

The Palaeographical Method under the Light of a Digital Approach

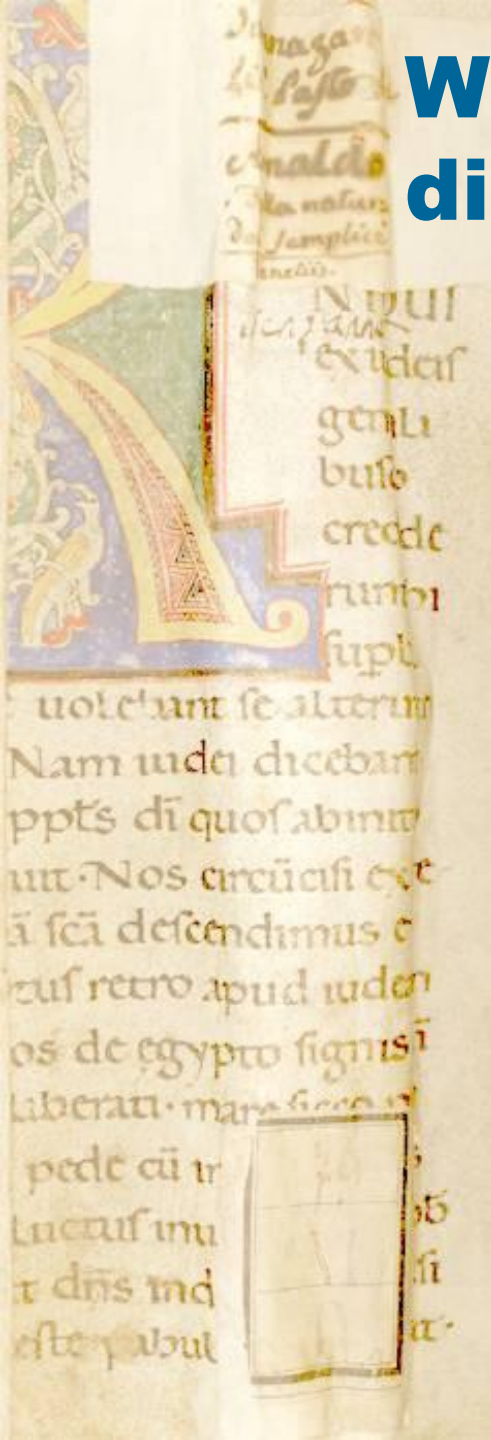
Dr. Arianna Ciula

ariannaciula@googlemail.com



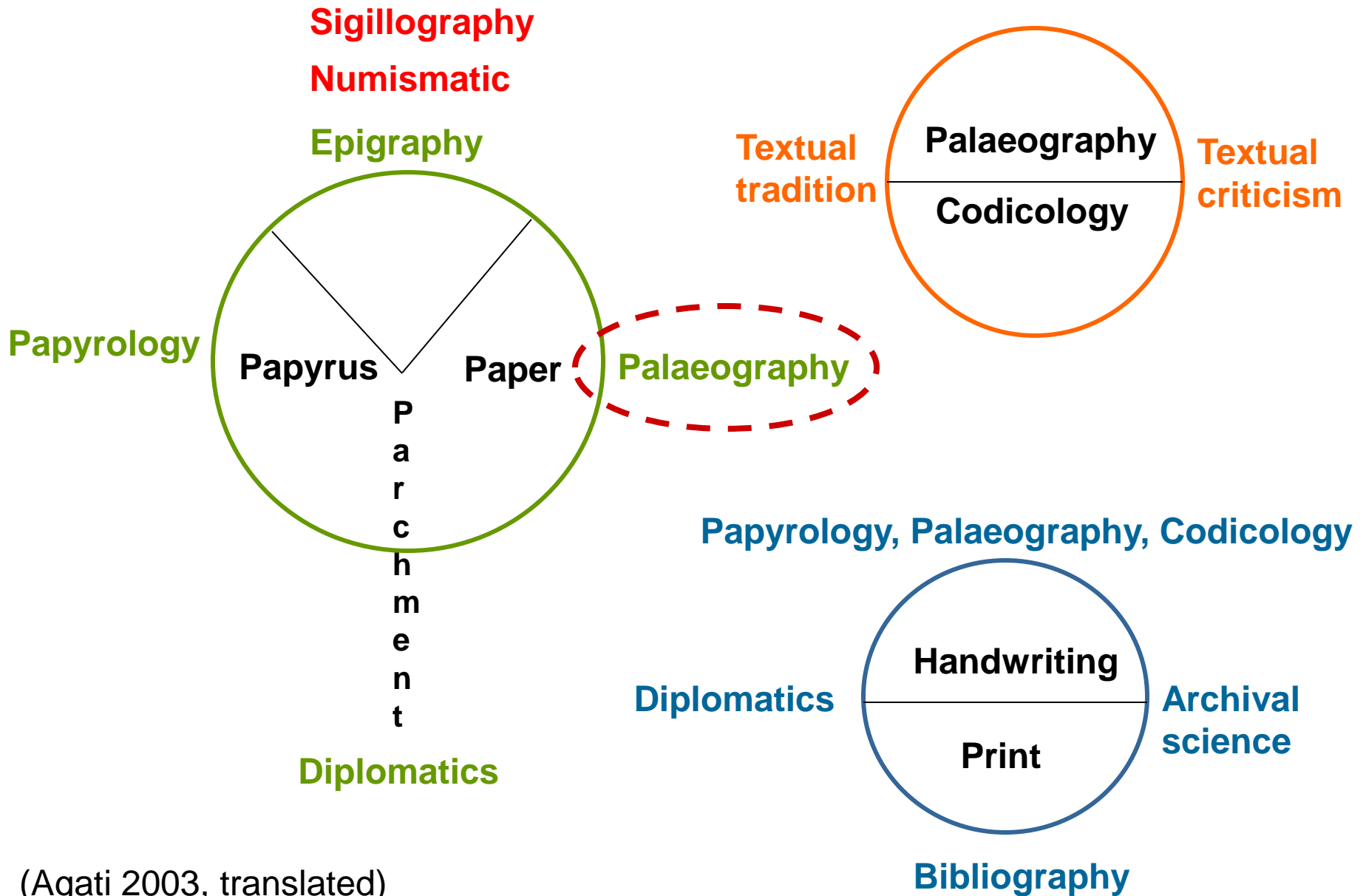
Codicology and Palaeography in the Digital Age
Munich - July 2008

