On the Difficulty to Design Arabic E-learning System in Statistics

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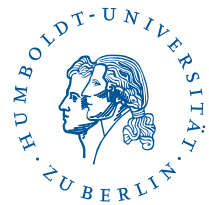

Motivation

- Effective education is a necessity.
- E-learning is an online education framework.
- Statistics is the field that can profit a lot from e-learning/e-teaching standards.
- Many websites provide students with attractive ways to learn statistics.

Figure 1: MM*STAT with the multiple languages

- E-learning market in Arab countries is smaller than Europe, United States market.
- We present a case study, which describes the development of the statistics e-learning-course in arabic.
- The implementation of MM*STAT needed for Arab educational institutions is however difficult.
- We propose a Wiki based solution.

Outline

1. Motivation ✓
2. E-learning/e-teaching MM*STAT
3. Statistics e-learning for arabic and the difficulties
4. WiKi technology implemented in arabic e-learning system
5. Conclusion

e-learning/e-teaching MM*STAT

- MM*Stat is an HTML based multimedia environment, see (http://www.md-stat.com).
- It provides e-learning of statistics in many languages.
- For a detailed description of MM*STAT see MRZ (2000).
- Multiple choice questions are provided for self-assessment and based on JavaScript.
- MM*STAT is a composition of filing cards.

