Analysis of Forum Posts Written by Patients and Health Professionals
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To cite this version:

HAL Id: lirmm-01130727
https://hal-lirmm.ccsd.cnrs.fr/lirmm-01130727
Submitted on 12 Mar 2015

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Context: Online health fora are increasingly visited by both patients and health professionals. For online fora visitors, posts written by health professionals may be more interesting since the professionals are able to well explain the problems, the symptoms, correct false affirmations and give useful advices, etc.

Objective: To automatically distinguish posts written by health professionals from those written by patients.

Intuition: Use a supervised approach and test the following features with different classification models:
- Vocabulary
- Emotions
- Uncertainty
- Question marks
- Misspellings

Methods:
- 4000 posts divided equally between patients and health professionals
- Cleaning (quotes, short posts, etc.)
- Annotation (emotions, uncertainty, questions and misspellings)
- preprocessing (feature selection, slang replacement, spelling correction, etc.)
- Classification (Weka)

Results: 10-folds cross validation (f-measures)

<table>
<thead>
<tr>
<th>Features</th>
<th>Number of features</th>
<th>SVM SMO</th>
<th>Naive Bayes</th>
<th>Random Forest</th>
<th>JRip</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>1,120</td>
<td>0.938</td>
<td>0.869</td>
<td>0.901</td>
<td>0.892</td>
</tr>
<tr>
<td>U+B</td>
<td>2,160</td>
<td>0.921</td>
<td>0.865</td>
<td>0.902</td>
<td>0.889</td>
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<tr>
<td>EM</td>
<td>1</td>
<td>0.565</td>
<td>0.529</td>
<td>0.564</td>
<td>0.609</td>
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<tr>
<td>UM</td>
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<td>0.682</td>
<td>0.660</td>
<td>0.657</td>
<td>0.689</td>
</tr>
<tr>
<td>MI</td>
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<td>0.636</td>
<td>0.601</td>
<td>0.641</td>
<td>0.653</td>
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<tr>
<td>QM</td>
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<td>0.560</td>
<td>0.516</td>
<td>0.613</td>
<td>0.653</td>
</tr>
<tr>
<td>EM+UM+MI+QM</td>
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<td>0.751</td>
<td>0.66</td>
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<td>0.927</td>
<td>0.866</td>
<td>0.906</td>
<td>0.897</td>
</tr>
</tbody>
</table>

Acronyms:
- U: Unigrams
- B: Bigrams
- EM: Emotion Markers
- UM: Uncertainty Markers
- MI: Misspellings
- QM: Question Marks