When palaeography meets the digital



- “Integral Palaeography” (Boyle 1984) and Interdisciplinary framework
- Digital palaeography approach
 - a methodology
 - (J)SPI software
 - corpus of manuscripts
 - practices and results of an approach (double-sided)
- Conclusions

Interdisciplinary Framework



(Agati 2003, translated)

Understand and support the **Palaeographical method**

“minute investigations of even trifling matters, to discover the traces of events that could not be directly experienced by the observer”

Intellectual operations

- **Analyses**
- **Comparisons**
- **Classifications**

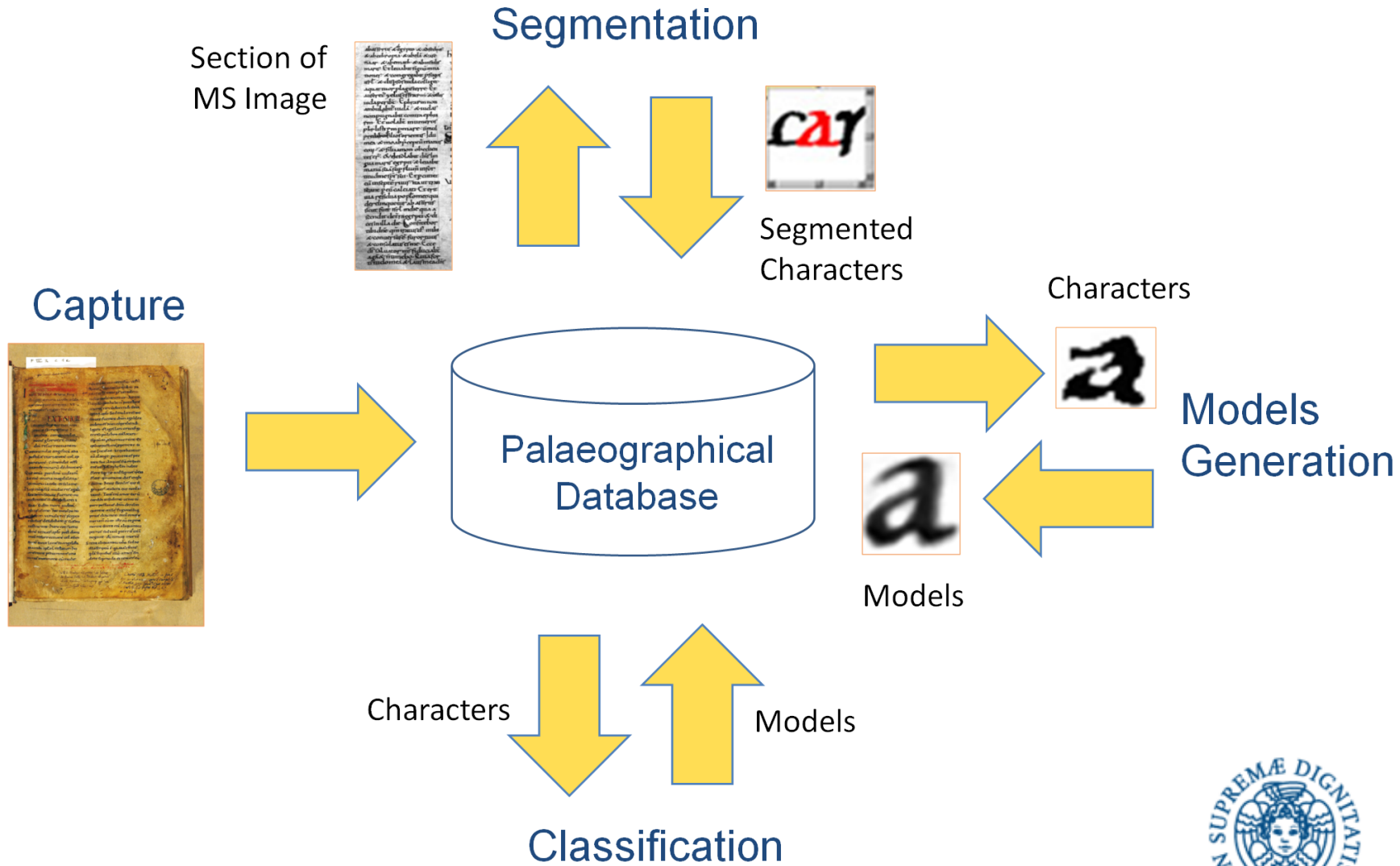
(Carlo Ginzburg 1979)

Computational methodologies

Make explicit those processes of the palaeographical method which apply to detailed analyses of individual objects



SPI Relational Database



Palaeography of the Corpus (Siena)

