

Science Publishing:

The Different Interests of *Record Keeping* and *Knowledge Transfer*

Jan Velterop – “Open Access-Open Data” – Köln – December 2010

*Publishing =
knowledge transfer*

*Publishing ≠
knowledge transfer*

Why this change ?

A new article in PubMed
every 36 seconds

Molecular Biology Laboratory in Heidelberg, Germany, and won Elsevier's Grand Challenge 2009 competition for new tools that improve the communication and use of scientific information.

Reflect automatically recognizes and highlights the names of genes, proteins and small molecules in the *Cell* articles. Users clicking on a highlighted term will see a pop-up box containing information related to that term, such as sequence data and molecular structures, along with links to the sources of the data. Reflect obtains this information from its dictionary of millions of proteins and small molecules. Such 'entity recognition' can be done fairly accurately by many mining tools today. But other tools take on the tougher challenge of recognizing relationships between the entities. Researchers from Leiden University and Erasmus University in Rotterdam, both in the Netherlands, have developed software called Peregrine, and used it to predict an undocumented interaction between two proteins:

Current publishing : needle transport



*What does it all
mean for publishing?*

*Why do scientists
publish?*

The record*
“keeping the minutes of science”

1



*picture inspired by Geoffrey Bilder of CrossRef

The record*

“keeping the minutes of science”

1



*picture inspired by Geoffrey Bilder of CrossRef

Credit in the ego-system; the acknowledge economy*

2



*'Acknowledge economy' coined by Geoffrey Bilder of CrossRef

Credit in the ego-system; the acknowledge economy*

2



*'Acknowledge economy' coined by Geoffrey Bilder of CrossRef

$$1 + 2 =$$

the interface with
officialdom

Transfer of information and knowledge

3



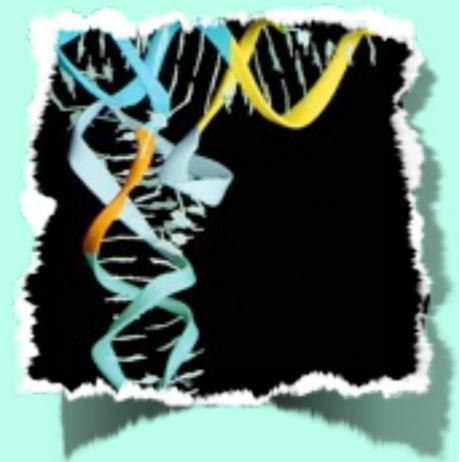
3 =

the interface with science

*Are the requirements
for all three the same?*



*Are the requirements
for all three the same?*



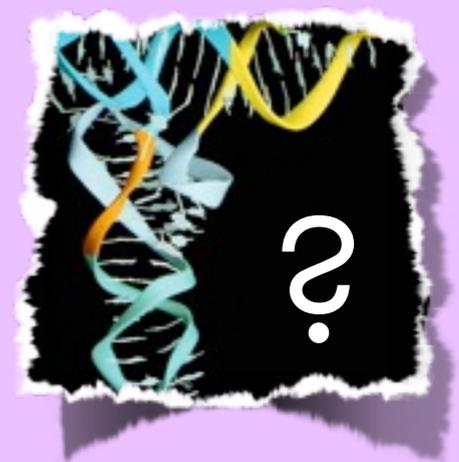
*What we have may
be good for the record
and for credit...*



*What we have may
be good for the record
and for credit...*



*...but is it satisfactory
for the transfer of
knowledge?*



*There is just too
much to read*

*Information consumes
the attention of its
recipients...*

...hence a wealth of
information creates a
poverty of attention

Herbert Simon



Datarrhoea ?

Publicatarrh ?



*Should we have to
make choices ?*

Can we, truly ?

*How would we
choose anyway?*



Tuesday, 14 December 2010

Shouldn't we take in
ALL the knowledge
in our area?

As well as satisfy
the academic desire to
avoid reading ?

