

Shaping the Information Nutrition Label

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Introduction

Downsides of online news consumption

The World Wide Web is a great source for news. However, relying on online news does not come without downsides:

HYPERPARTISAN NEWS

CLICKBAIT

FAKE NEWS

FILTER BUBBLES

ECHO CHAMBERS

The Information Nutrition Label

ACM SIGIR Forum paper

To improve the situation, an “*information nutrition label*” for online news has been recently proposed:

ARTICLE

An Information Nutritional Label for Online Documents

Norbert Fuhr,¹ University of Duisburg-Essen

Anastasia Giachanou,² Università della Svizzera italiana (USI)

Gregory Grefenstette,³ Institute Human Machine Cognition

Iryna Gurevych,⁴ Technische Universität Darmstadt

Andreas Hanselowski,⁵ Technische Universität Darmstadt

Kalervo Jarvelin,⁶ University of Tampere

Rosie Jones,⁷ Consultant

Yiqun Liu,⁸ Tsinghua University

Josiane Mothe,⁹ Université de Toulouse, (IRIT)

Wolfgang Nejdl,¹⁰ Leibniz Universität Hannover,

Isabella Peters,¹¹ ZBW Leibniz Information Centre for Economics and Kiel University

Benno Stein,¹² Bauhaus-Universität Weimar

[Fuhr et al., ACM SIGIR Forum, Dec 2017](#)

The Information Nutrition Label

ACM SIGIR Forum paper

Like its food counterpart, the information nutrition label is supposed to **help people making more informed decisions** upon which news items to consume.

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TRUMP'S ATTACK ON SESSIONS OVER CLINTON PROSECUTION HIGHLIGHTS HIS OWN 'WEAK' STANCE

Kevin Lamarque/Reuters

by ADAM SHAW | 25 Jul 2017 | **5,804**

President Trump's decision Tuesday to attack Attorney General Jeff Sessions over Sessions' "position" on Hillary Clinton's various scandals only serves to highlight Trump's own hypocrisy on the issue — and is likely to fuel concerns from his base who see

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Trump's Attack on Sessions over Clinton Prosecution Highlights His Own 'Weak' Stance
5,804 comments - 2 hours ago

The Information Nutrition Label

ACM SIGIR Forum paper

The proposed label consists of nine **information nutrition dimensions**. One of them, Authority/Credibility/Trust, actually comprising three dimensions into one. For our work, we added two further dimensions which we see as complements (*).

- ❑ Factuality
- ❑ Readability
- ❑ Virality
- ❑ Emotion
- ❑ Opinion
- ❑ Controversy
- ❑ Authority / Credibility / Trust
- ❑ Technicality
- ❑ Topicality
- ❑ Verbosity*
- ❑ Verifiability*

We expect that a label that displays **values for all these dimensions** will receive **attention mainly from experts**. To open the analysis results to the **general public**, we ask whether a **simpler**, yet **equally informative** and hence preferable label can be “**shaped**” (cf. the traffic light system for the food nutrition label).

Shaping the Information Nutrition Label

Pragmatic Similarity

From a **pragmatic viewpoint**, some of the information nutrition dimensions make **similar** statements.

- ❑ Factuality
- ❑ Readability
- ❑ **Virality**
- ❑ Emotion
- ❑ Opinion
- ❑ Controversy
- ❑ Authority / Credibility / Trust
- ❑ Technicality
- ❑ **Topicality**
- ❑ Verbosity*
- ❑ Verifiability*

E.g. the **topicality** and the **virality** of an article both represent **temporal and sociological phenomena** that may be used to answer a question like:

“How much do others care about the article?”

Shaping the Information Nutrition Label

Categorizing the Information Nutrition Dimensions

Because of the pragmatic similarities, we presume that the nutrition dimensions can be **clustered** into a **small number of categories** with **no significant loss of information**. Our proposal comprises five categories:

Dimension	Category	Addressed User Question
Readability Technicality Verbosity*	I Effort	Does time allow the reading?
Topicality Virality	II Kairos	Do others care?
Factuality Verifiability*	III Logos	How professional is the writing?
Emotion Opinion Controversy	IV Pathos	Is the article subjective?
Authority Credibility Trust	V Ethos	How reliable is the source?

Shaping the Information Nutrition Label

Assigning intuitive Quantities to the Categories

To **simplify** the **interpretation** of the categories, we associate them with **well-known quantities** from physics (or finance in the case of V Ethos):

I Effort

Time

0–120 min

II Kairos

Temperature

0–100 °C

III Logos

Transparency

0 – 100 %

IV Pathos

Volume

0–120 dB

V Ethos

Credit rating

class A – D

Shaping the Information Nutrition Label

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Volume

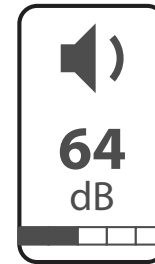
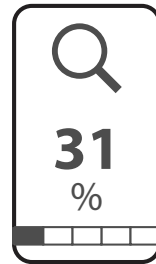
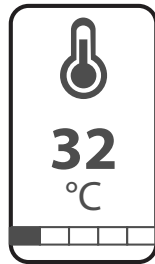
0–120 dB

V Ethos

Credit rating

class A – D

... and design a **visual representation**:



Rounded rectangles feature the **category symbol** and the **value**. Both the absolute value and its **relative position** are depicted.