Extreme of not formalised caroline minuscule: IX-X centuries

1st group: XI century

2nd group: XII first half

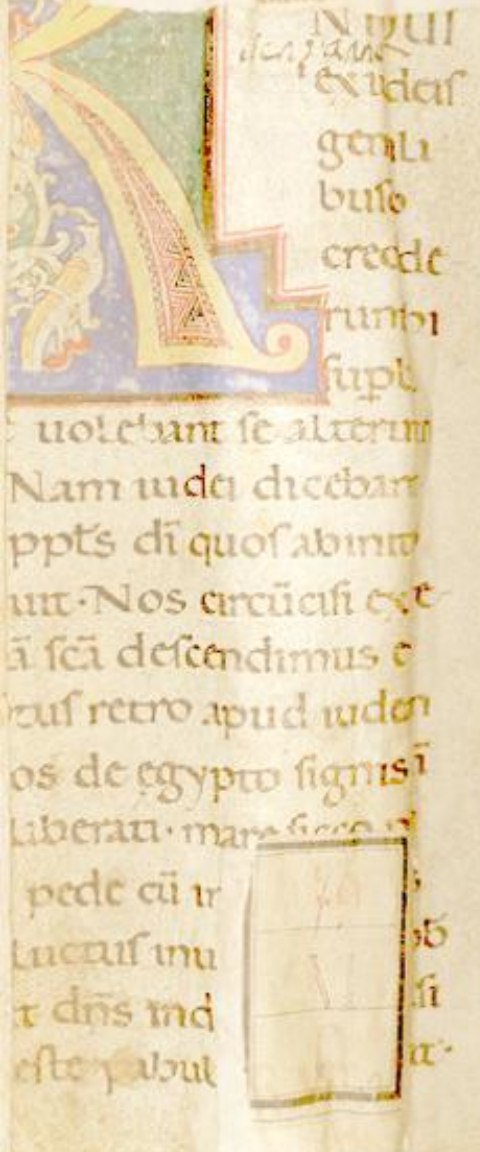
3rd group: XII second half

Extreme of incipient gothic script: XII ex – XIII in

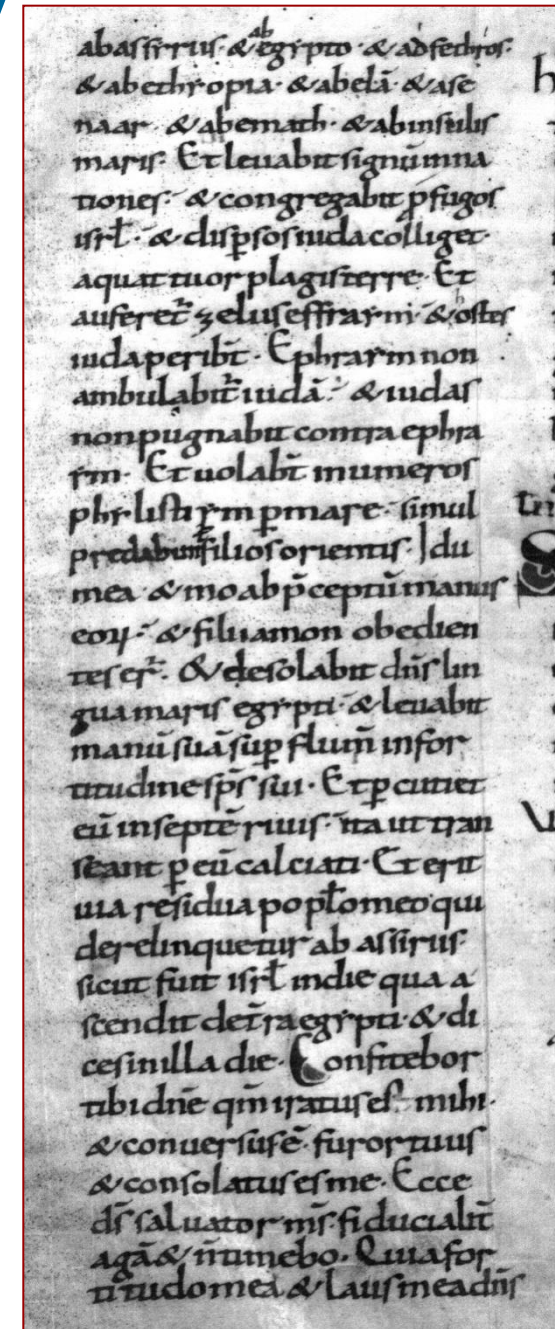


An approach of Digital Palaeography

Scanning and Image Pre-processing

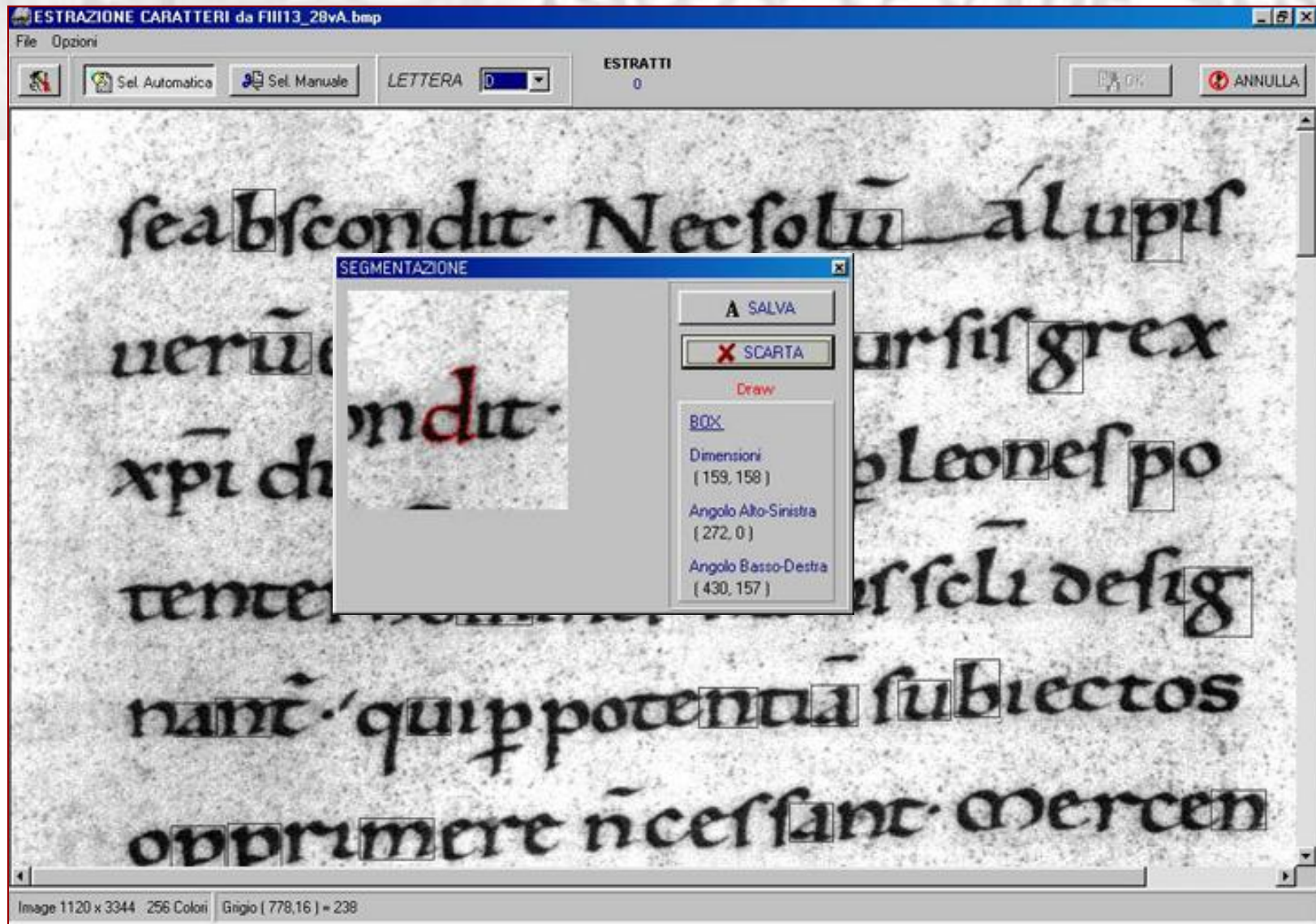


- resolution 300 dpi
- archival copy on cd-rom in TIFF
- experimentation on bitmap – folia introduced as sections, per column when possible



