

Automatic Text Localisation in Scanned Comic Books

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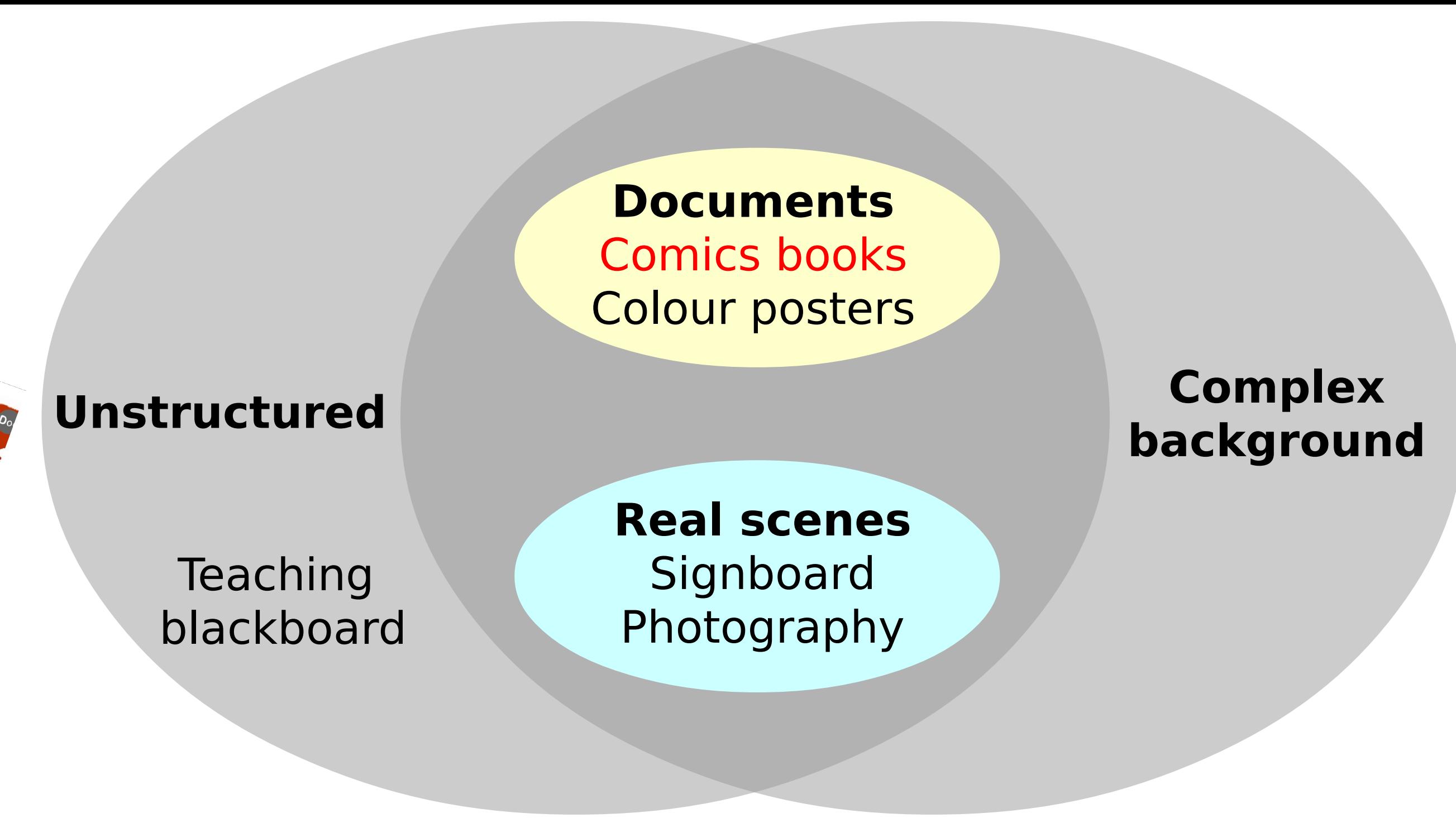
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Presentation

This work presents a novel approach for automatic text localization in scanned comics book pages, an essential step towards a fully automatic comics book understanding. We focus on speech text as it is semantically important and represents the majority of the text present in comics books.



