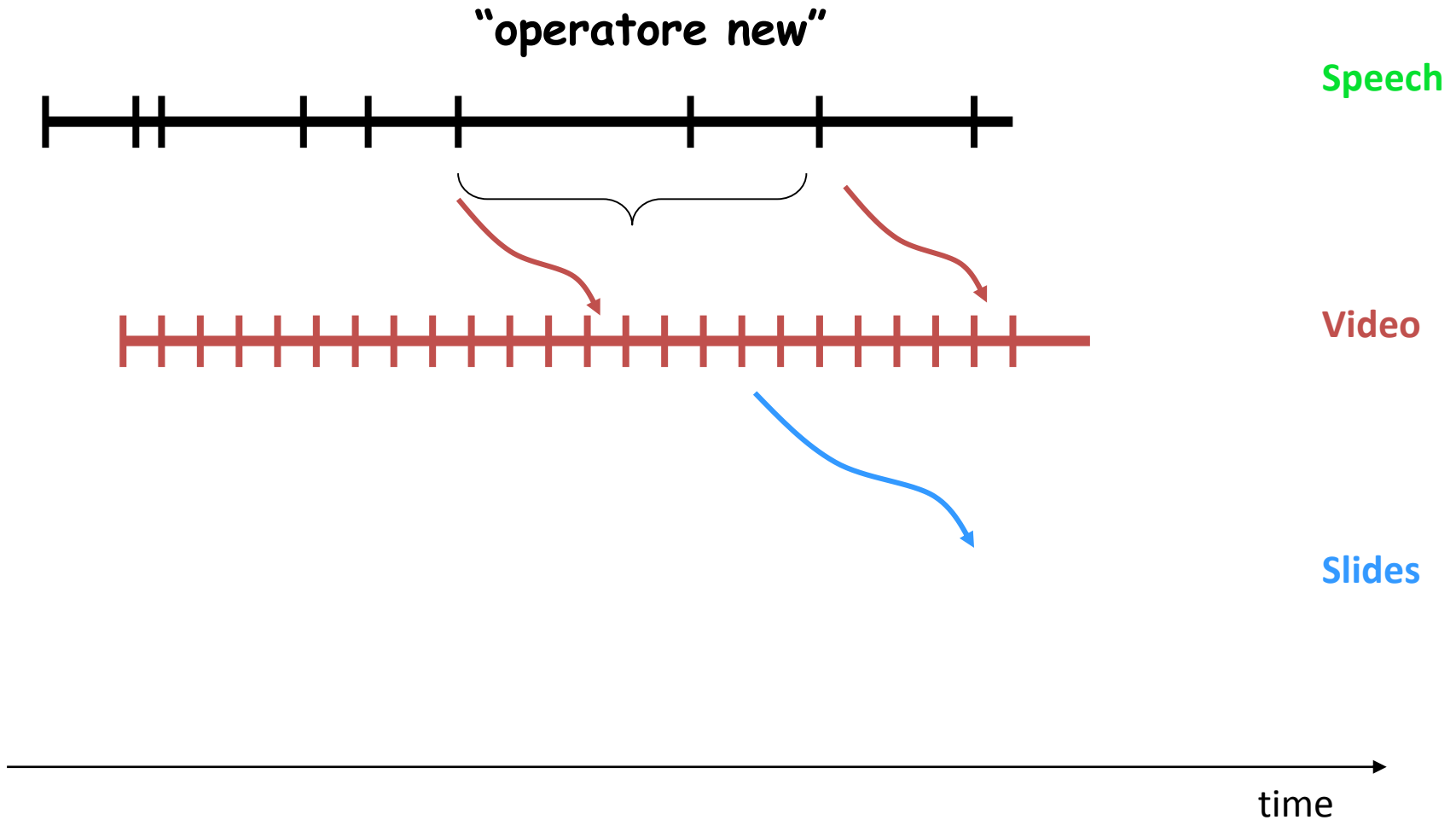
# Multimedia Indexing

(speech driven)