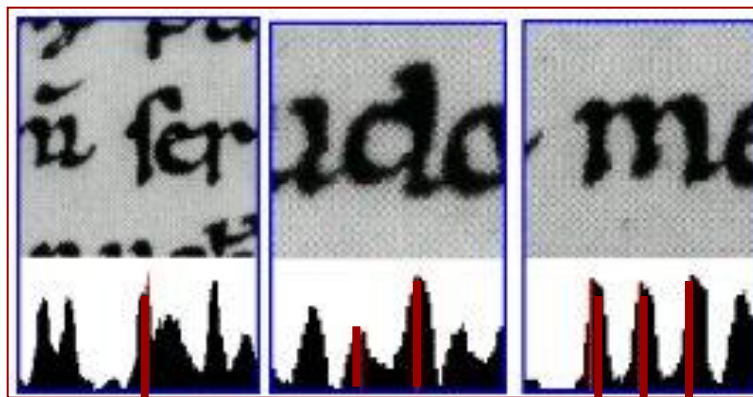
An approach of Digital Palaeography

Segmentation



An approach of **Computational palaeography**

- segmentation parameters tuned on the pattern typology (x projection)



- three abstract categories of letters
 - “unimodali” (eg. *i* and *l*)
 - “bimodali” (eg. *b* and *st*)
 - “trimodali” (eg. *m* and *sti*)

An approach of Digital Palaeography

Models Generation

GENERAZIONE PROTOTIPI

56 Caratteri

TRAINING SET

- D74F76L2S64C8049
- D74F76L2S64C8050
- D74F76L2S64C8051
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C
- D74F76L2S64C

CARATTERE: **A**

Sessione: 00.05.12

IT. 9

7 Tangenti

Errore di Ricostruzione

CALCOLO DISTANZA

- Euclidea
- One-Sided
- Two-Sided Iter.
- Two-Sided LU

METODO HSS

- No. Tangenti
- Incr. (R)
- Incr. (R)
- Incr. (Euristico)

