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Cannot Predict Comment Volume of a News Article before (a few) Users Read It

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Predict Comment Volume of a News Article

Previous Works

Predictors based on article content features alone can provide high accuracy.

Communication Community

Fervent discussion appears when there is interactivity among users.

Early comments should be taken into consideration.

- Disagreement between the two ⇨ Our Work

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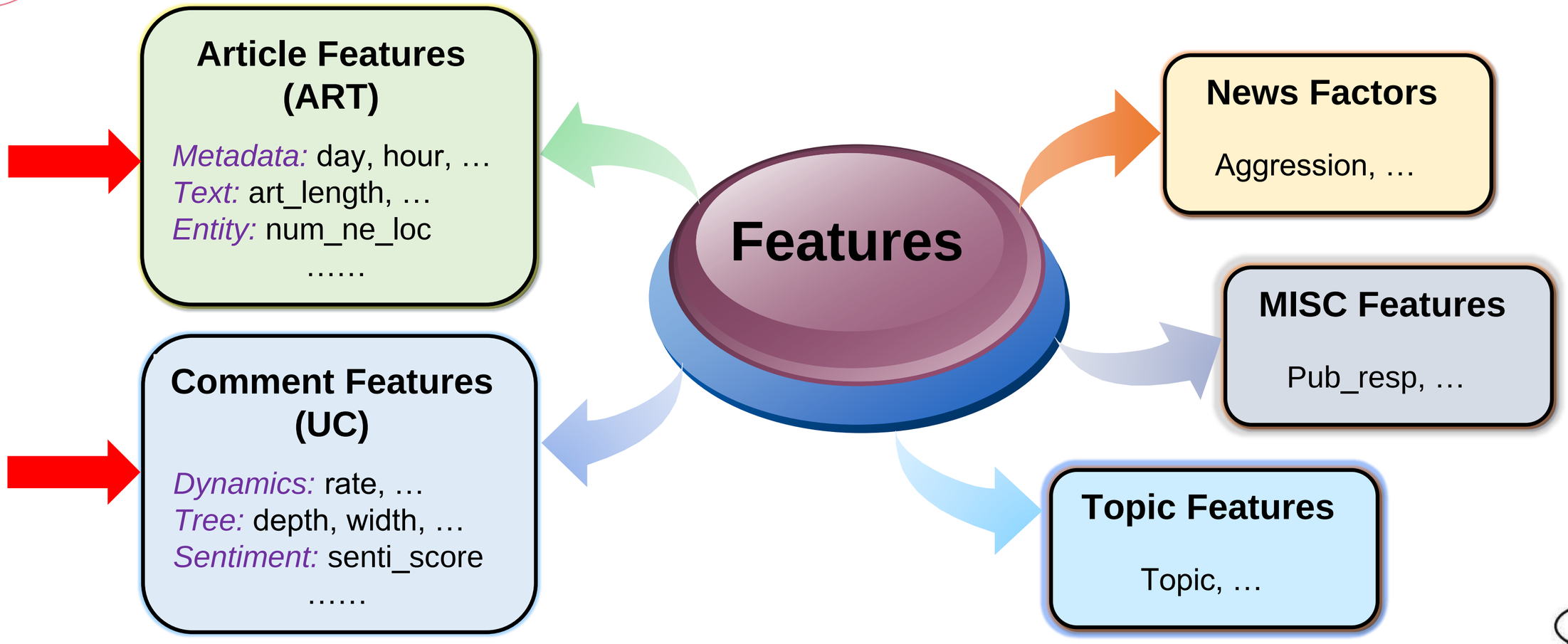
Comment Volume Prediction



- Understand the importance of feature subset in the prediction task!