Contributions

1) Minimum Connected Component Thresholding (MCCT)

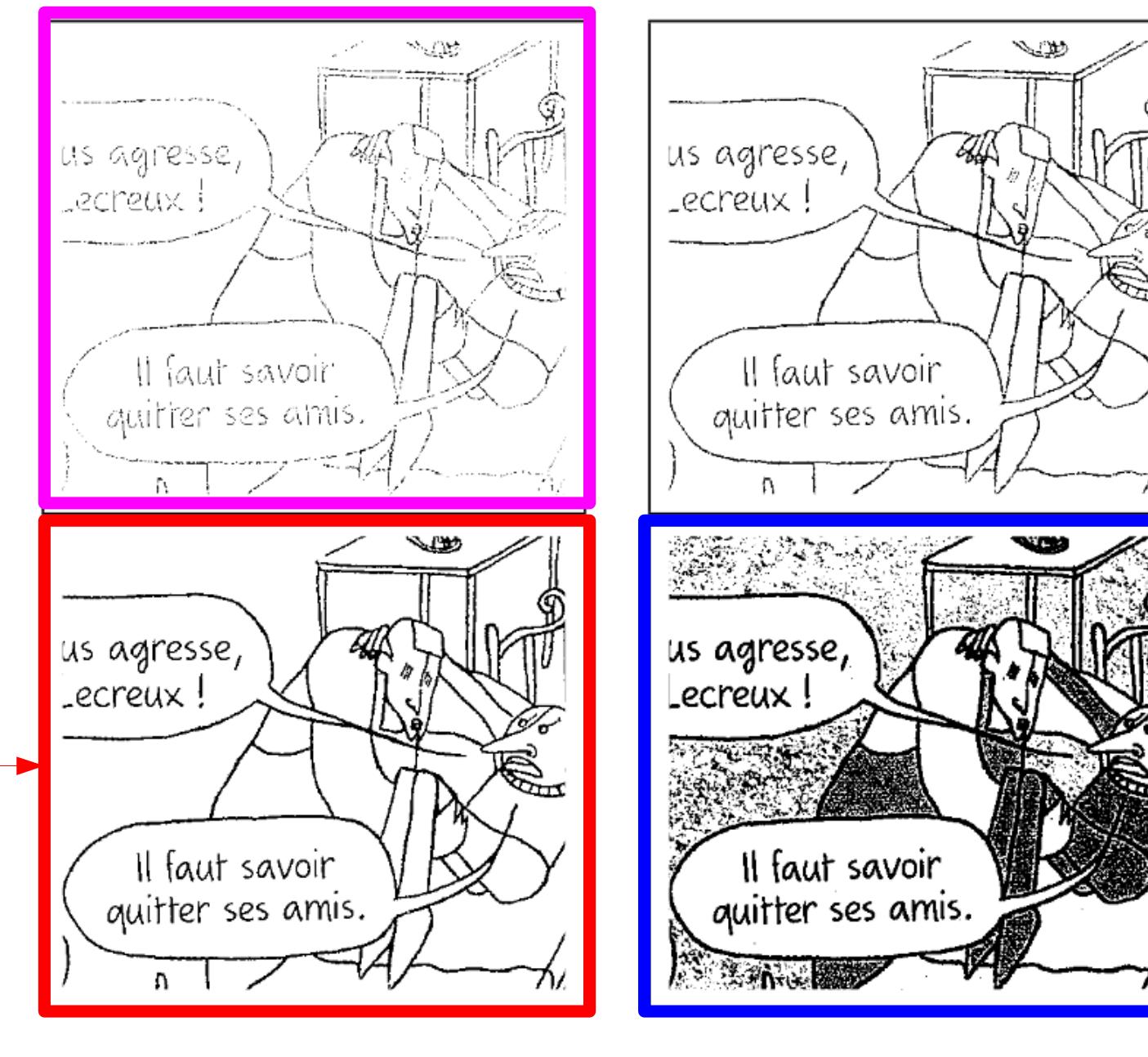