25

CONVERGENZA

- 1/1
- 1/10
- 1/100
- 1/1000

COMMENTI

CONVERGENZA TD-TWO SIDED ITERATIVA

- 1/1
- 1/10
- 1/100
- 1/1000

10%

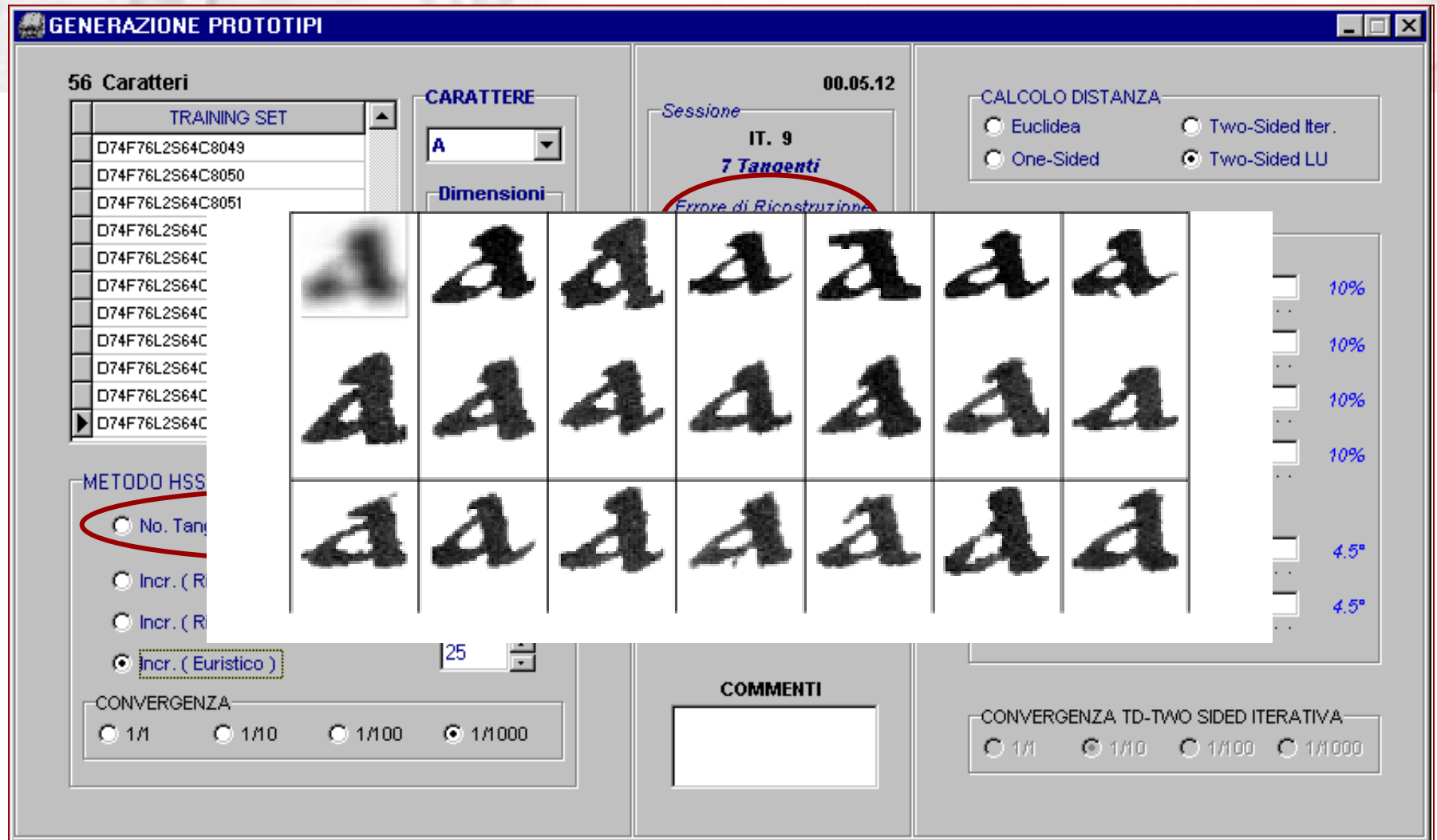
10%

10%

10%

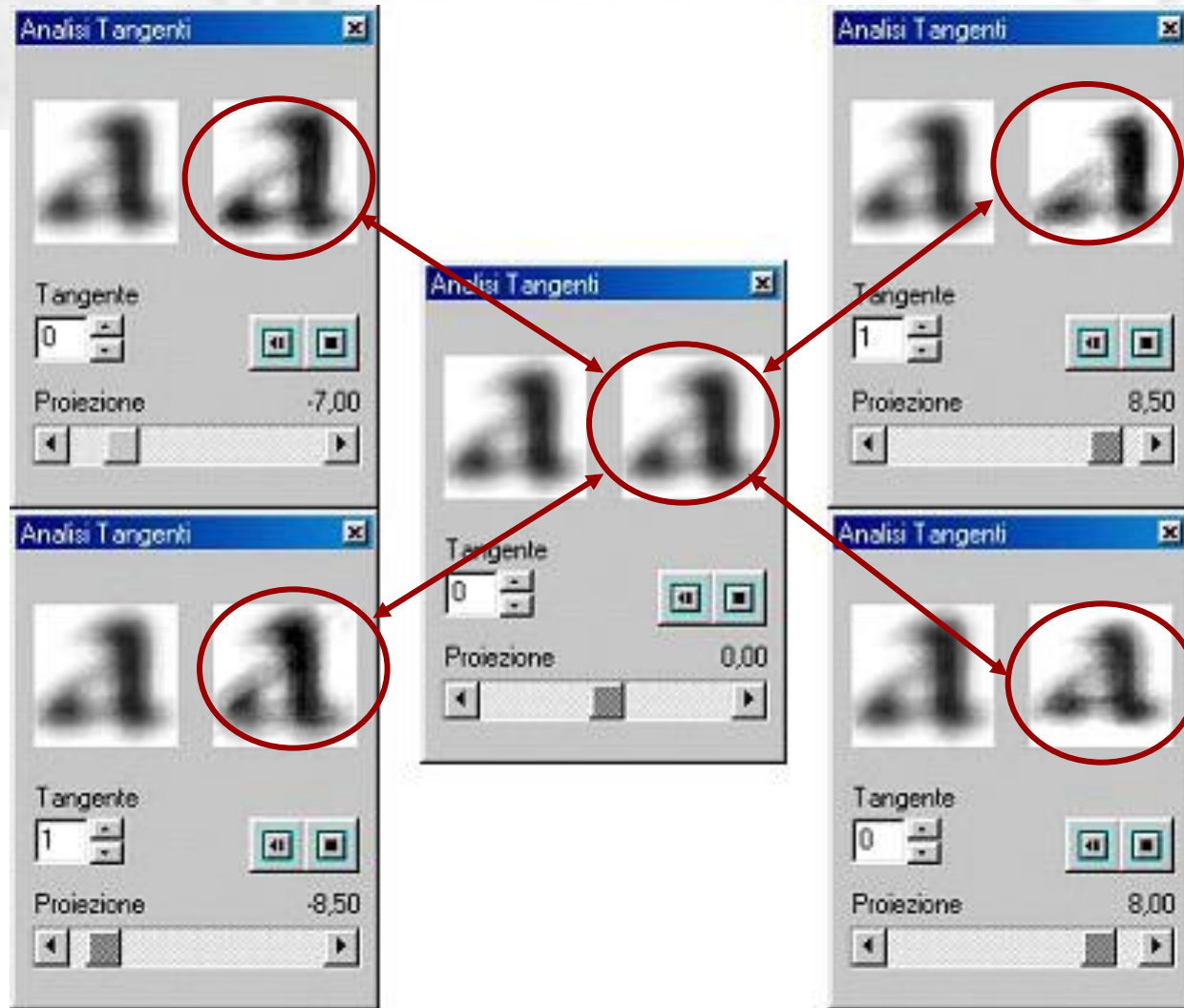
4.5°

4.5°

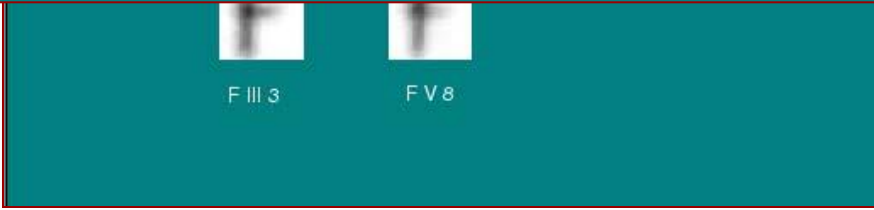
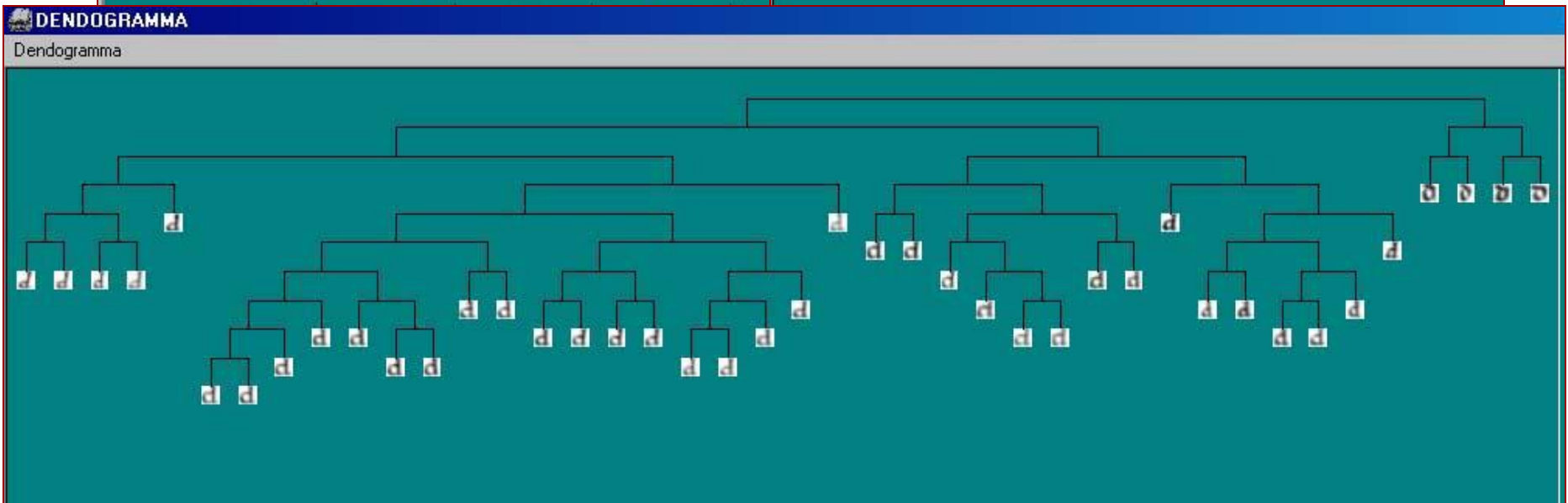
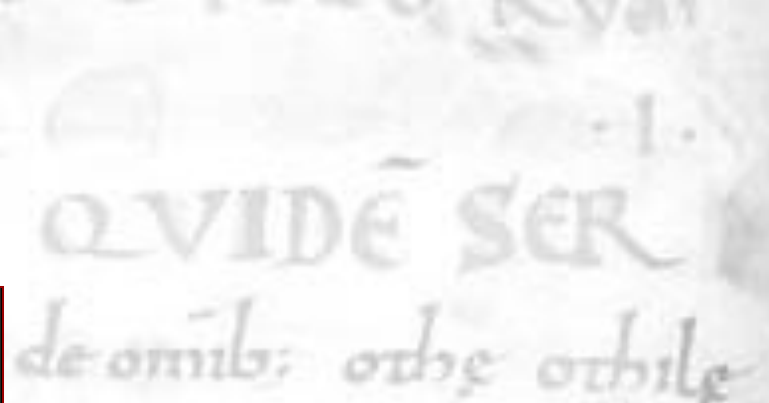
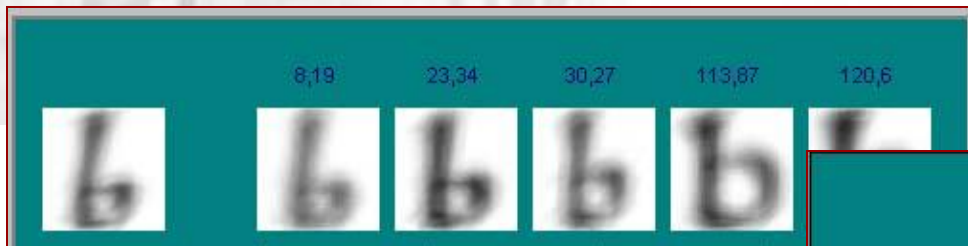