*Create an overview
first, perhaps?*



*And then home in on
detail?*



*What does it all
mean for publishing?*

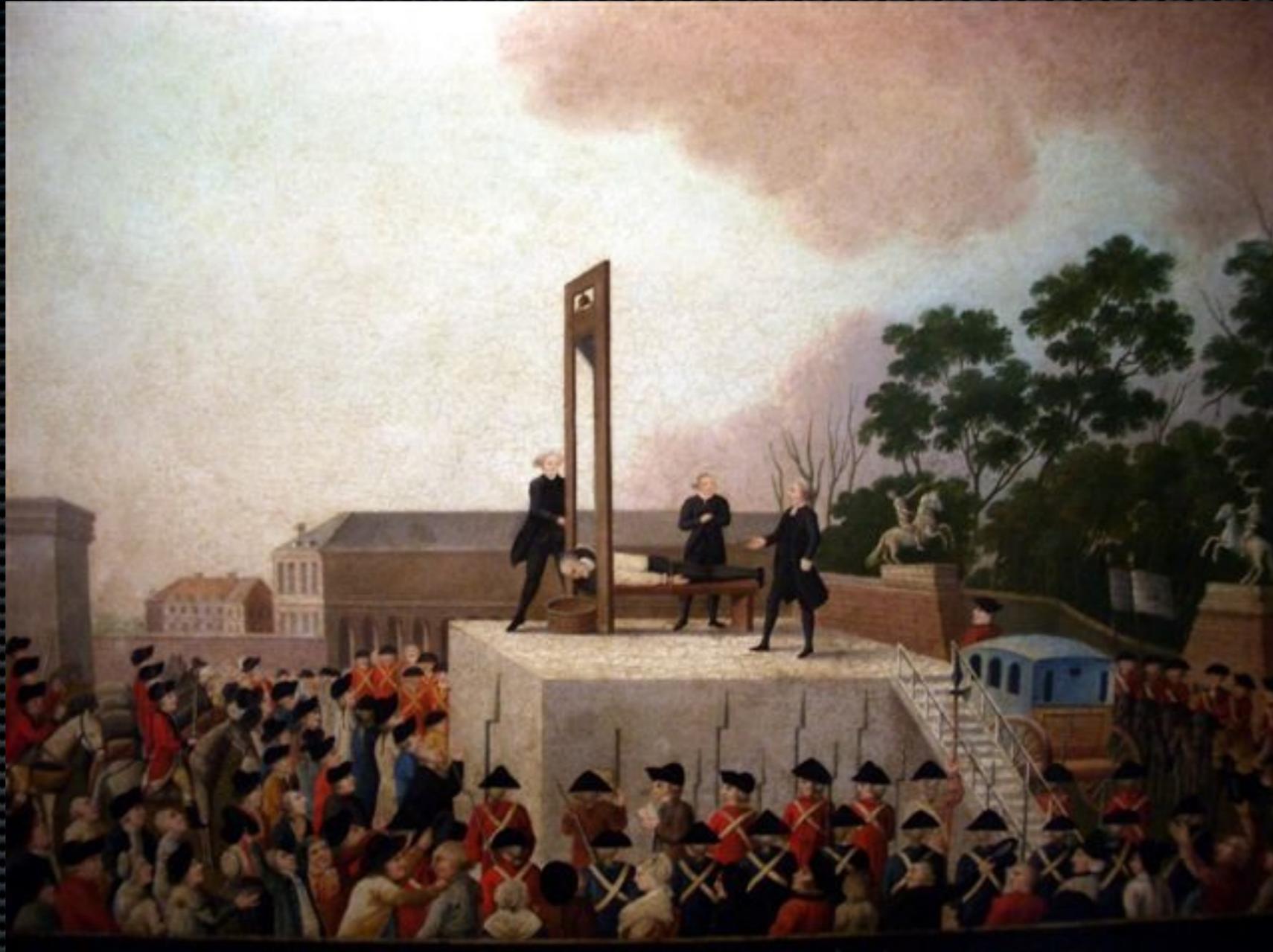
In the interface with publishers

Content



is King

Or “was” perhaps?