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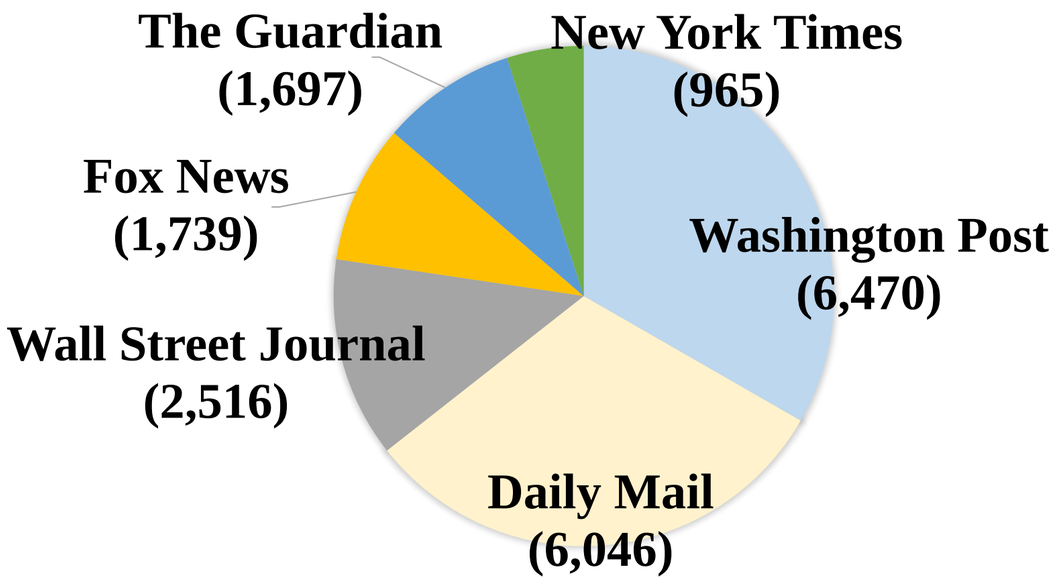
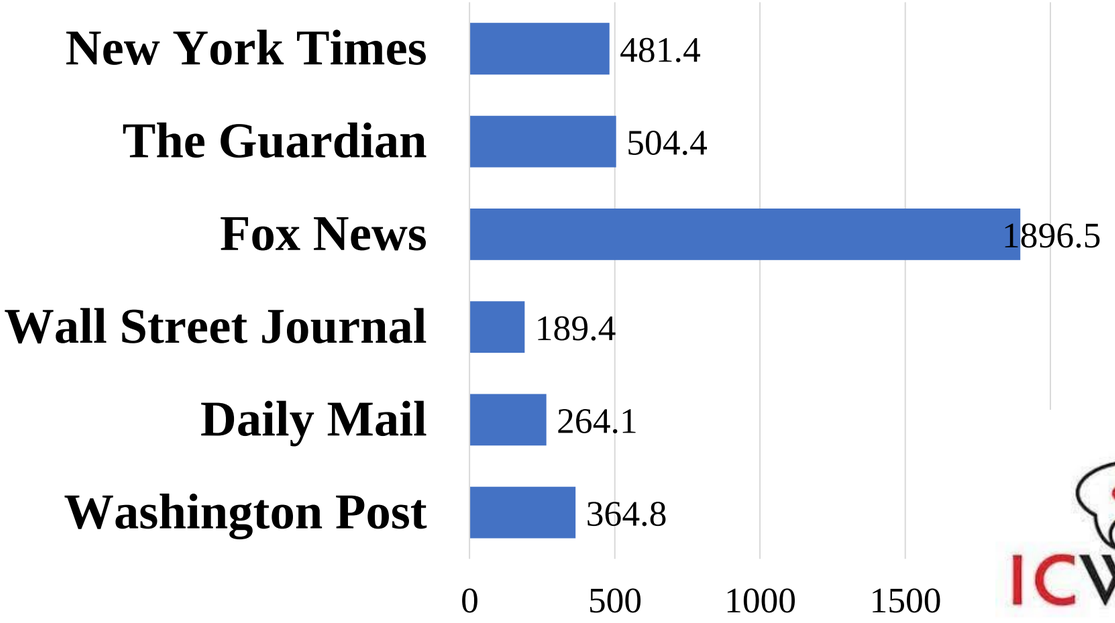
Dataset

- Articles and Comments from 6 outlets
  - ~20K articles
  - 465 comments per article

