Beyond the dependencies of altmetrics: conceptualizing ‘heterogeneous couplings’ between social media and science

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Introduction

• Altmetrics/social media metrics: networked nature
• Less explored
• Examples include:
  – ‘Communities of attention’ (Haustein, Bowman & Costas, 2015)
  – Follower/followee relations (Robinson-Garcia, van Leeuwen & Rafols, 2015)
  – Co-readership (Kaker et al, 2015; Didegah & Thelwall, 2016)
  – Readership coupling (Haunschild & Bornmann, 2015)

• A general conceptualization/modelling of network interactions still missing
• Systematic discussion!
Let’s take a look in bibliometrics

Bibliographic coupling

Co-citation
Heterogeneous couplings

• Similar network relations for most social media metrics

• Diverse/heterogeneous nature of social media actors and events

• **Heterogeneous couplings**: co-occurrence of linkages based on social media environments with scholarly objects
Example, Twitter
Constitutive elements

These elements can be combined, allowing different types of couplings

Tweet1
@user1
- URL1, URL2, URL3, URL4, #h1, #h2, @user2, @user3, @user4, keywords

Tweet2
@user2
- URL1, URL2, URL3, URL4, #h1, #h2, @user1, @user3, @user4, keywords

[1] This is a link to scholarly object (e.g., a paper, a dataset, a researcher’s website, a university website, etc.)
Twitter coupling

Bibliographic coupling
Other couplings

Tweeter coupling

@user1
@user2

URL1 (paper 1)
URL2 (paper 2)
cites
cites

Hashtag coupling

#h1
#h2

Linked to

URL1 (paper 1)
Linked to

URL2 (paper 2)
Co-Twitter-ation

Co-citation
Other co-occurrence couplings

Co-tweeter-ation

Co-hashtag-ation
I dependencies: generalizing heterogeneous couplings

Agent 1

• Styles of engagement with scholarly objects
• [Affordances]

Event 1

Agent 2

• Styles of engagement with scholarly objects
• [Affordances]

Event 2

Recorded social media activity related to a scholarly object

Forms of interactions, usually through social media affordances
Generalization

Social media coupling

Co-social media-ation

Event 1
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Agent 1
-----------
Affordance 1

Event 2
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Agent 2
-----------
Affordance 2

Research Object 1

Research Object 2

Event 1
-----------
Agent 1
-----------
Affordance 1

Event 2
-----------
Agent 2
-----------
Affordance 2

Engages with

Engages with

Engages with

Engages with

Research Object 1

Research Object 2
Practical examples – Tweeter coupling
Questions?
Suggestions?