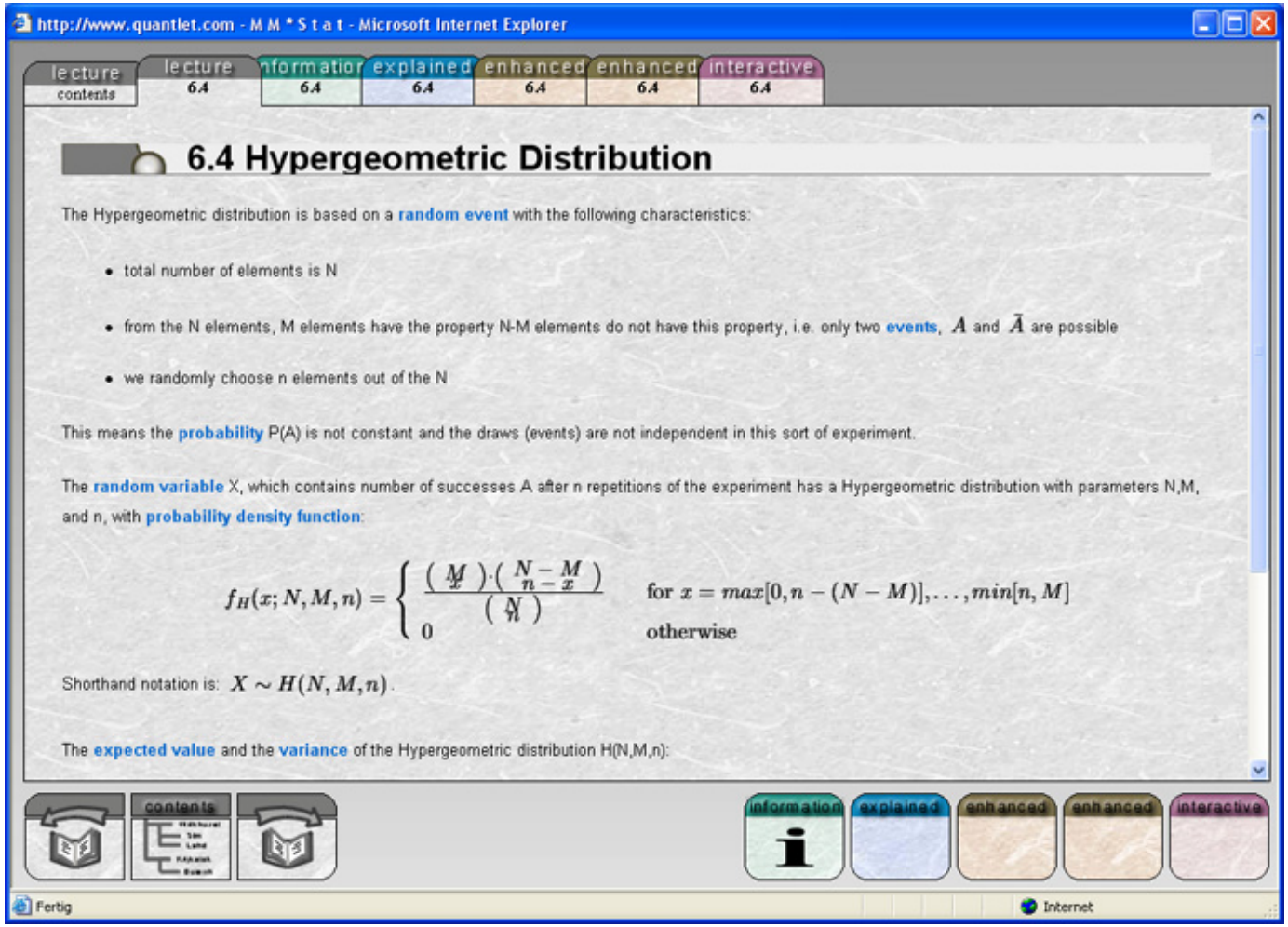

Figure 2: *Standardization is via an HTML filing card system.*

The implementation of the interactive examples into MM*Stat is based on the XploRe Quantlet technology.

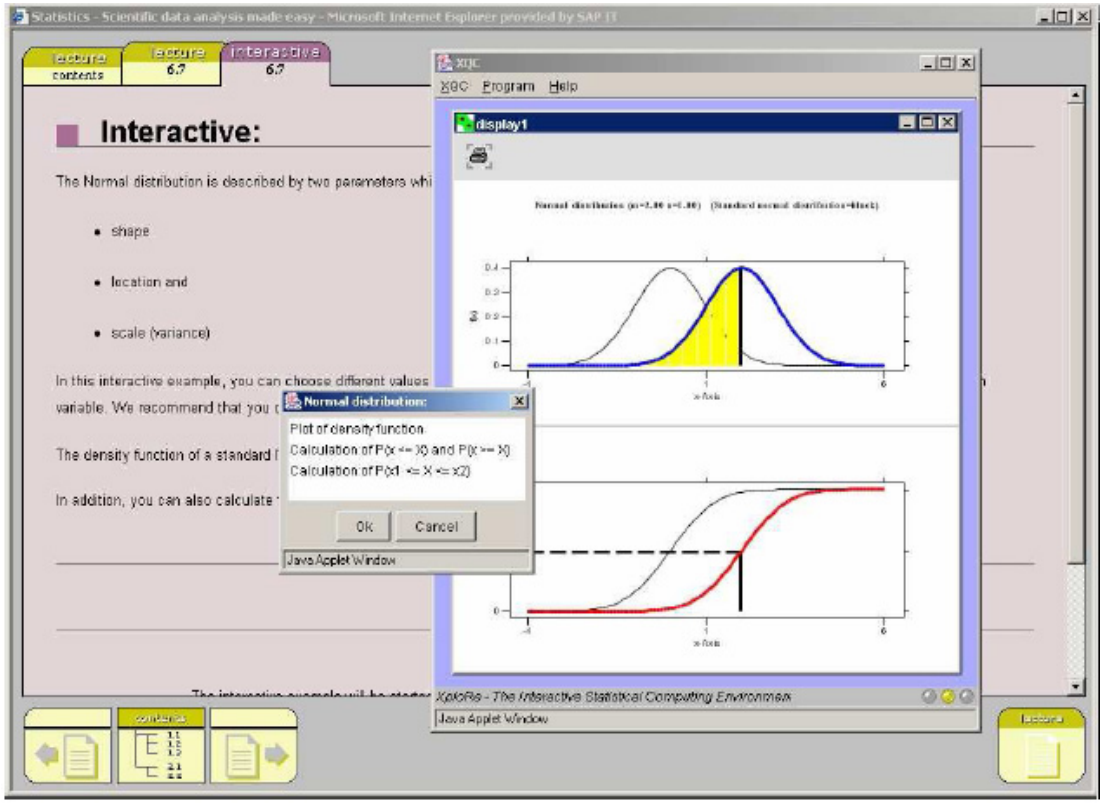

Figure 3: *Interactive example.*

Advantages of MM*Stat:

- Usage in various courses of studies.
- Automatic production from LaTeX via MD*book.
- MM*Stat enables interactive examples.

Limitations of MM*Stat:

- The examples have an economics flavor.
- A specific statistical engine is addressed for the interactive examples.
- Arabic text not possible.