Articles



Comment Volume



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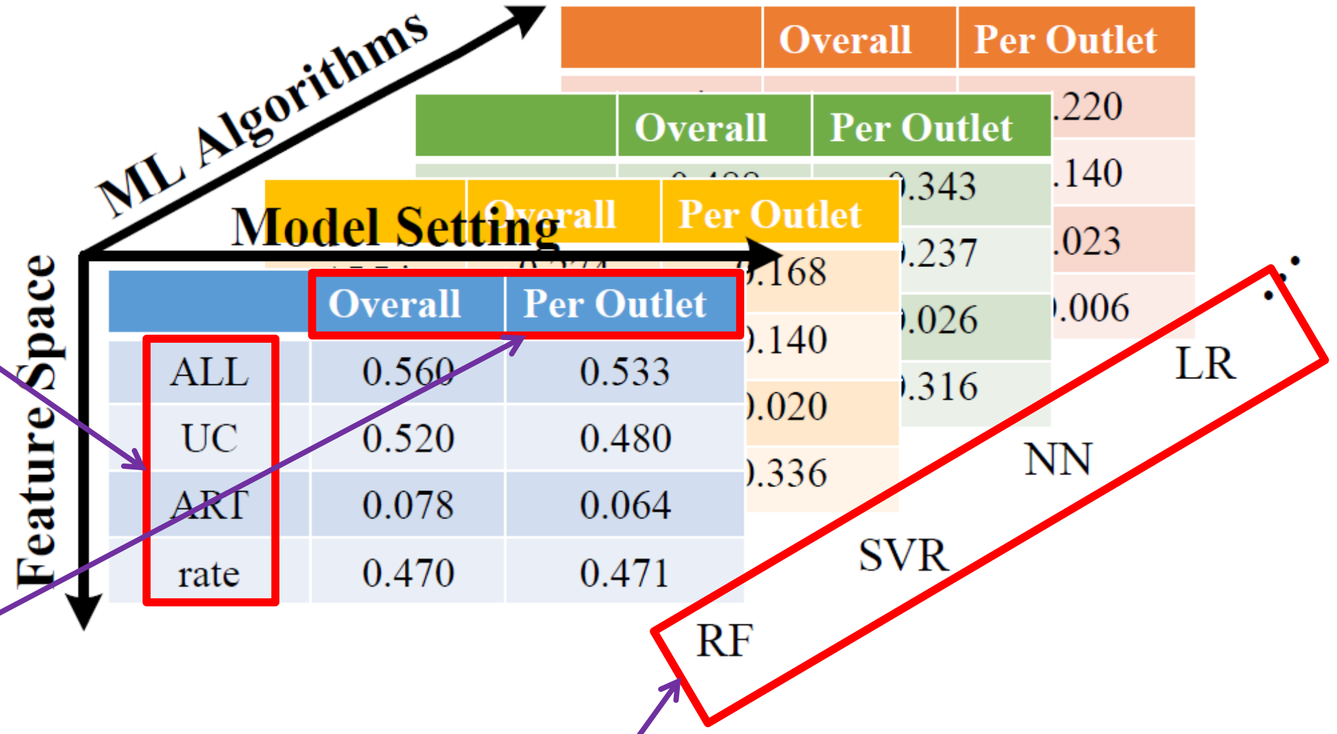
Methodology

Feature Space

$$rate = \frac{\alpha}{t_\alpha - t_1}$$

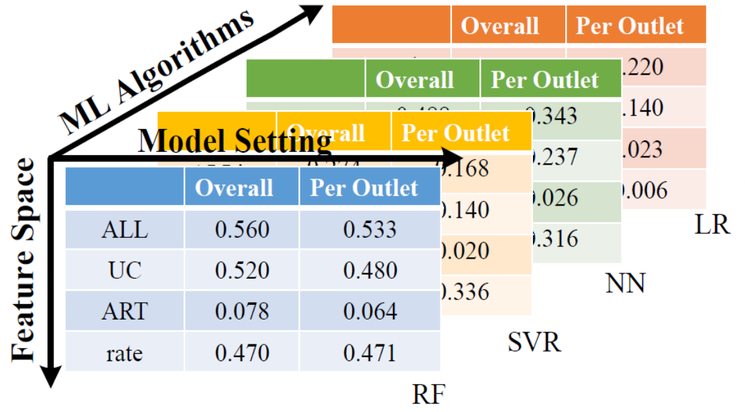


Model Setting

- Global Model
- Local Model

Machine Learning (ML) Algorithm

Experimental Results



- R^2 on global setting

	RF	SVR	NN	LR
ALL	0.560	0.472	0.499	0.413
UC	0.520	0.479	0.502	0.400
ART	0.078	0.021	0.016	0.020
rate	0.470	0.465	0.459	0.370

- Comment features are important!
- Not solved by LR!
- Dominant single feature!