An approach of Digital Palaeography

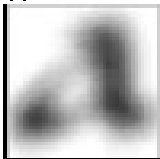
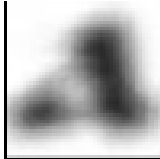
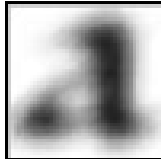
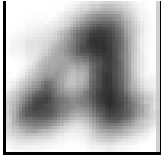
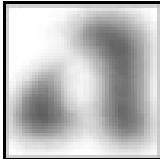
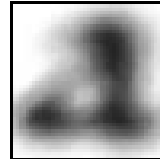
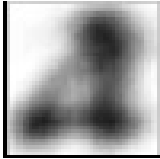
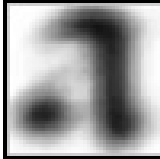
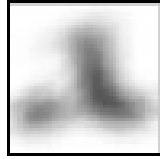
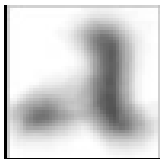
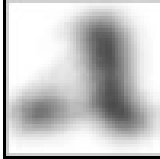
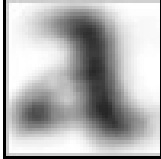
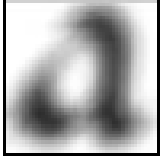
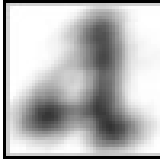
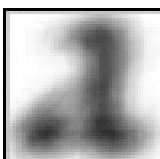
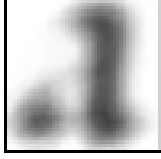
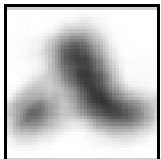
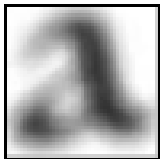
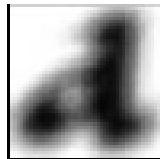
Models Interpretation




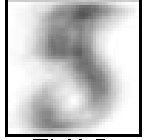
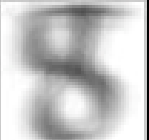
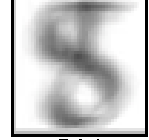
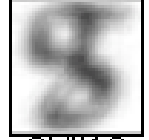
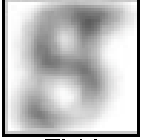

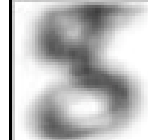
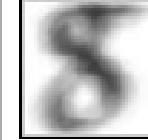
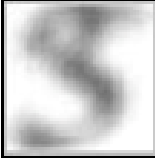
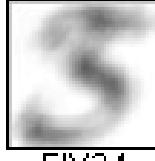
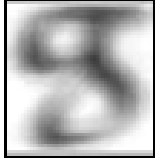
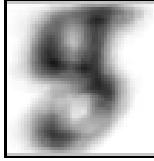
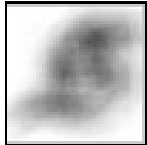
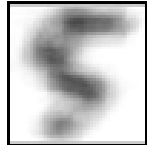
An approach of **Digital Palaeography**