*Well, it's still
content that counts*

<protein kinase> <phosphorylates> <proteins>

<protein kinase> <phosphorylates> <proteins>

<*subject*> <*predicate*> <*object*>

<#26277419>

<#2121378>

<#13817745>

<protein kinase>

<phosphorylates>

<proteins>

<*subject*>

<*predicate*>

<*object*>

<#26277419>

<#2121378>

<#13817745>

<protein kinase>

<phosphorylates>

<proteins>

<*subject*>

<*predicate*>

<*object*>

'Assertion' a.k.a. 'Triple'

<#26277419>

<#2121378>

<#13817745>

<protein kinase>

<phosphorylates>

<proteins>

*Articles are full of these
assertions / triples*

<#26277419>

<#2121378>

<#13817745>

<protein kinase>

<phosphorylates>

<proteins>

*Let's call them
'Nanopublications'*

Nanopublications: Assertions with Attitudes

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Nanopublications: Assertions with Attributes

Examples of attributes:

`assertedBy` - states which entity asserted (i.e. created) the statement

`curatedBy` - states that a specified entity has curated the statement

`isPeerReviewed` - states that this statement has been peer reviewed

`isPublished` - states where this statement was first published

`isEvidencedBy` - states that another statement, Y, should be considered evidence for this statement X

`createdOn` - states the date/time that the statement was created

`hasAuthor` - states who claims authorship of the statement

`isApprovedBy` - states who approves of the statement

`isDeprecatedBy` - states that the statement is no longer in use by the entity in question

*Nanopublications
are assertions*

*Nanopublications
are also
references*

Nanopublications: Assertions with Attributes

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i.e.)

they can be *cited*:

good for impact

& acknowledgement

*And...aren't
references open and
free?*

```
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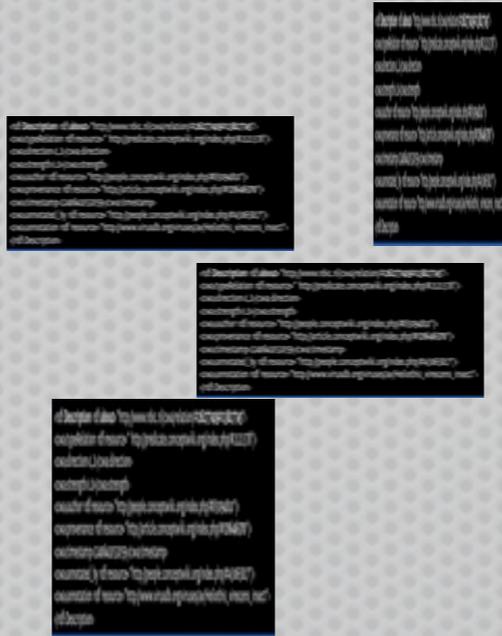
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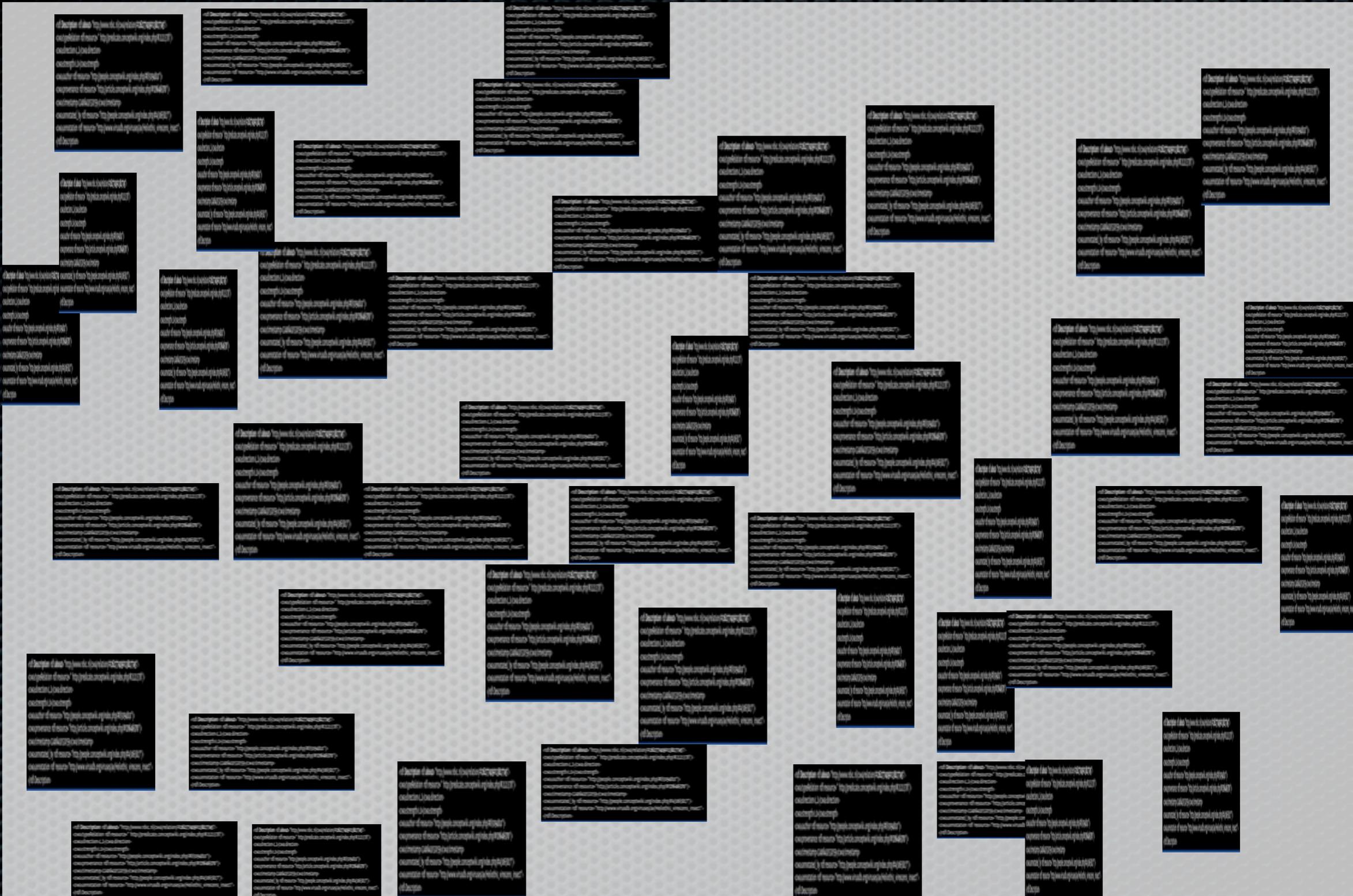
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</rdf:Description>
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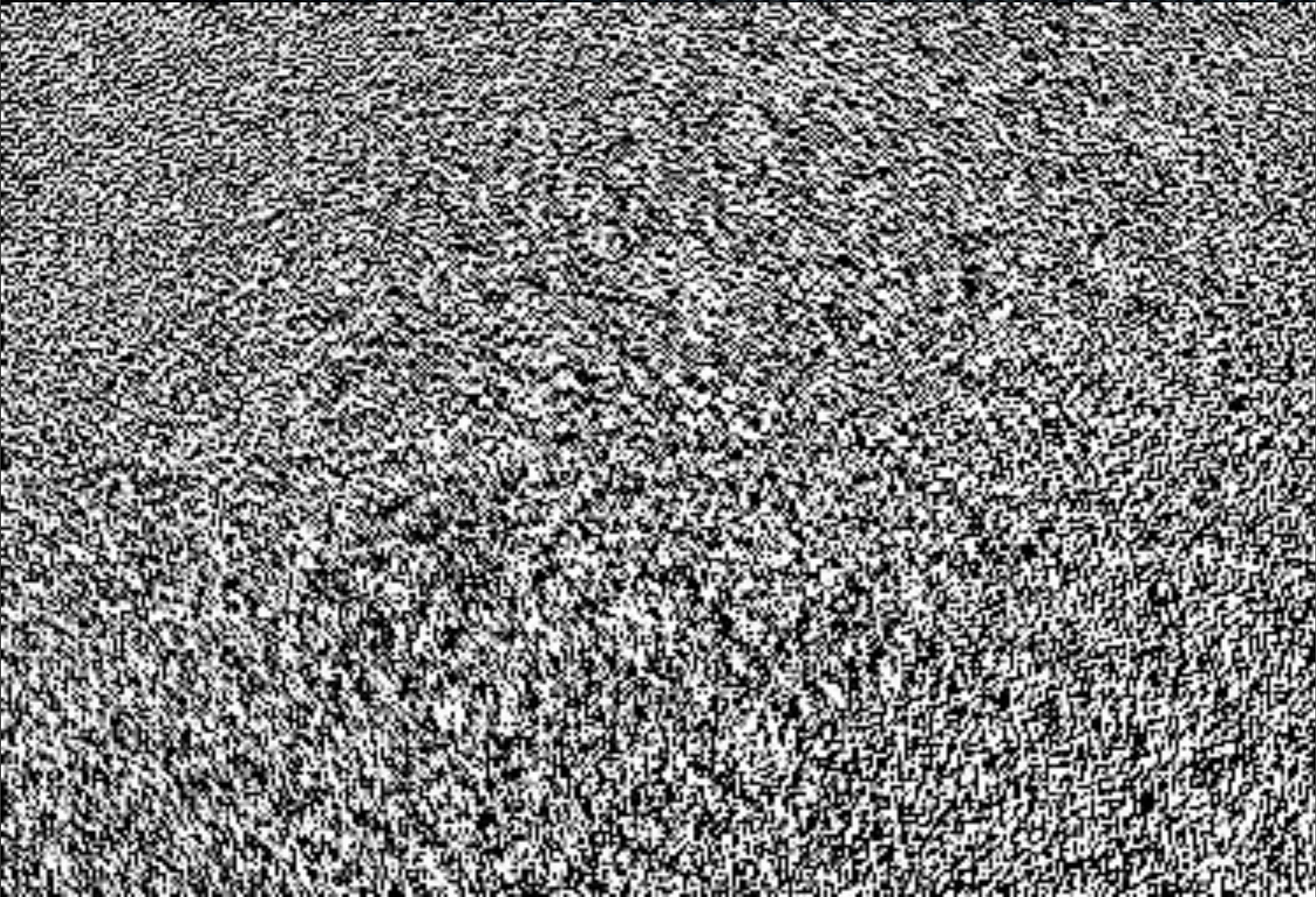