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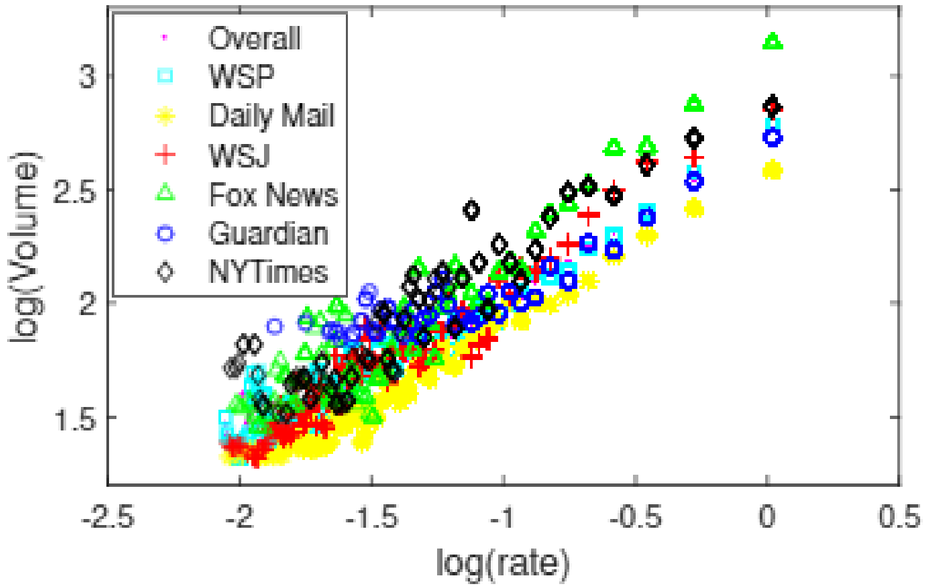
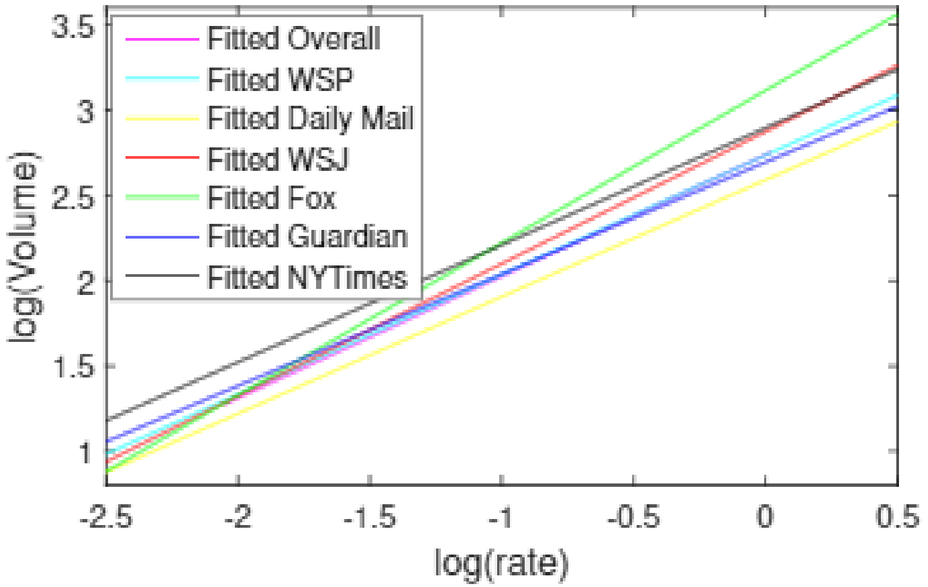
Rate Study