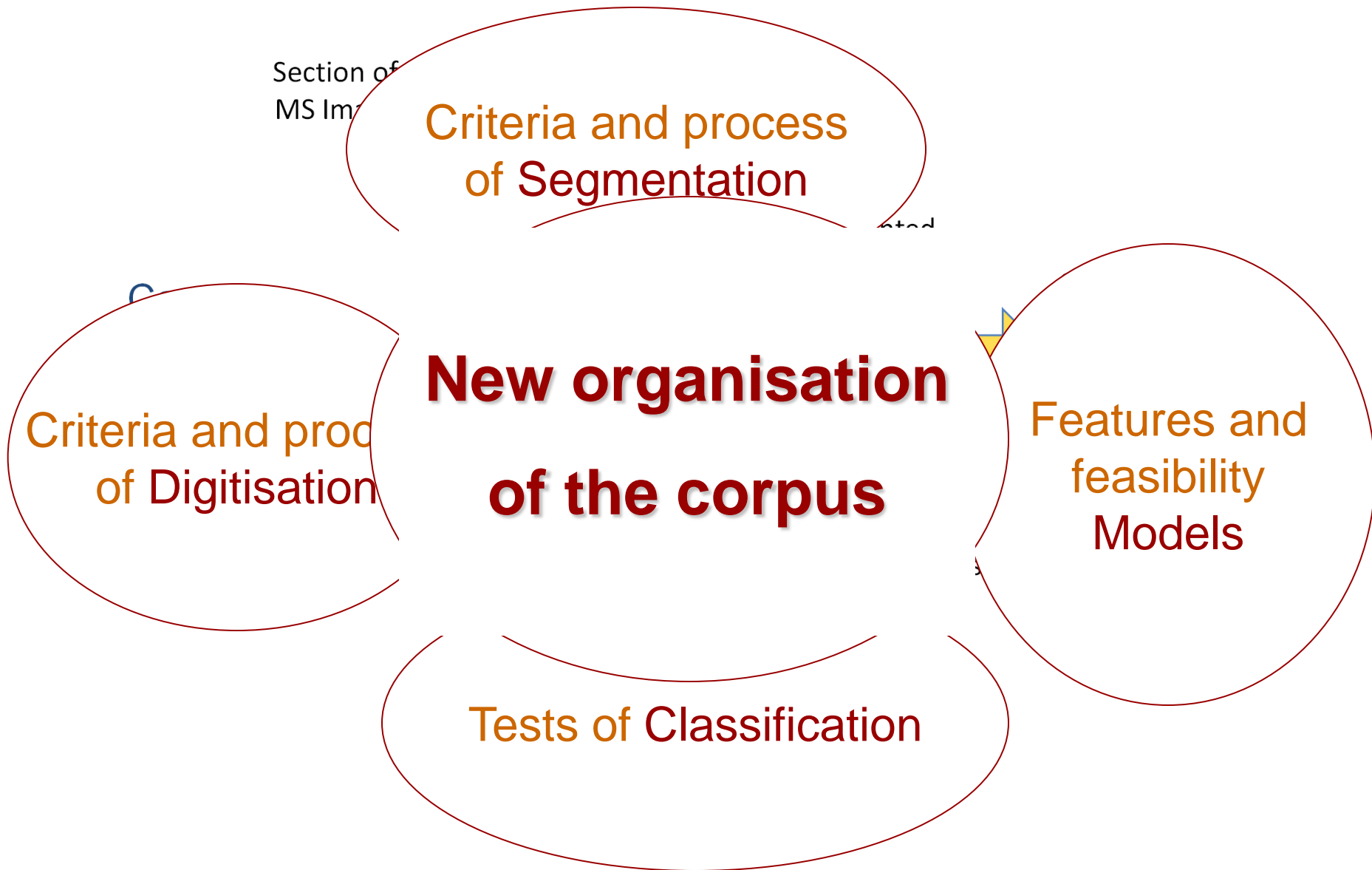
An approach of Digital Palaeography

Gruppo 1						
(i)  GVII12	(ii)  FIII3	 FIII13	 FIX37	 FX4	 FIII1	 FII17
Gruppo 2						
(i)  FVI15 1°	(ii)  FV8  FIII14	 FI5	(iii)  FV21	(iv)  FIV16	(v)  HVII10  FV2 2°	 FIII15
Gruppo 3			Gruppo 4			
 FIV24	 FV8	 FVIII16				

An approach of **Digital Palaeography**

Group 1											
(i)					(ii)				(iii)		
(iv)							(v)			(vi)	
Group 2						Group 3					
											
FIX37						HVII10					

An approach of **Computational palaeography**



An approach of **Digital Palaeography**



caroline of IX-X centuries

caroline *tipizzata* of XI ex / first half of XII century

caroline in imitation of Roman caroline of XI ex / third quarter of XII century (common characteristics with caroline of FIII3 and FIII13)

caroline with stylistic interferences of XII med

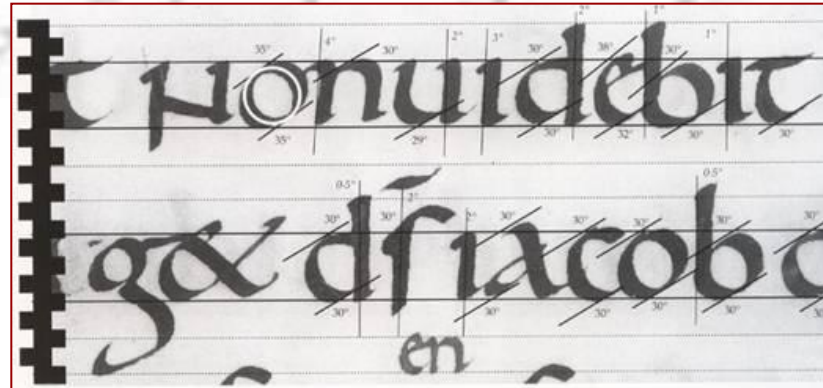
caroline of beginning of canon of second quarter / half of XII century (common characteristics with caroline of FIII13)

“formed” caroline of second half of XII century (common characteristics with caroline of FIII13 e GVII12)

scripts of XII ex / XIII in
(incipient Gothic, round script, Gothic script)

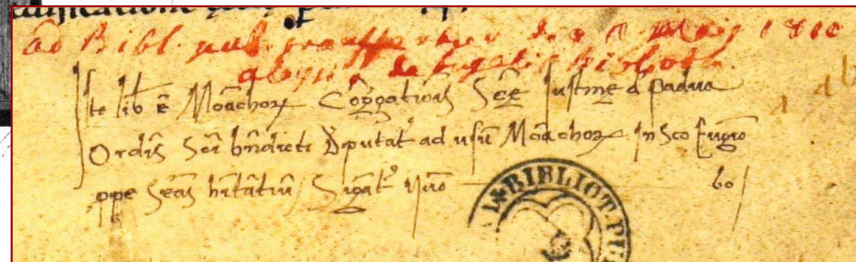
Palaeography of the Corpus (Siena)

- centrality of script
- material culture



Compagnia e. Badia di Montenero. T. meglio e. 1/3 ad f. O. 244

'integral palaeography'