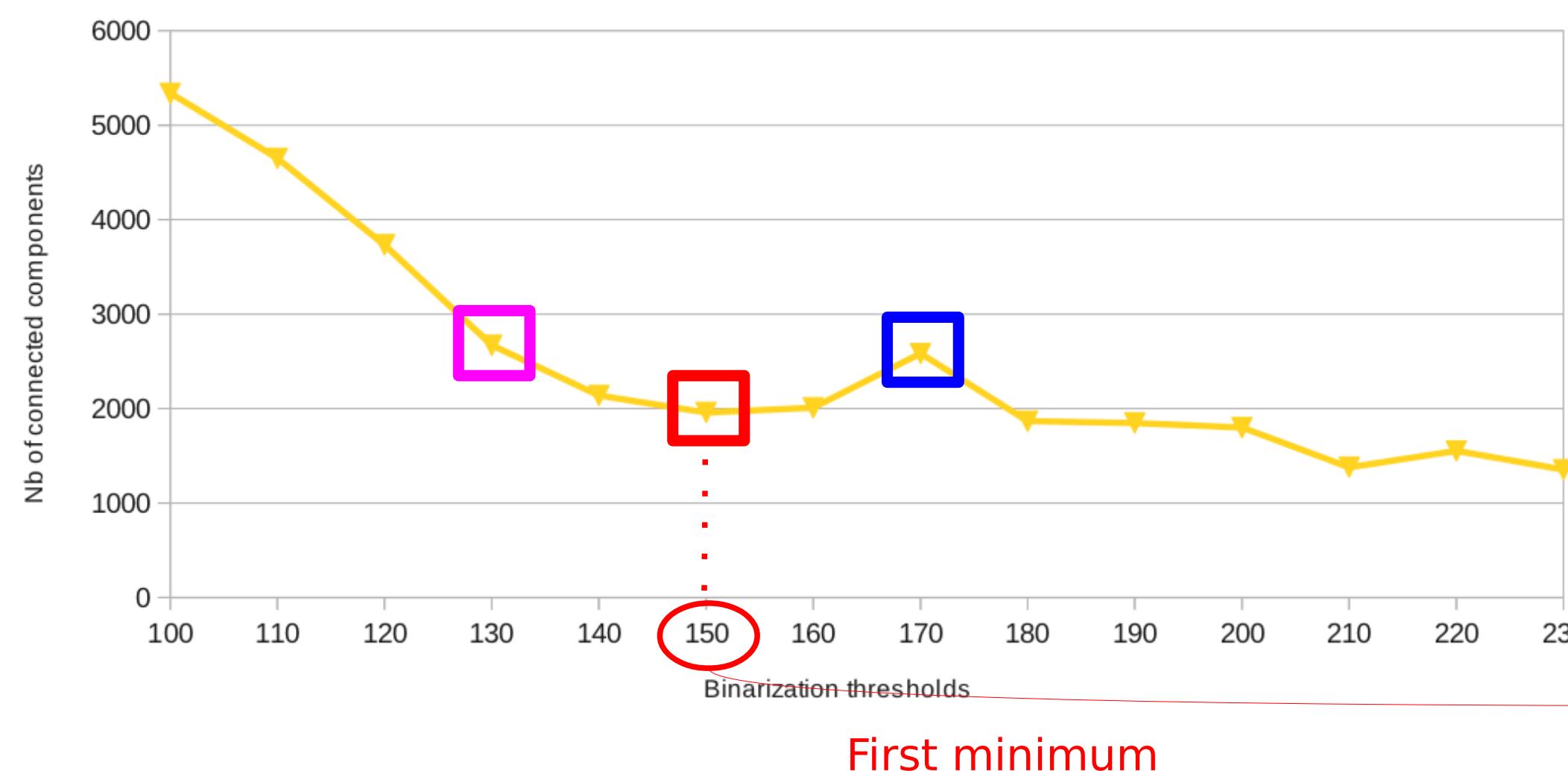
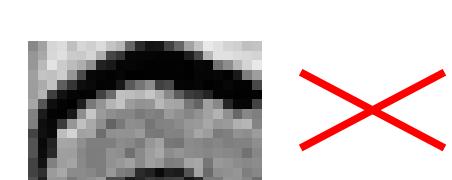


