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Studying Confirmation Bias in Hashtag Usage on Twitter

- **Problem**

  - Confirmation bias and **filter bubble effects** are a problem in social platforms such as Twitter

  - The heavy **reuse of hashtags that are popular in the own Twitter network** can foster these effects
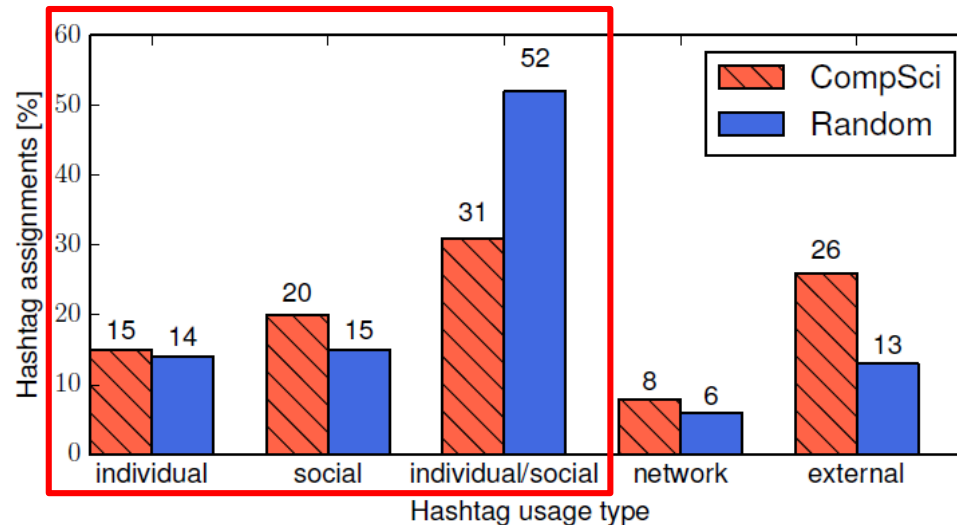
- **Method**

  - We study confirmation bias in Twitter by **treating the reuse of hashtags as a proxy for it**

Dataset	$|U_S|$	$|U|$	$|T|$	$|HT|$	$|HTAS|$
CompSci	2,551	91,776	5,649,359	1,081,403	9,161,842
Random	3,466	127,112	8,157,702	1,507,773	13,628,750

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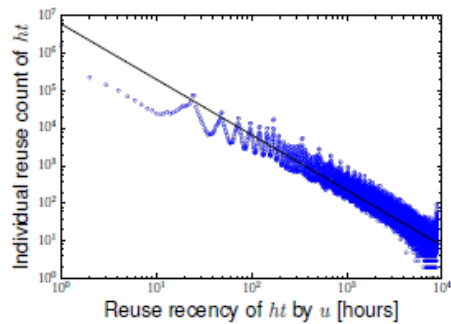
Result 1: Hashtag Reuse Types

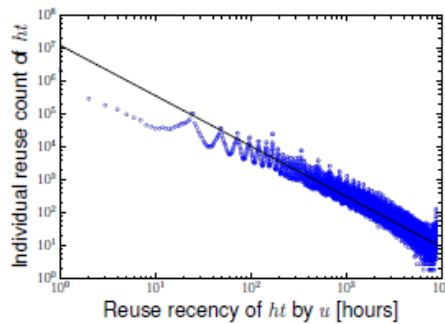- *How are people **reusing hashtags** in Twitter?*

- 66% and 81% of hashtag assignments can be explained by **individual** or **social** hashtag reuse

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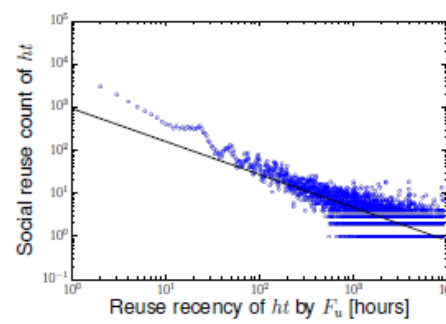# **Result 2:** Temporal Effects on Hashtag Reuse

