



Artificial Insanity

Recent Trends in Artificial Intelligence and Machine Learning

Eddy Tuma, Co-founder & CEO KLANGOO

Machine Learning vs. (Rule-based) NLP+U

NOMINAL COMPOUNDS

John works in a car factory ⇒ *John works in a factory [that produces] cars*
John works in a car dealership ⇒ *John works in a dealership [that sells] cars*

HIDDEN EVENTS IN RELATIONAL NOMINALS

John enjoyed the book ⇒ *John enjoyed [reading] the book*
John enjoyed the movie ⇒ *John enjoyed [watching] the movie*
John enjoyed the cigarette ⇒ *John enjoyed [smoking] the cigarette*

QUANTIFIER SCOPE AMBIGUITIES

John visited a house on every street in his neighborhood
⇒ *John visited a [different] house on every street in his neighborhood*

PREPOSITIONAL PHRASE ATTACHMENTS

I read a story about evolution in the last ten minutes
⇒ *I read a story about evolution [and finished reading it] in the last ten minutes*
I read a story about evolution in the last ten million years
⇒ *I read a story about evolution [that happened] in the last ten million years*

[4 Technical Reasons why Data-Driven and Machine Learning NLU is a Myth, Walid S. Saba, April 1, 2019](#)

Machine Learning vs. (Rule-based + ML + ...)

LEXICAL SEMANTICS

John likes to play bridge ⇒ John likes to play [the game] bridge

METONYMY

The corner table wants another beer

⇒ *The [person sitting at the] corner table wants another beer*

The car in front of us is annoying me. Can you pass it, please?

⇒ *The [person driving the] car in front of us is annoying me. Can you pass it, please?*

METAPHOR

I wouldn't worry about him, John is a rock

⇒ *I wouldn't worry about him, John is [as solid as] a rock*

CO-PREDICATION AND METONYMY

Barcelona was calm after it voted for independence

⇒ *[The city of] Barcelona was calm after it ['s citizens] voted for independence*

REFERENCE RESOLUTION

The trophy did not fit in the brown suitcase because it was too small

⇒ *The trophy did not fit in the brown suitcase because [the suitcase] was too small [to hold it]*

[4 Technical Reasons why Data-Driven and Machine Learning NLU is a Myth, Walid S. Saba, April 1, 2019](#)

Machine Learning vs. (Rule-based + ML + ...)

FUNCTION WORDS

- a. I know someone who writes *for* the White House
- b. I know someone who writes **about** the White House

- a. John visited **a** house on **every** street in his neighborhood
- b. On **every** street in his neighborhood, John visited **a** house

STATISTICAL INSIGNIFICANCE

- The ball did not fit in the suitcase because it is too*
- a. *small*
 - b. **big**
- Professor McDonalds told John that he should soon be done with*
- a. **reading** his thesis
 - b. *writing* his thesis

INTENSION

- The president of the United States is elected every 4 years*
⇒
✗ *Donald Trump is elected every 4 years*
- Maybe in the 1600's Paris was not the capital of France*
⇒
✗ *Maybe in the 1600's Paris was not Paris*

[4 Technical Reasons why Data-Driven and Machine Learning NLU is a Myth, Walid S. Saba, April 1, 2019](#)



Bottom line


Machine Learning & Statistical Models
should **ONLY** be used where it **MAKES SENSE**

Sample Correct Application

Reading Comprehension
Read the short passage and answer the questions.

Picking Apples

Jonas is going apple picking with his sister, Maria. They are going to the apple orchard near their house. They need to pick twelve apples. Their mom is going to use the apples to make a big apple pie. At the orchard, Jonas picked nine apples and Maria picked three. They had a great day together. Now they can't wait to enjoy their pie!