Methodology

From the morphological details to the material history



Comparison and measures

Morphological parameters

models

segmentation

P
a
l
a
e
o
g
r
a
p
h
i
c
a
r
t
i
s
e

base for interpretation



Intermediate stages of reduction and formal analysis

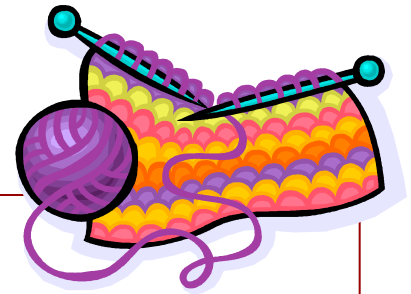


Complexity of the manuscript

An approach of **Digital Palaeography**

Define a **Nomenclature**

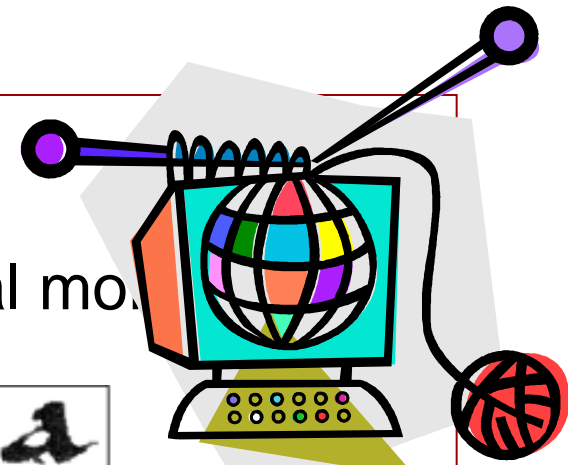
To abstract from and reduce the “polyphony” of individual manuscripts



Schema

The role of **Images**

To abstract from and reduce the original models of letters



Models

Methodology

Added value of the Models

To abstract and reduce the original morphology of letters → Creation of **models/prototypes**



- computation of *features*
 - morphological characteristic expressed in quantitative terms (comparison)

- visible abstraction

- model which incorporates the variants visually (in a perceivable way)



Limits and Future

SPI → JSPI

	SPI	JSPI
Documentation	Undocumented installation process;	Standard technologies
	Dissertations, journal article, book essay	Handbook
Transparency	Ambiguous interface	More informative interface
Standards, extensibility, interoperability	Platform dependent	Platform independent; Standard programming languages and tools, free licences
	Closed application	Extensible and to be made public
	Desktop application	Towards network environment

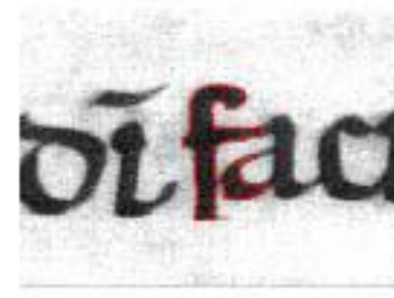
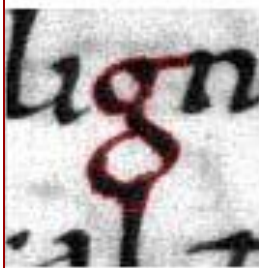
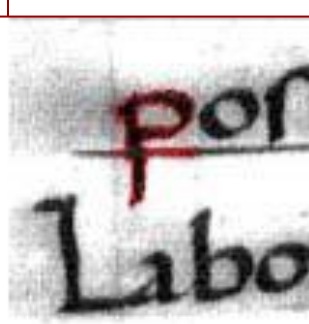
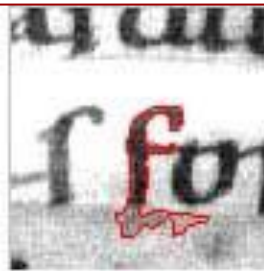
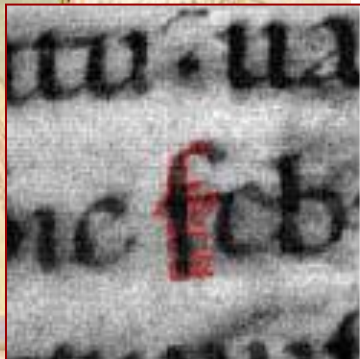
Limits and Future

SPI → JSPI

	SPI	JSPI
Segmentation	Fixed grid of letters/ligatures	Extensible set of letters/ligatures
	Best choice for automatic segmentation	Multiple choices available
Interface	Italian	English
	Minimal but complex	More user-friendly

Limits and Future

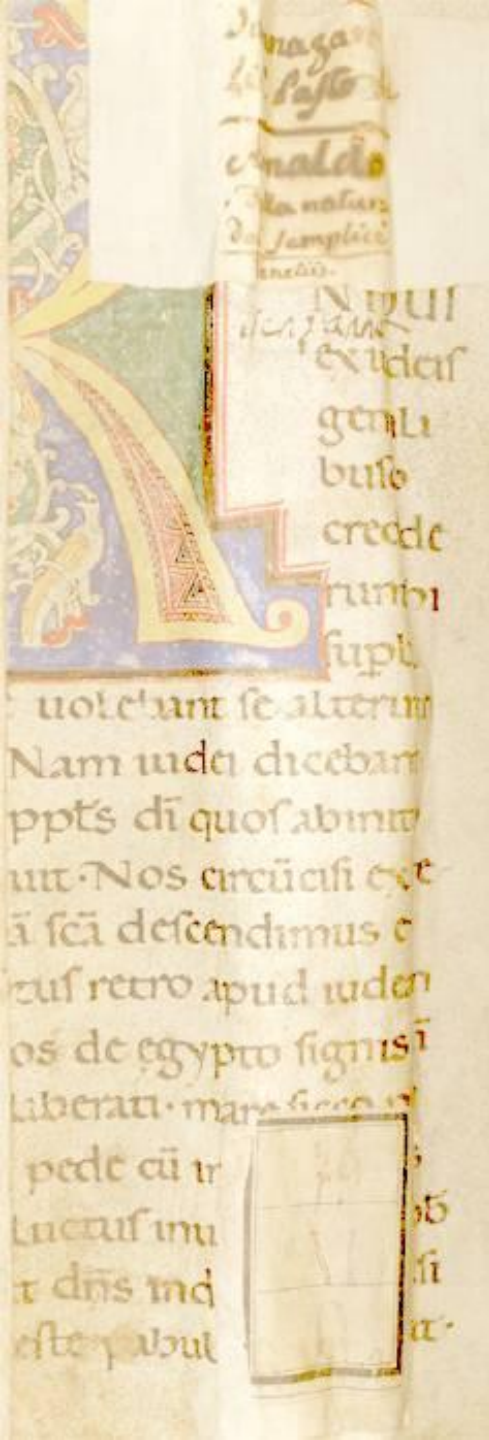
SPI → JSPI



Limits and Future

SPI → JSPI

- Image pre-processing and processing
- Export into standard format (e.g. TEI)
 - dates, descriptions etc.
 - connection between image and text
 - searches
- Refined search
- Derivation of conceptual model





Thank you!

**Questions?
Comments?**