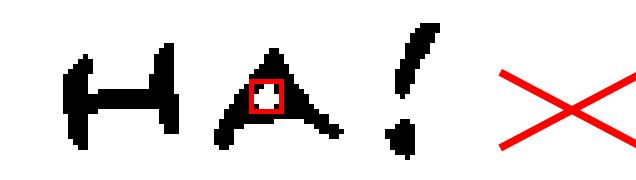
Image credit [1]

2) Text / graphic separation

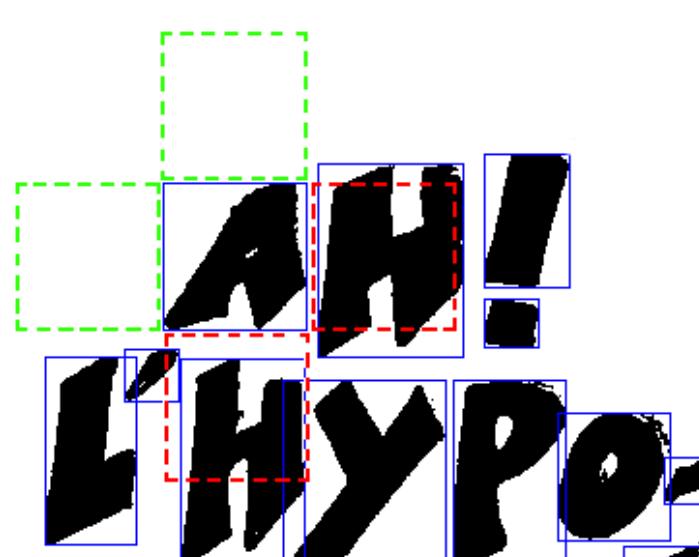
Contrast



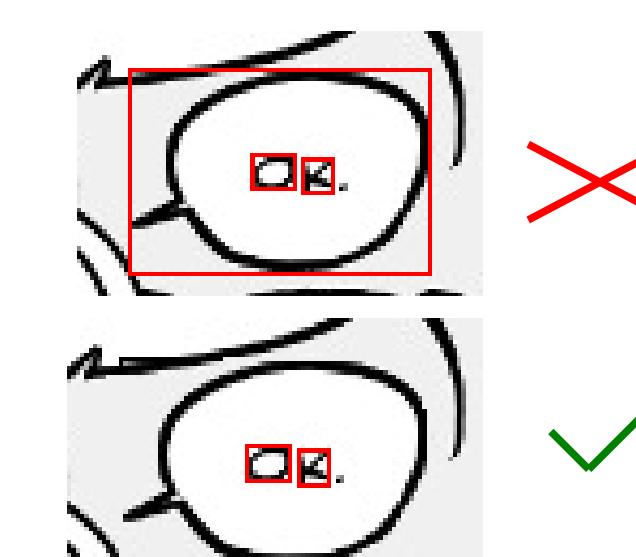
Black on white



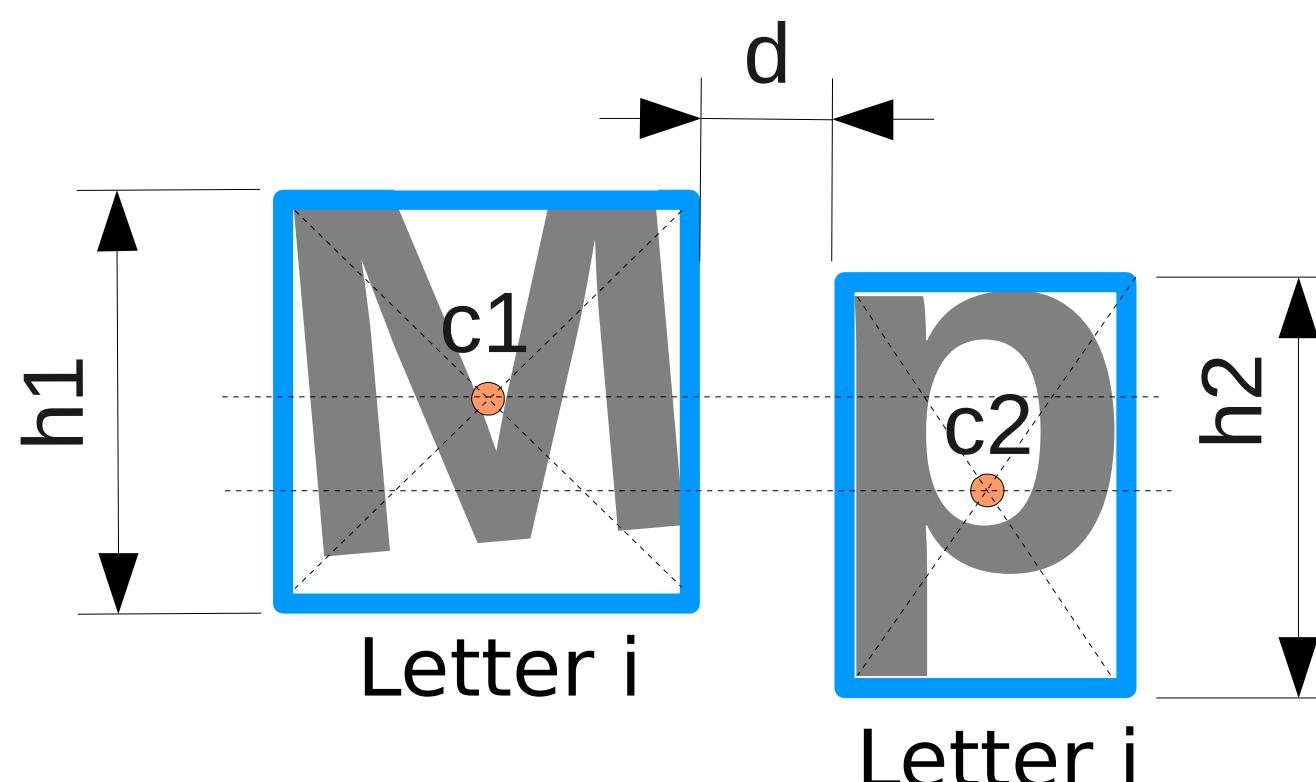
Neighbourhood



Overlapping



3) Text line localisation



We consider letters are on the same text line if:

$$d < \text{Max}(h_1, h_2)$$

$$i.y_{min} < c_2.y \text{ AND } i.y_{max} > c_2.y$$

Applications

Comics text localization can be used for image compression, OCR training or content retargeting and reflowing. Associated with OCR system, new uses may appear as automatic translation and speech synthesis.