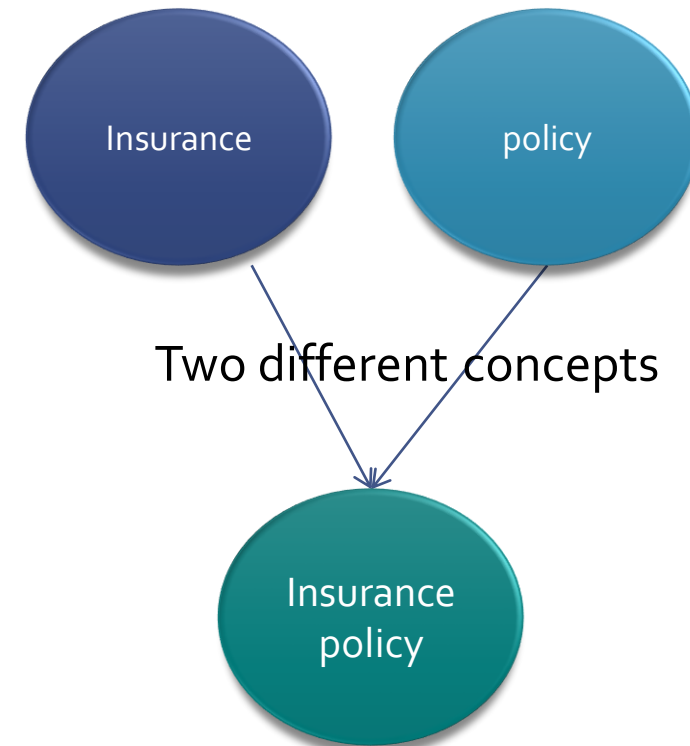


Finding the “**aboutness**” of a piece of text

I enjoy Jane's **company**.
Eddy's **company** is growing.

Word Sense Disambiguation (Semantic Concepts)

Semantic Concepts



Semantic Topics

Topic = the result of 1 or more concepts

Company insurance policy

WORDS

Word Sense Disambiguation

Company: *meaning 1* / ID: 702FRD
An institution created to conduct business

Insurance: *meaning 3* / ID: 9031HT
institution that promises payment based on a set of cases/rules

Policy: *meaning 1* / ID: 673LZD
Written contract or certificate

CONCEPTS

Real-time Topic Formation

SAME SEMANTIC REPRESENTATION AS CONCEPTS

Company insurance policy: *meaning 1* / ID: H100345

TOPICS

Semantic Relations:

- Parallel universe
- Parallel algorithms
- Multi-threaded computing

Topics Analysis

Semantic Fingerprint

Climate change
Barack Obama
Donald Trump
administration
Washington
Paris agreement
Failed negotiations
Overturn
Pollution
Crisis management
Security clearance



ID 400389 / score 0.72
ID 29366 / score: 0.67
ID HGJ652 / score: 0.53
ID FM3LK9 / score: 0.32
ID HG8UJ0 / score: 0.31
ID JHL982 / score: 0.23
ID AYT372 / score: 0.21
ID 88OOTW / score: 0.19
ID IN73YES / score: 0.16
ID 23PO2WI / score: 0.12

Semantic Matching

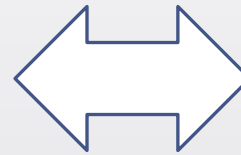


Document A

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ID 23PO2WI / score: 0.12

Document B

ID 0DO878 / score 0.87
ID Y64232 / score: 0.81
ID KLAHYE / score: 0.67
ID 93NLK8 / score: 0.66
ID USH622 / score: 0.59
ID RE293H / score: 0.52
ID BC7229 / score: 0.42
ID HGJ652 / score: 0.38
ID 400389 / score: 0.21
ID JHL982 / score: 0.11



Somewhat Related / 32%

Comparing Texts in different languages

Klangoo Api Demo

Analyze TextCompare Text

Start by entering two texts in any of our **supported languages** in the boxes below to compare their similarity:

- DEMO TEXT
- SUMMARY
- ENTITIES
- TOPICS
- CATEGORIES
- JSON

Very Related

苹果刚刚成为第一家价值1万亿美元的美国上市公司。这家iPhone制造商在周四股价超过每股207.04美元时实现了这一重要数字。其新的历史最高价为208.38美元。苹果今年的涨幅超过20%。

苹果公布的业绩超过预期并且周三市场前景良好，此前股价大涨。

尽管有人认为Apple (AAPL) 需要一种新产品来保持销售和利润的蓬勃发展，但由于iPhone 8和X的稳固销售 - 特别是在中国和日本 - 并且服务收入激增，Apple已经超过万亿水平。App Store。|

أصبحت شركة أبل أول شركة عامة أمريكية تعبر قيمة 1 تريليون دولار هذا العدد الكبير يوم الخميس عندما تجاوز iPhone حقق صانع جهاز السهم 207.04 دولارًا أمريكيًا للسهم. أعلى مستوى جديد له على الإطلاق هو 208.38 دولار. أبل الآن أكثر من 20 ٪ هذا العام ارتفعت الأسهم بعد أن أعلنت شركة أبل عن أرباح تجاوزت التوقعات وتوقعات صحية يوم الأربعاء.

تحتاج إلى منتج (AAPL) على الرغم من أن البعض يعتقد أن شركة أبل جديد للحفاظ على المبيعات والأرباح المزدخرة ، فقد ارتفعت أبل إلى - X و iPhone 8 مستوى تريليون دولار بفضل مبيعاتها القوية من خاصة في الصين واليابان - وزيادة عائدات الخدمات من متجر التطبيقات.