- Fit plot by Linear Line → **Rate Model**



(a) Rate and Volume in the log scale



(b) Fitted Lines

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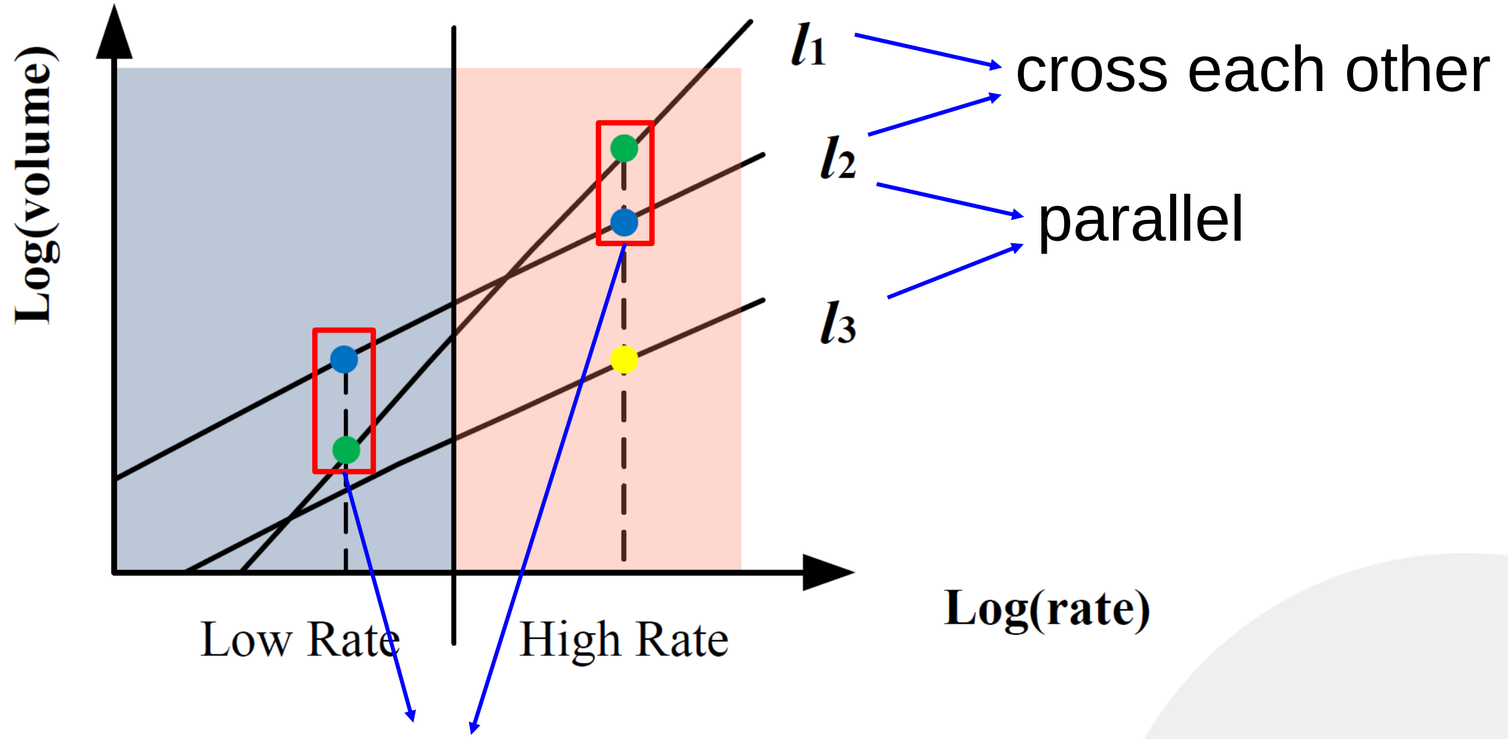
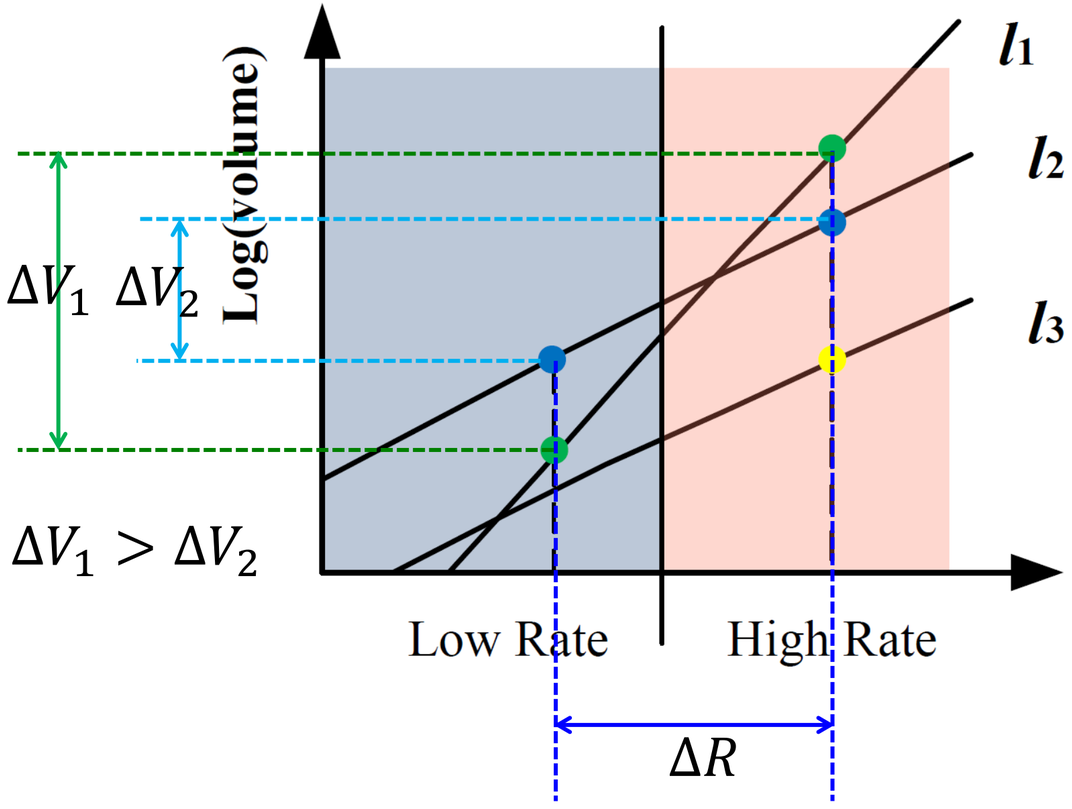
Rate Model