The difficulties of Arabic e-learning systems

- There is a big gap in the e-learning market between Arab countries and Europe, United States.
- The e-learning market is estimated to reach 11 billion dollars in 2008 (Europe, United States).
- In Arab countries it is expected to reach from 50 to 60 million dollars in 2008.
- No statistics platform in Arabic.
- Only two arabic platforms for mathematics, see (http://aghandoura.com) , and (http://www.hesab.net).

Figure 4: *Graphical user interface of ghandoura*

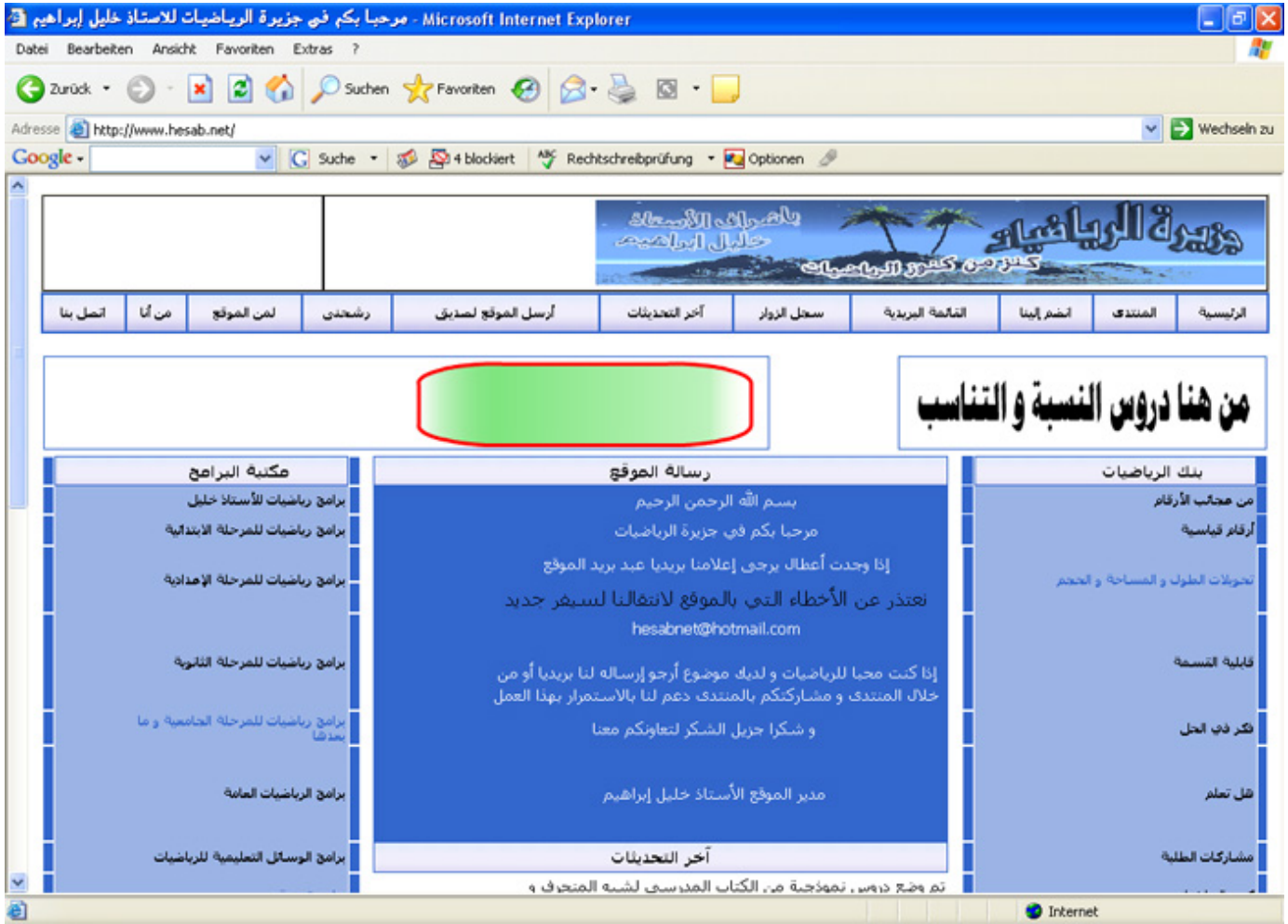

Figure 5: *Graphical user interface of hesab*

Some difficulties of design:

- The direction: Writing in Arabic is from right to left.
- LaTeX2HTML: Arab text does not work with LaTeX2HTML.
- Education gap between Europe/ United states and Arab countries.
- Cultural differences: Interest rates, alcohol prohibited.