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g/index.php/#85094810"/>
ki.org/index.php/#121646370"/>
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wiki.org/index.php/#43065817"/>
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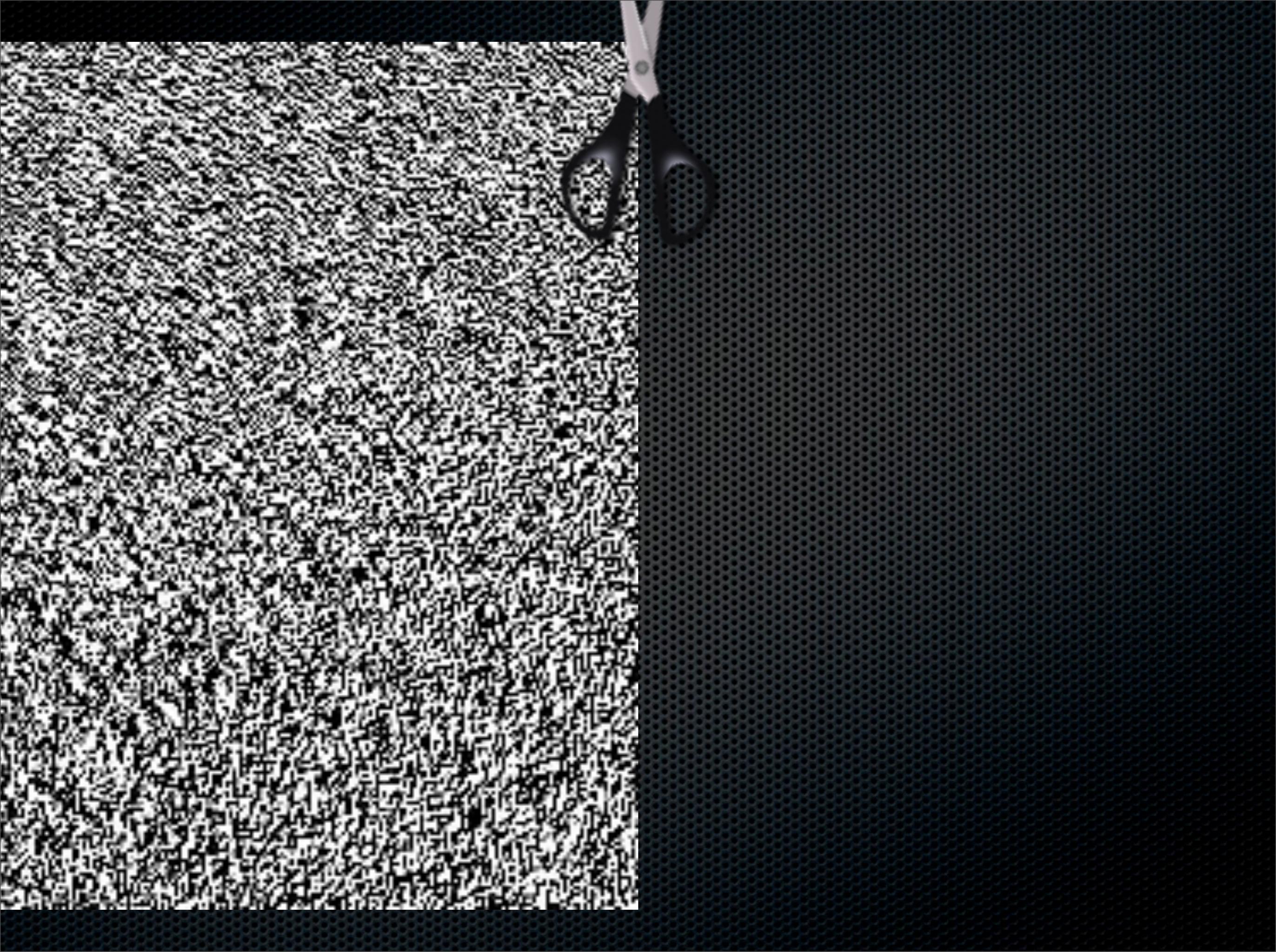


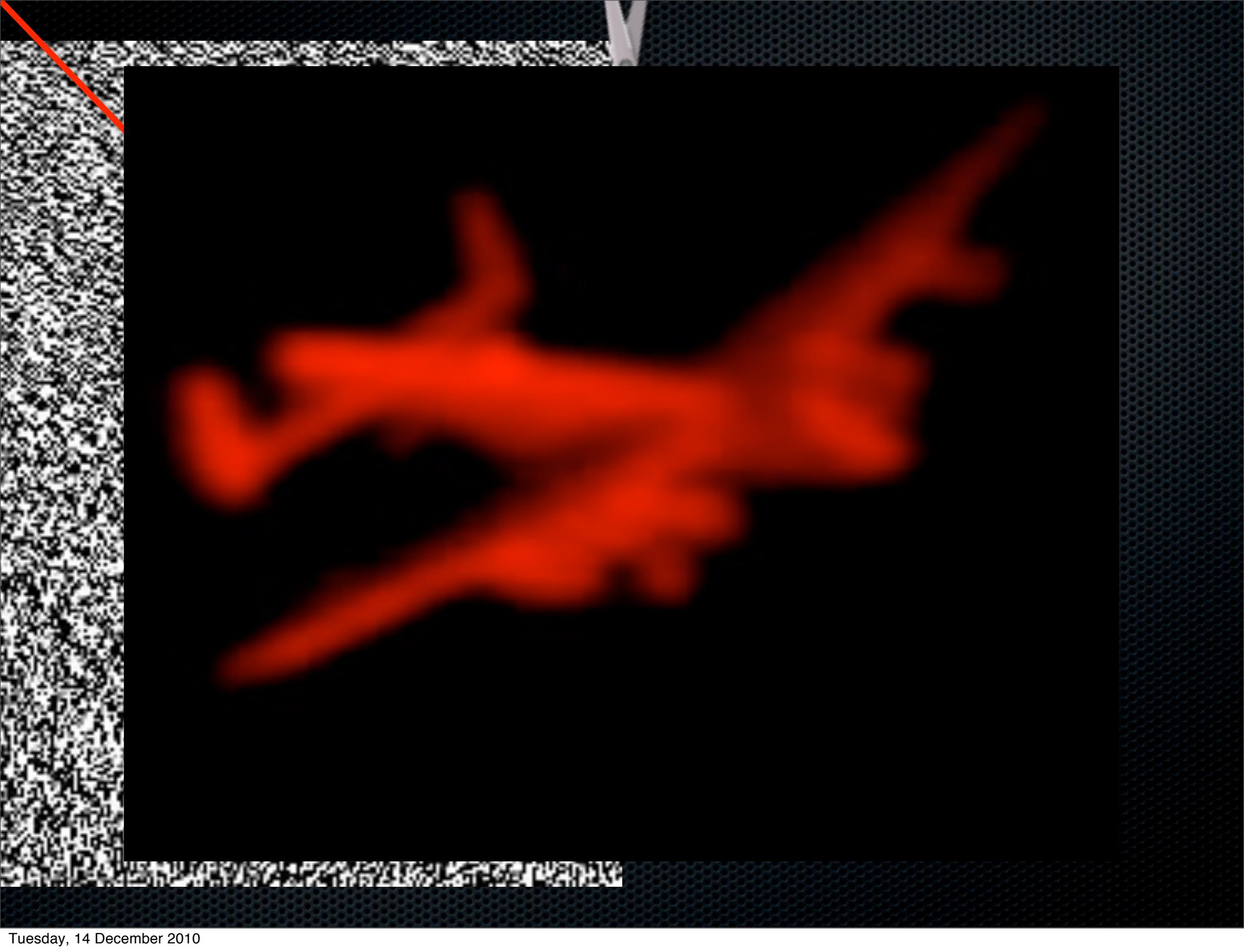


The whole picture



Even if you don't have all the
detail







detail



