MEASURES OF NOVELTY IN BIOMEDICAL LITERATURE

Shubhanshu Mishra (smishra8@Illinois.edu)
Vetle I. Torvik (vtorvik@Illinois.edu)
Graduate School of Library and Information Science
University of Illinois at Urbana-Champaign, Champaign, IL, USA

Research Question

How can we quantify the conceptual novelty of published articles in the biomedical literature?

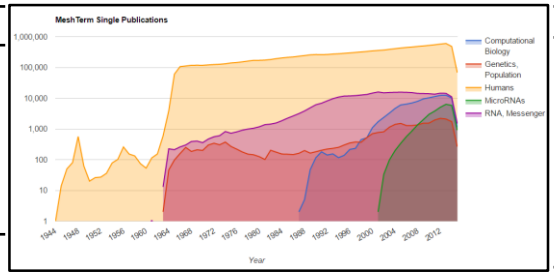
Approach

Using temporal trends of articles published on an individual and pair of concepts, identified using Medical Subject Headings (MeSH).

An interface to browse our results:

http://abel.lis.illinois.edu/gimli/novelty

Category	Age in years	Age in papers
Chemicals	MicroRNAs (3)	MicroRNAs (331)
InfoSci	Computational Biology (17)	Computational Biology (15,412)
Organisms	Humans (60)	Humans (8,755,350)



Category-Category	Age in years	Age in papers
Chemicals-Chemicals	MicroRNAs - RNA, Messenger (1)	MicroRNAs - RNA, Messenger (50)
Chemicals-InfoSci	Computational Biology - MicroRNAs (1)	Computational Biology - MicroRNAs (11)
Organisms-Chemicals	Humans - MicroRNAs (1)	Humans - MicroRNAs (63)
Organisms-InfoSci	Computational Biology - Humans (16)	Computational Biology - Humans (2, 470)

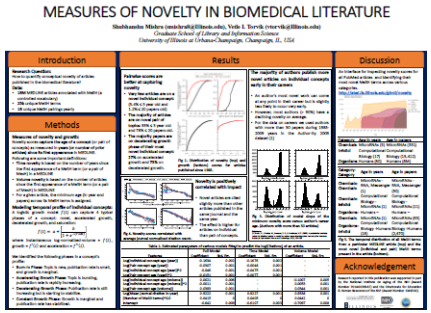
Main Results

*Pairwise scores capture the prominent novelty in science (**78% articles** are among the first 20 to be published on a pair of MeSH terms)*

*Novel papers **are cited more**, though the effect is significant, it is not very large.*

***More than 90% of the authors**, on average, publish more novel work earlier in their career.*

VISIT OUR POSTER FOR MORE →



GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

ILLINOIS

NIH National Institutes of Health

NSF