Media WiKi technology

- Framework for hypertext documents.
- Wiki is an online collaboration model.
- Students may modify contents.
- Arabic words may be entered directly.
- LaTeX is embedded.

Why Wiki?

- Wikis use simple markup rules.
- The WiKi website keeps the old copies of our pages.
- Wikis are fully editable, everyone who reads the Wiki, can work on the pages and provide new pages.
- Great potential as a tool for online collaboration, (http://teachwiki.wiwi.hu-berlin.de).

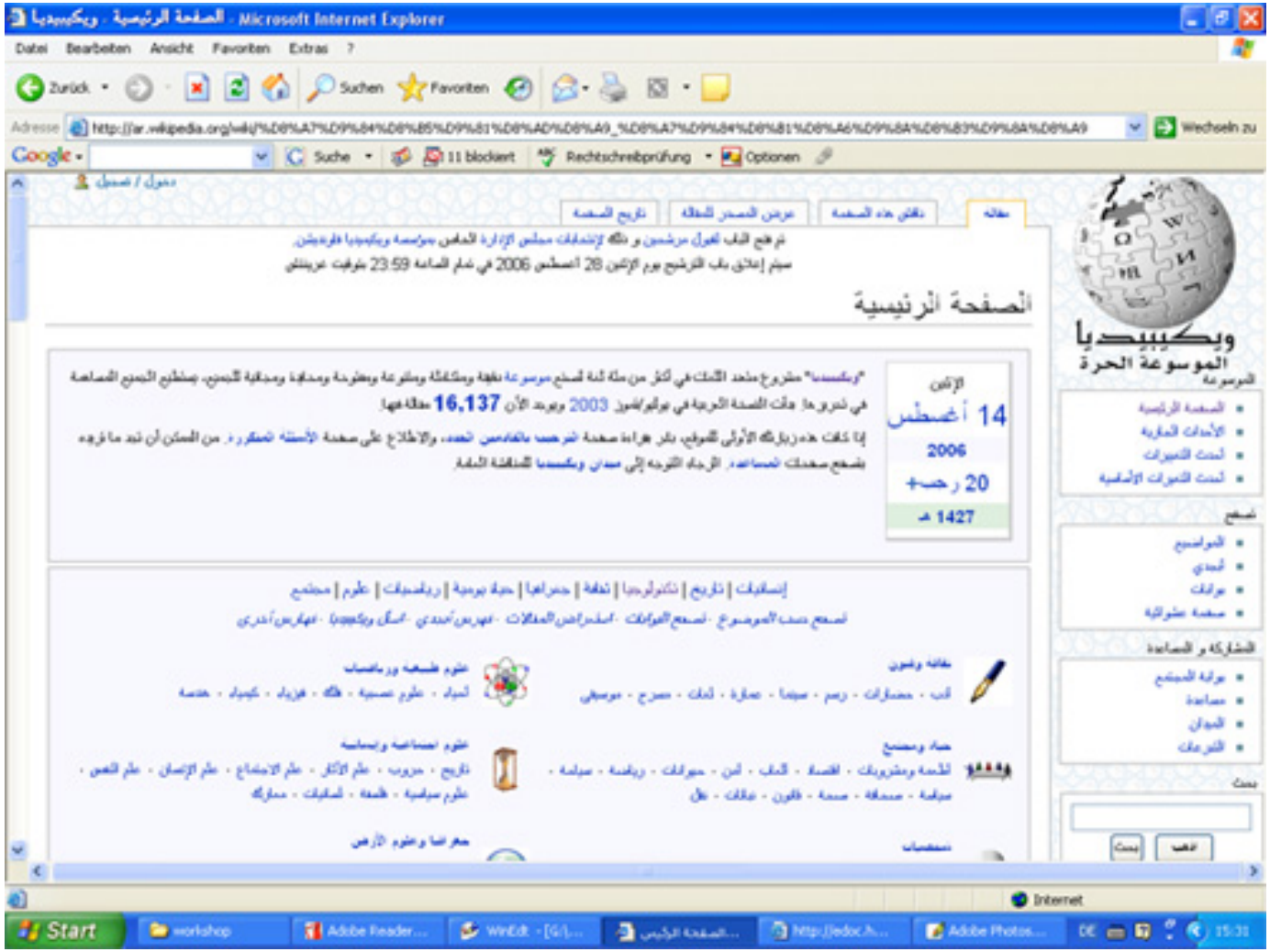

Figure 6: *The arabic wiki encyclopaedia home page*

- Arabic MM*Stat in Mediawiki. See (http://pluto.wiwi.hu-berlin.de/mediawiki/index.php).
- Take content from MM*STAT, adjust to arab requirements.
- Modify examples to adjust to arabic cultural conventions.