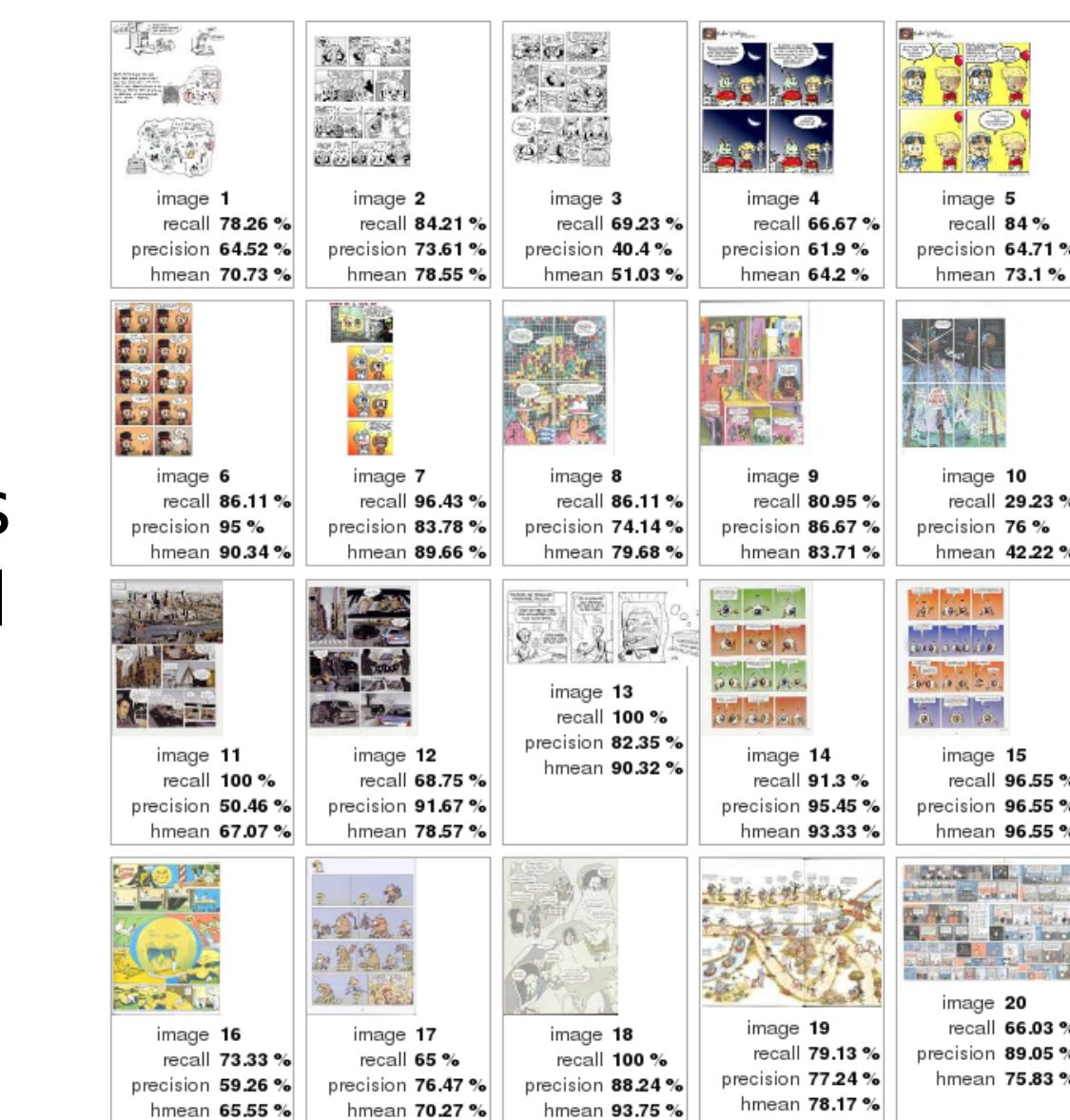
Conclusion & Perspectives

We have proposed and evaluated a new method based on connected components and contrast ratio to localize text lines in comics books.

Future works will consider other category of text and speech balloons.