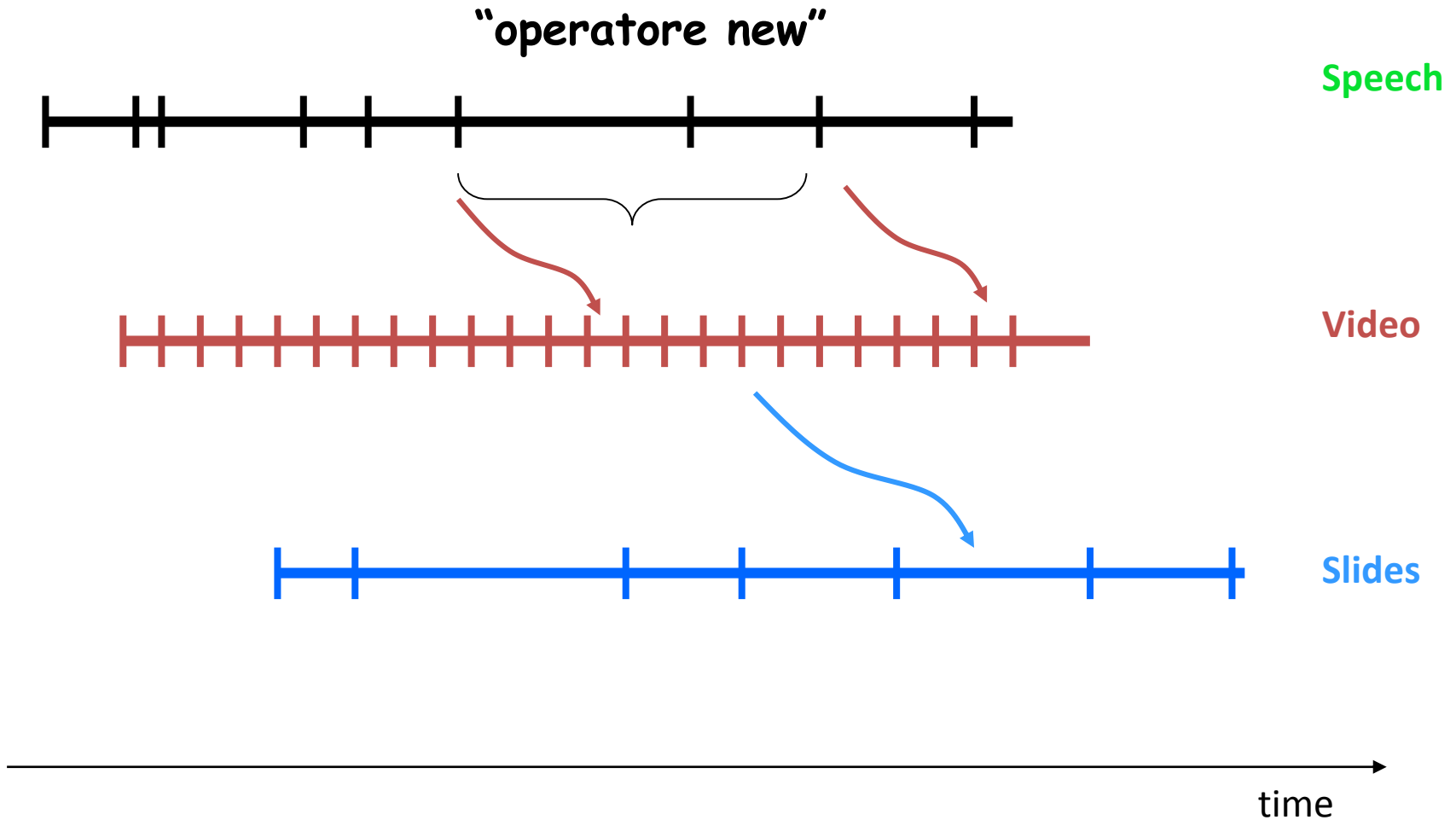
# Multimedia Indexing

(speech driven)



# Multimedia Indexing

(speech driven)



# Multimedia Indexing

(speech driven)

- Natural Language Processing to extract meaning from a fragment



# Video annotation

## 3. User contribution

- Social (video) bookmarking – tagging – annotation
- Human computing (*a la* Van Ahn)

# Conclusion

- We MUST enrich our media!
  - Better user experience
  - Better analytics