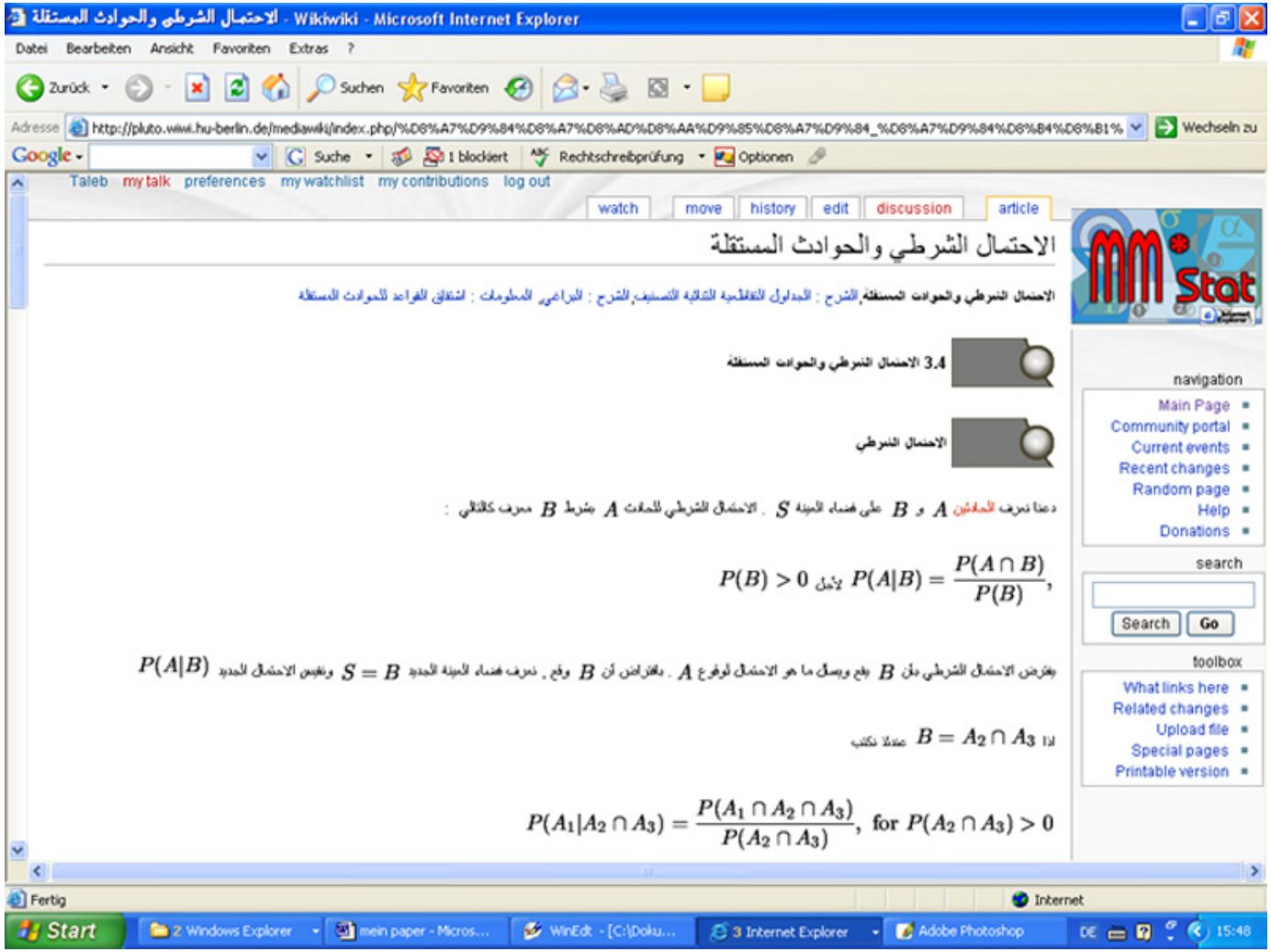

Figure 7: *graphical user interface (GUI) of Arabic MM*STAT in WiKi*

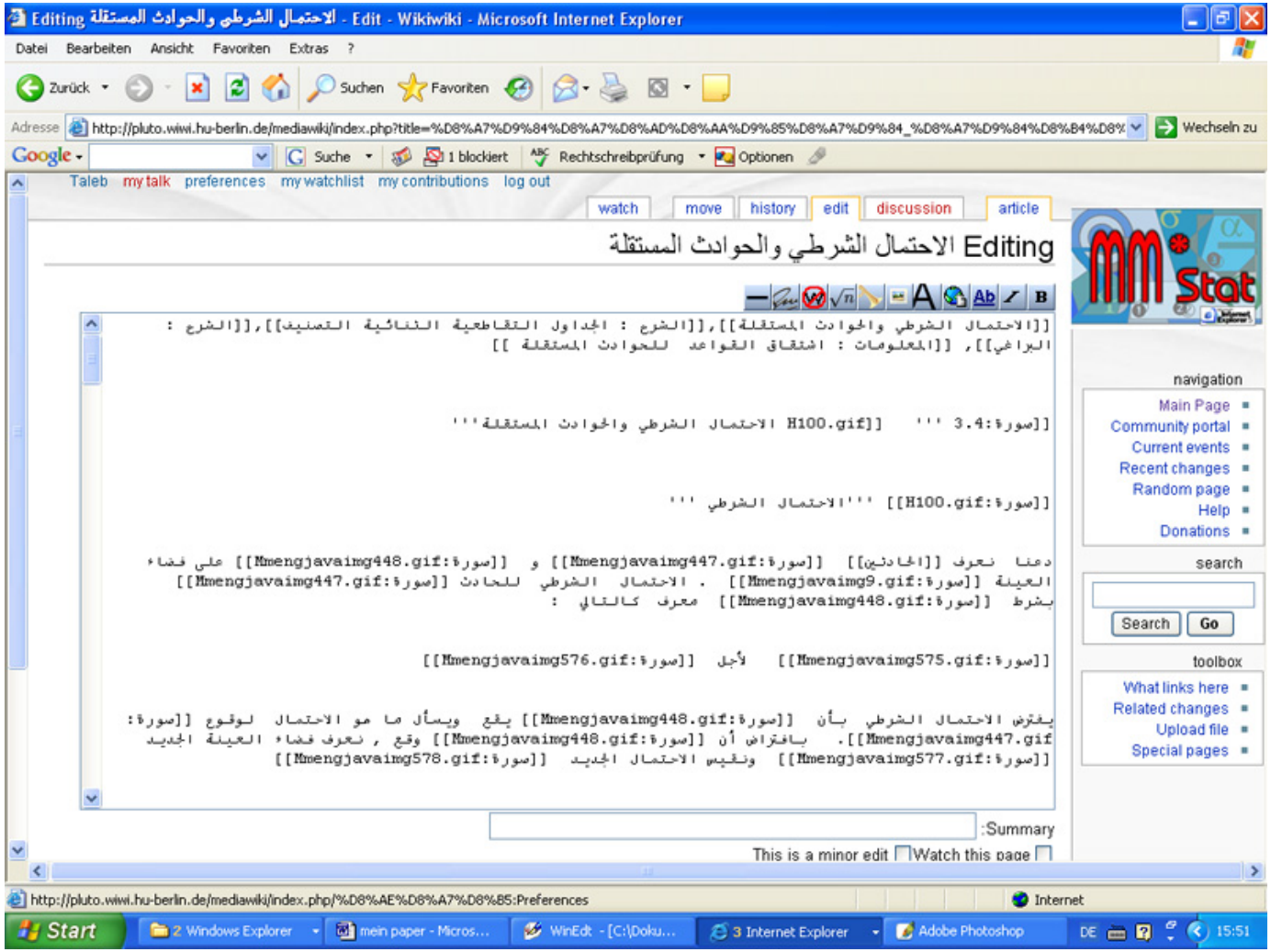

Figure 8: *edit state in the ArabWiki*

Conclusion

- Arabic users forced to choose: foreign language, or poor Arabic support.
- There is the possibility of creating an e-learning system with Arabic MM*STAT, but it heavily depends on manual work.
- Therefore we propose WiKi technology.
- you are welcome to contribute to Arabic MM*STAT!

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