Shaping the Information Nutrition Label

Validating the Shaped Label

Benefits:

- ❑ Easier to present and digest in practical settings.
- ❑ Intuitively interpretable without the need of detailed instructions.

Concerns:

- ❑ Categorization may not be lossless.
- ❑ Chosen quantities may lead to false intuitions.

Shaping the Information Nutrition Label

Validating the Shaped Label

Benefits:

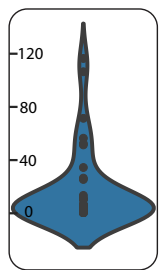
- ❑ Easier to present and digest in practical settings.
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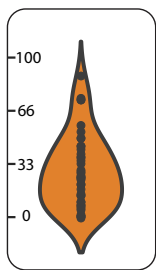
We conducted a small **crowd-sourcing study** where we asked 42 workers to assess values for the article depicted in the original SIGIR Forum article.

I Effort



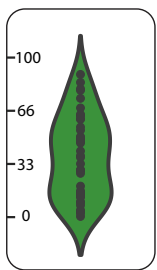
Little effort to comprehend.

II Kairos



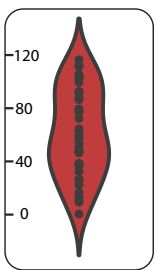
Not very hot anymore.

III Logos



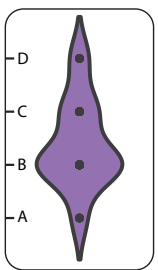
No clear consensus.

IV Pathos



No clear consensus.

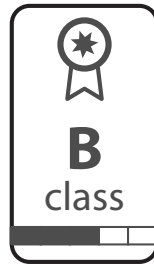
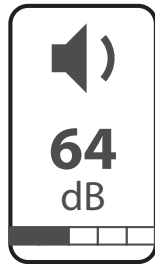
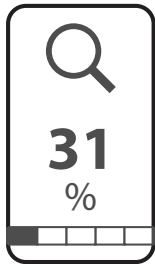
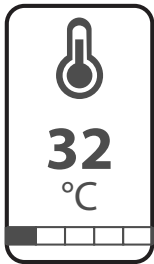
V Ethos



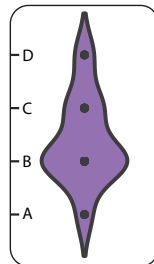
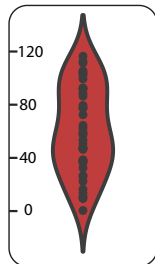
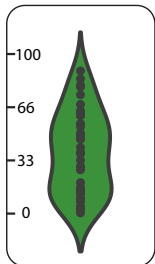
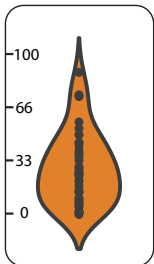
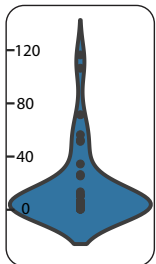
No top rating.

Future Work

A **computation model** for the shaped information nutrition label.

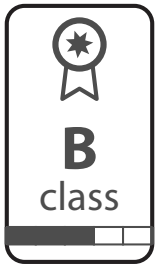
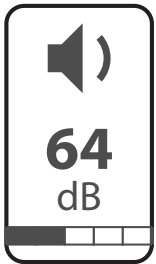
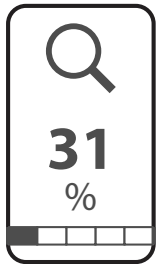
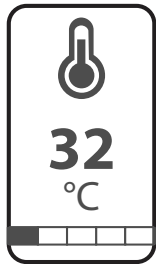


Further investigating the **correlation with human intuition**.

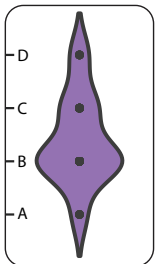
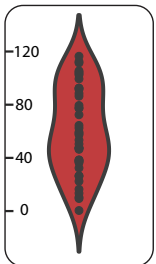
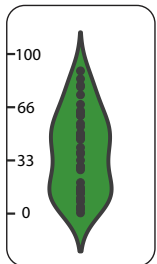
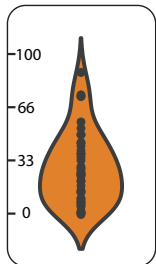
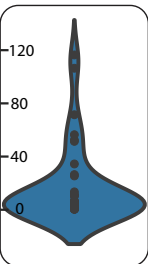


Future Work

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Further investigating the **correlation with human intuition**.



Thank you for your attention!