- Same rate, different volume!

Rate Model



- ***Volume*** in outlet 1 is more **sensitive** to ***rate***!

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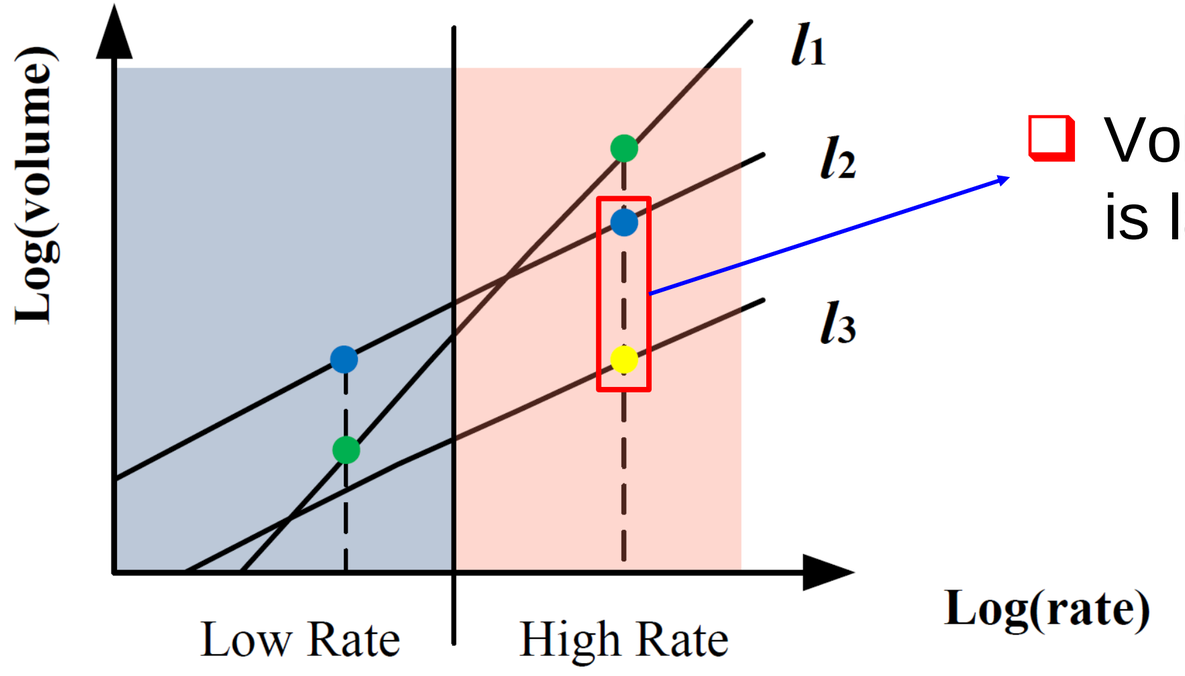
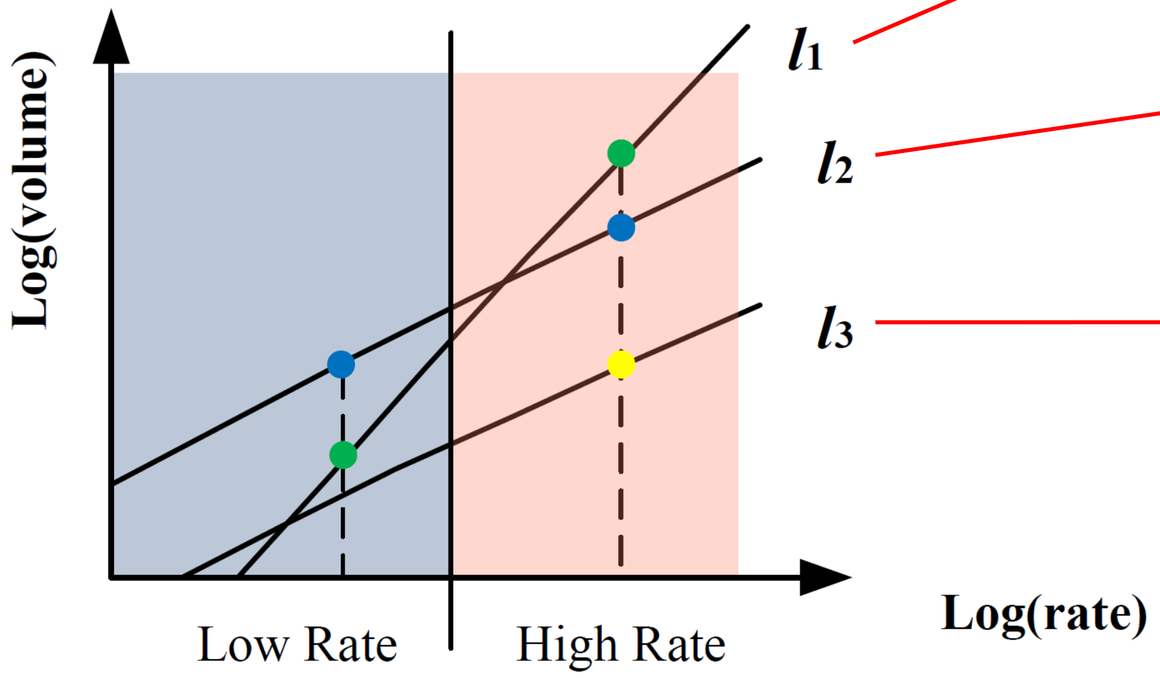
Rate Model



- Volume in outlet 2 is larger!

Rate Study across Outlets



FOX NEWS U.S.

The Washington Post

The New York Times

theguardian

Daily Mail .com

THE WALL STREET JOURNAL.