nanopublications (i.e. references)

can **also** be used to reason

nanopublications (i.e. references)

can **also** be used to reason

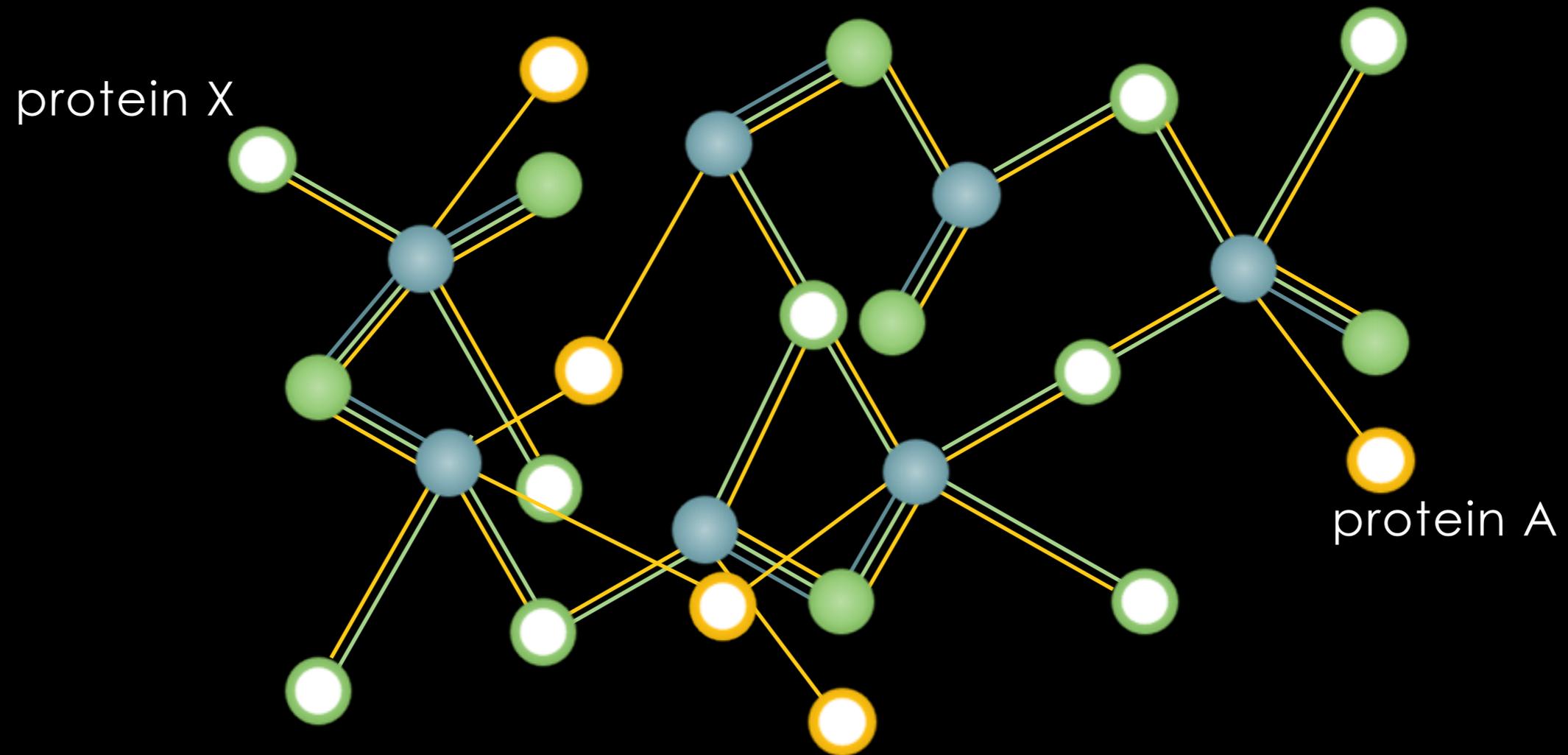
Publications' yield 'data'

nanopublications (i.e. references)

can **also** be used to reason

nanopublications (i.e. references)

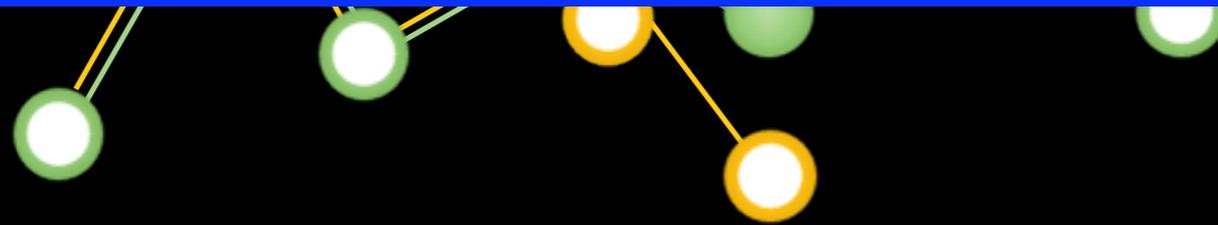
can **also** be used to reason



nanopublications (i.e. references)

can **also** be used to reason

*Exposing the
'unknown knowns'*



Citation: van Haagen HHHBM, 't Hoen PAC, Botelho Bovo A, de Morrée A, van Mulligen EM, et al. (2009) Novel Protein-Protein Interactions Inferred from Literature Context. PLoS ONE 4(11): e7894. doi:10.1371/journal.pone.0007894

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Novel Protein-Protein Interactions Inferred from Literature Context

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Abstract [Top](#)

We have developed a method that predicts Protein-Protein Interactions (PPIs) based on the similarity of the context in which proteins appear in literature. This method outperforms previously developed PPI prediction algorithms that rely on the conjunction of two protein names in MEDLINE abstracts. We show

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