Experiments

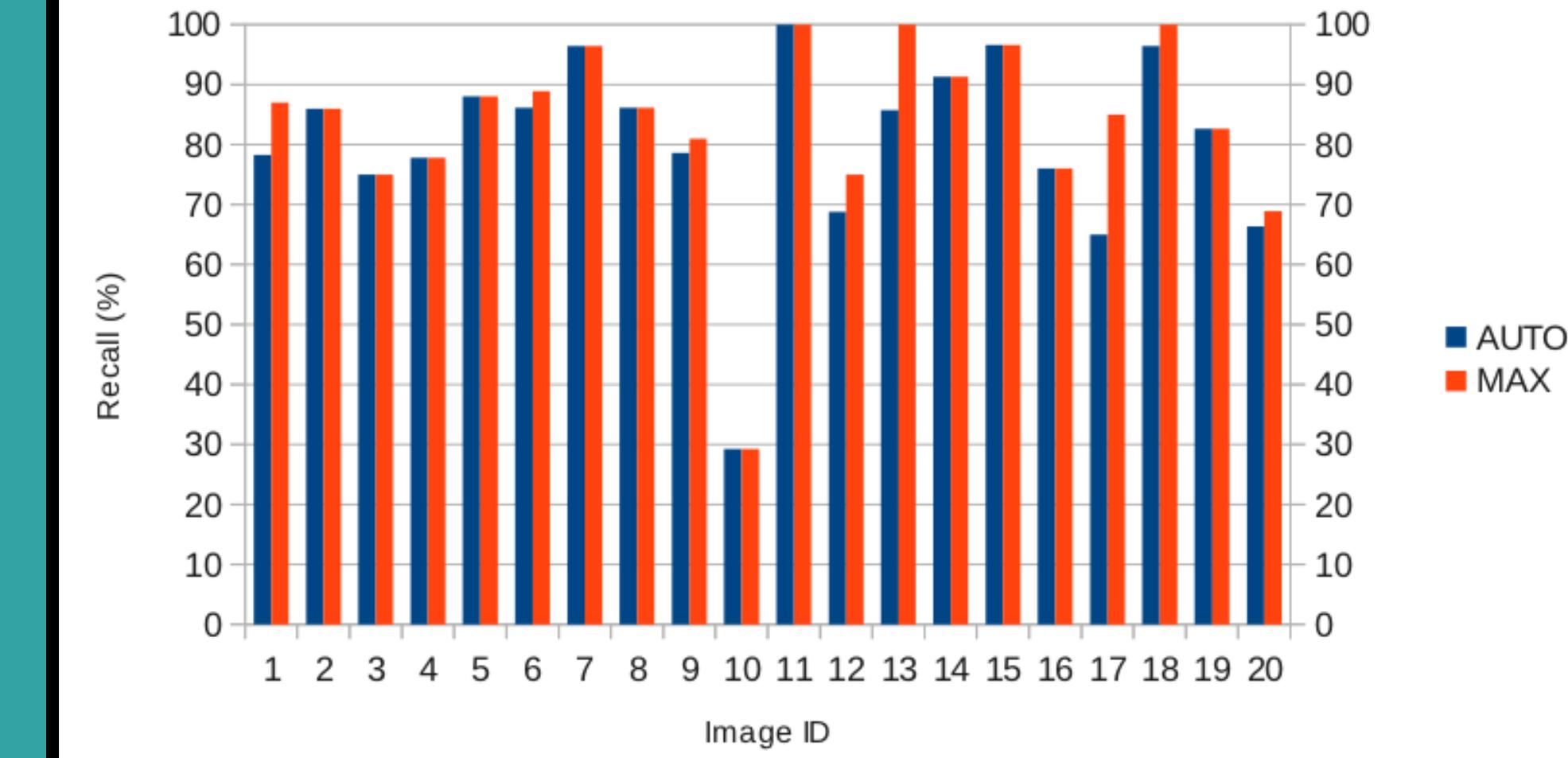
Dataset



Results



Evaluation



References

- [1] Roudier, N. Les terres creuses, Acte sur BD. Actes Sud. 2011
- [2] eBDtheque database, website: <http://ebdtheque.univ-lr.fr>
- [3] Neumann, L. and Matas, J. Real-time scene text localization and recognition. *Computer Vision and Pattern Recognition (CVPR)*, pages 1485-1490. 2012
- [4] Clavelli, A. and Karatzas, D. Text segmentation in colour posters from the Spanish civil war era. *Proceedings of the 2009 10th ICDAR*, pages 181-185, Washington. IEEE Computer Society. 2009
- [5] Tombre, K., Tabbone, S., Plissier, L., Lamiroy, B., and Dosch, P. Text/graphics separation revisited. *Workshop on Document Analysis Systems (DAS)*, pages 200-211. Springer-Verlag. 2002



Segment.	Text/graphic sepa.	R (%)	P (%)
(Neumann and Matas, 2012)[3]	Proposed	12.56	30.19
Colour[4]	Proposed	15.69	6.92
Tombre et al., 2002)[5]	Proposed	74.18	61.25
Otsu	Proposed	75.14	64.14
Proposed	Proposed	75.82	76.15