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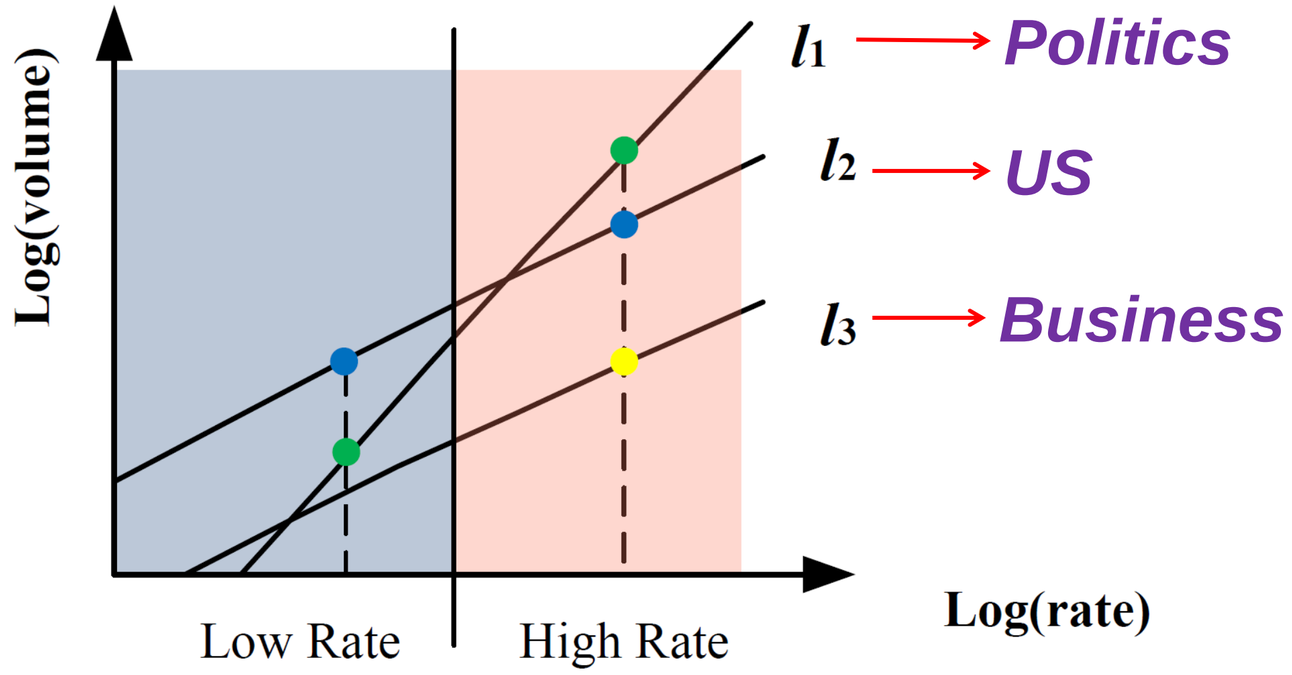
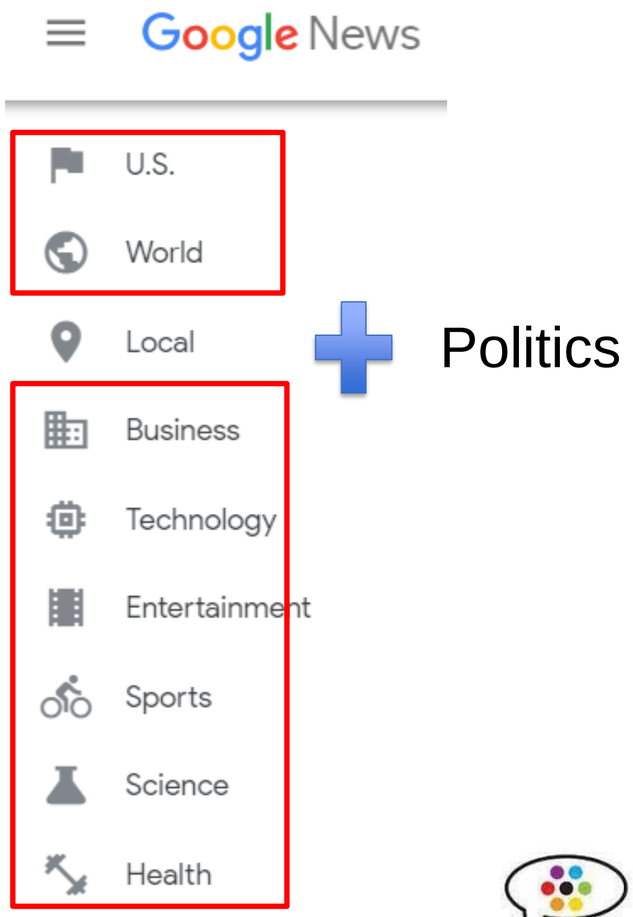
Rate Study across Categories





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The End

Welcome to our talk in ICWSM 2021!