Normalization of SMS Text

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Problem Introduction

- Real-time, short, massive in volume
- Noisy
- Similar to chat text as in facebook,twitter

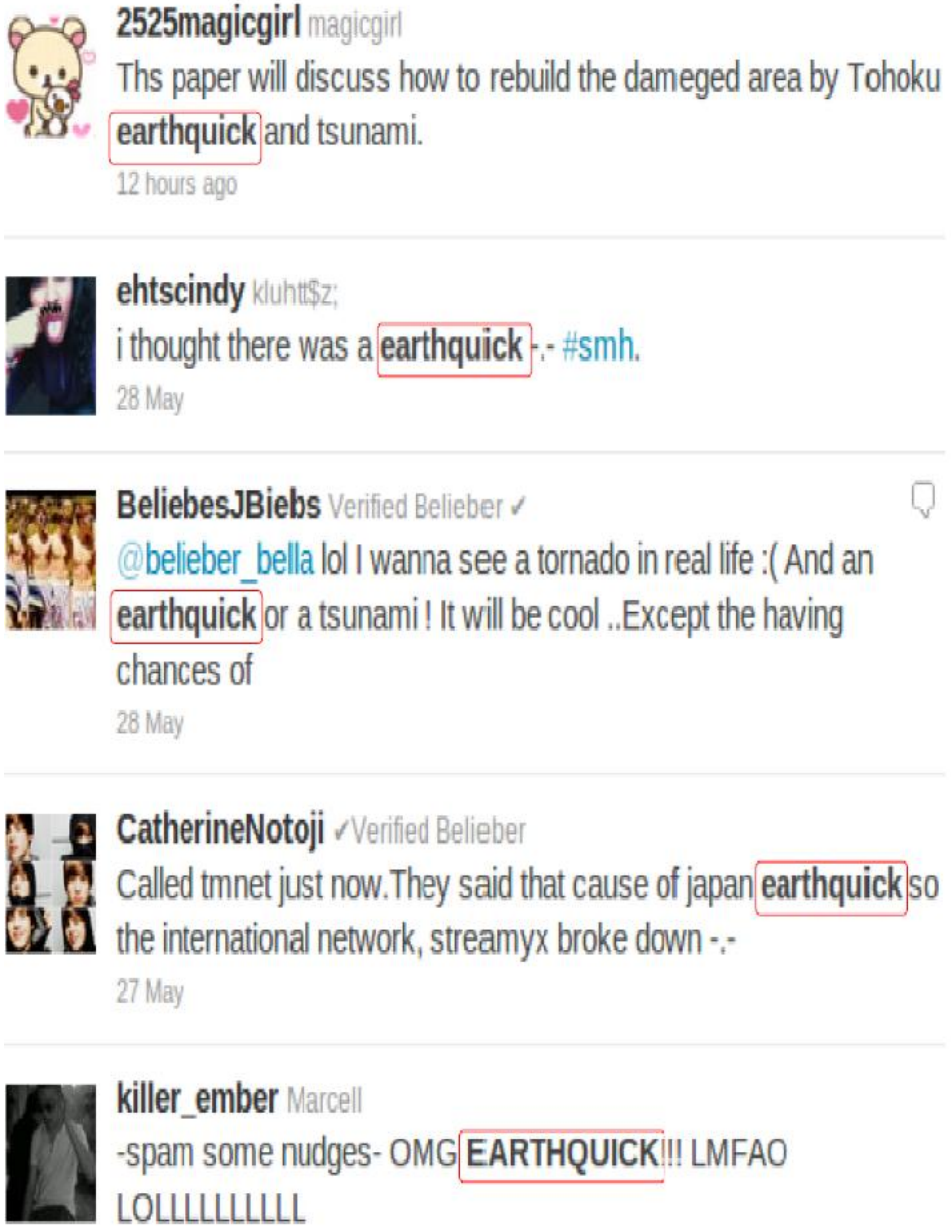
hav bin reali happy since tlkin 2 u dnt no y tho

Have been really happy since talking to you Dont know why though

e.g., earthquak, earthquick, ...

could be normalised to

“earthquake”.



Objective

- To convert ill-formed English words to their standard forms.
- Typos e.g. luv
- ad hoc abbreviations e.g. ppl, u
- Phonetic substitutions e.g. 2morrow,10q etc.

- The normalization focuses on Out-Of-Vocabulary (OOV) words, which are firstly identified.

He love to tlk abt ur styl

He love to talk about your style

- Noisy channel model

Given ill-formed text T and standard form S, find argmax P(S|T) via argmax P(T|S)P(S), where P(S) = language model and P(T|S) =error model [Toutanova and Moore, 2002, Choudhury et al., 2007,Cook and Stevenson, 2009]

- Phrasal statistical machine translation

SMT: original text = source language; normalised form = target language[Aw et al., 2006, Kaufmann and Kalita, 2010]

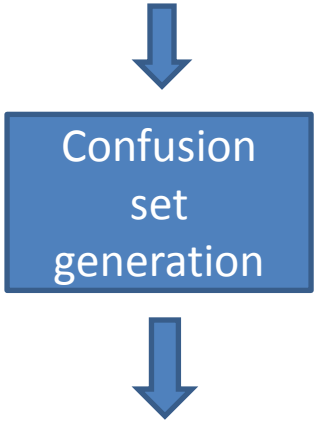
- Miscellaneous

Automatic Speech Recognition [Kobus et al., 2008], Hybrid models[Beaufort et al., 2010]

Proposed Approach

- Confusion set generation (finding correct candidates)

... Raju reach home **b4** 12 midnite ...



before

four

be

bore

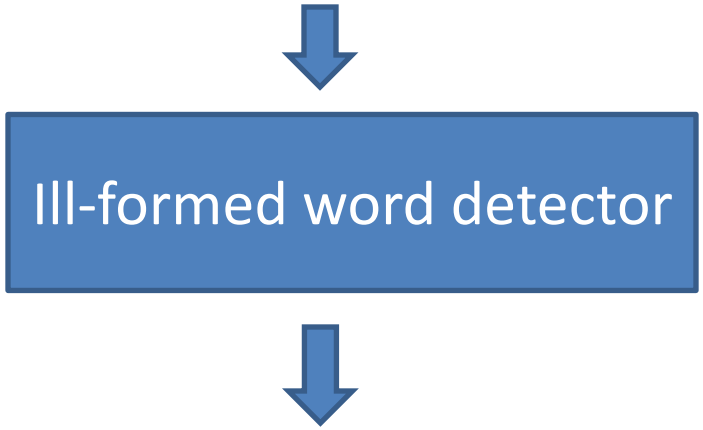
- Detection of ill-formed word by using dependency parser(is the candidate an ill-formed word?)

before

Raju reach home ? 12 midnite

four

bore



Yes or No

Normalization of ill-formed word
(select canonical lexical form)

References

- Bo Han and Timothy Baldwin

Lexical Normalization of Short Text Messages: Make Sense a #twitter

- Deana L. Pennell and Yang Liu

A Character-Level Machine Translation Approach for Normalization of SMS Abbreviations

- Toutanova and Moore, 2002, Choudhury et al., 2007,Cook and Stevenson, 2009

- Kaufmann and Kalita, 2010
- https://twitter.com