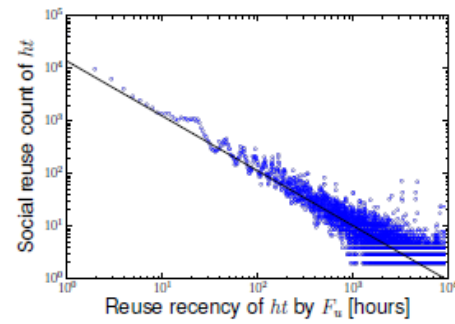- *Do temporal effects have an **influence on individual and social hashtag reuse**?*

(a) Individual hashtag reuse *CompSci* dataset ($R^2 = .883$)

(b) Individual hashtag reuse *Random* dataset ($R^2 = .894$)

(c) Social hashtag reuse *CompSci* dataset ($R^2 = .689$)
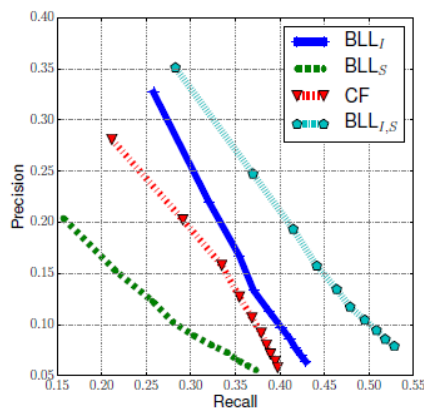
(d) Social hashtag reuse *Random* dataset ($R^2 = .771$)

- People tend to reuse hashtags that were **used very recently** by their own or by their followees

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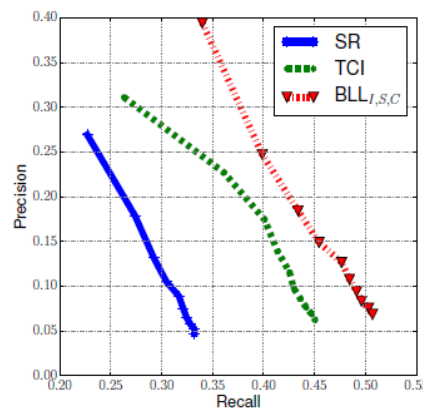# **Result 3:** Hashtag Reuse Prediction

- *Can we **predict / recommend hashtags** by modeling reuse and temporal effects?*
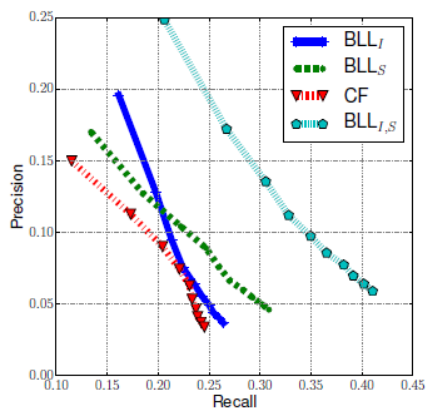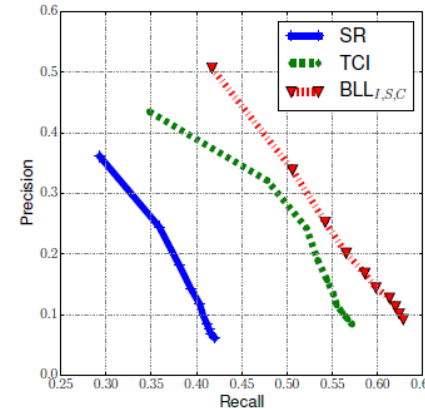

(a) *Scenario 1: CompSci* (b) *Scenario 1: Random* (c) *Scenario 2: CompSci* (d) *Scenario 2: Random*

- What can be do to overcome it?
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