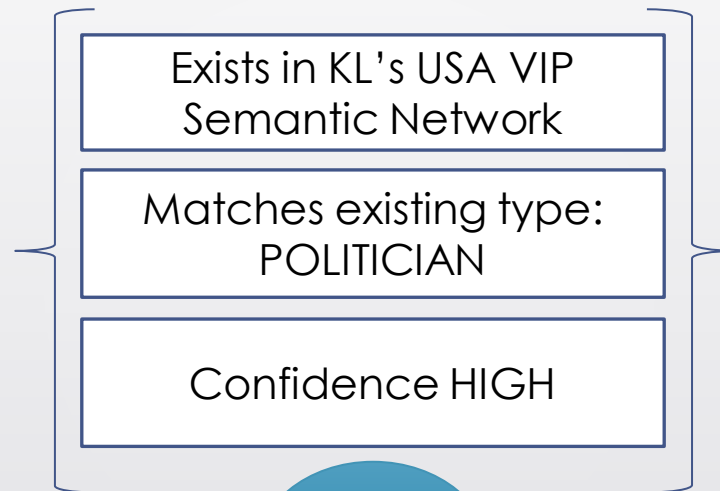
Compare

Magnet API by Klangoo

Automated Entity Addition

Kamala Harris
New suggested recognition:
VP-Elect, VP

Confidence: High
[Count: 273, Period: 1 hour]



Kamala Harris
ADDITION CONFIRMED
VP-Elect, VP

Comparison with the Leading NLP Engines

| Key Topics | | Entity (NER) Extraction from Text | | | | Categorization | Automated Summary of Text | Semantic Search |
|------------|------|-----------------------------------|------|-----------------------------|--------|----------------|---------------------------|-----------------|
| Phrases | WSD* | Types count | WSD* | Languages | Scored | | | |
| Yes | Yes | 45+ | Yes | 100+ | Yes | 100+ Languages | Yes | Yes |
| Yes | No | 6 | No | 10 | Yes | EN only | No | No |
| Yes | No | 26 | Yes | 10 | Yes | 9 Languages | No | No |
| Yes | No | NA | No | EN only | No | No | No | No |
| Yes | No | 8 | No | EN & ES | Yes | No | No | No |


KLANGO.
[NLP](#)

Google
[NLP](#)

IBM
[Watson \(bluemix\)](#)

Microsoft
[Azure \(LUIS\)](#)

amazon
[AWS Comprehend](#)



Klangoo Api Demo

Start by entering text in any of our **supported languages** in the box below:

Apple just became the first American public company to cross \$1 trillion in value. The iPhone maker achieved that big number on Thursday when the stock passed \$207.04 a share. Its new all-time high is \$208.38. Apple is now up more than 20% this year. Shares surged after Apple

Analyze

Magnet API by Klangoo

Analyze

Summary

An extractive summary based on topics discussed in the text:

Apple just became the first American public company to cross \$1 trillion in value.

Shares surged after Apple reported earnings that topped forecasts and a healthy outlook on Wednesday.

Categories

The text entered can be classified under the following categories:

TECHNOLOGY

Entities

Magnet identifies and discovers names in a given text (NEI/NER) along with the meaning of each in context:

ALL COMPANIES
HARDWARE AND GADGETS
ARTIFACTS COUNTRIES

APPLE

Type: Companies
Relatedness: Very Related
Score: 0.9666

Definition: Name of: (IT company). Technology and Telecommunication firm such as "Software & Computer Services, Technology Hardware & Equipment" ex: Microsoft, Intel, Apple, Sony, Nokia, France Telecom, AT&T

Hide Definition

Key Topics

Magnet identifies the meaning of each topic discussed in the text and ranks them according to their relatedness to the overall story:

APPLE

Score: 1
Words: apple

Show Definition

EARNINGS

Score: 0.6413
Words: earnings

earnings: the excess of revenues over outlays in a given period of time (including depreciation and other non-cash expenses)

Hide Definition

1. Extraction of named entities
2. Profiling and identifying behavioral patterns
3. Semantically/topically related texts and videos
4. Semantic alerts ("follow" a story or a topic)
5. Semantic automated tagging & categorization
6. Semantic Analytics (growing stories & topics)
7. Story highlights (automatic summary)

On the same subject (by our very own Dr. Walid Saba):

- [Memorizing vs. Understanding \(read: Data vs. Knowledge\)](#)
- [How the Tech Giants are Hampering Progress in Artificial Intelligence and Cognitive Computing](#)
- [4 Technical Reasons why Data-Driven and Machine Learning NLU is a Myth](#)
- [Deep Misconceptions and the Myth of Data-Driven Language Understanding](#)
- [Why Ambiguity is Necessary, and why Natural Language is not Learnable](#)
- [A Knowledge Graph?](#)
- [Oh, Doesn't Google Wish!](#)
- [The New AI](#)
- [Personal Portals: Semantic, Rule-Based Personalization](#)
- [Automated, Ontology-Based Semantic Tagging](#)

Thank you

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