

34th **C**entral **E**uropean **C**onference on
Information and **I**ntelligent **S**ystems

PROJECT SECTION PITCHES

Project

**MELIA Observatory - Media literacy
observatory for active citizenship
and sustainable democracy**

Automated Analysis of Short Digital Messages Content with the Potential
of Application in Business and Education

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**Data makes people think,
emotions make them act...!**

Melia Observatory Online Platform for Automatic Sentiment Analysis and Detection of Precursors of Hate Speech

What is hate speech?

Hate speech, speech or expression that denigrates a person or persons on the basis of (alleged) membership in a social group identified by attributes such as race, ethnicity, gender, sexual orientation, religion, age, physical or mental disability, and others.

Encyclopædia Britannica

What is sentiment?

“...a thought, opinion, or idea based on a feeling about a situation, or a way of thinking about something...”

Cambridge Dictionary

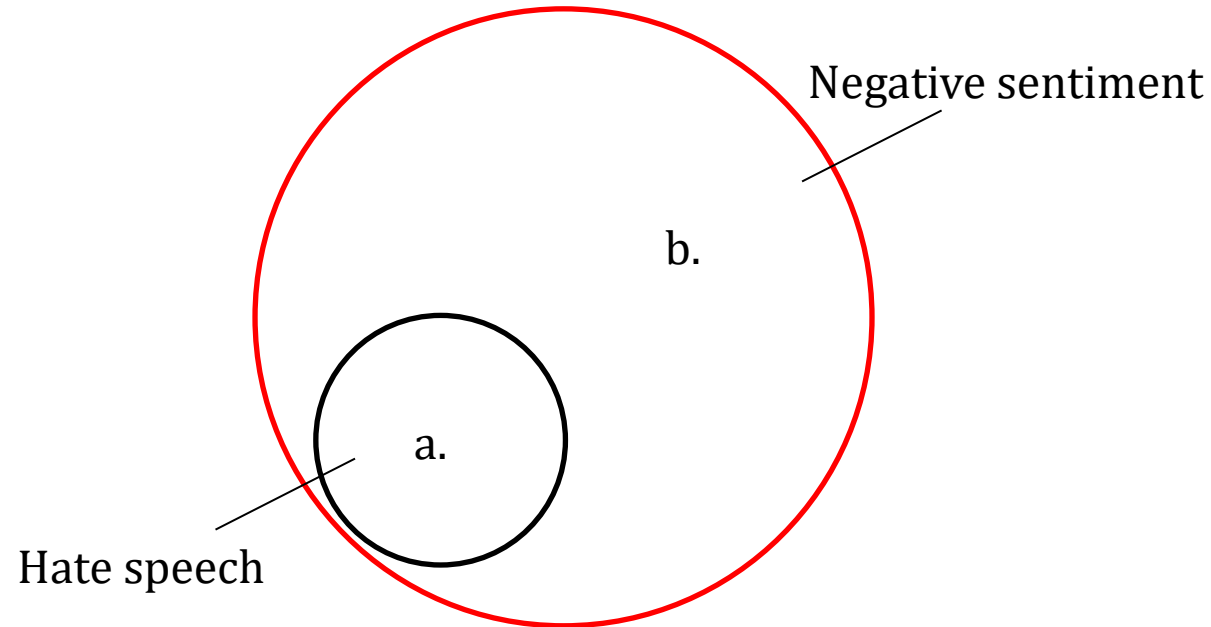
Automatic Sentiment Detection

Automatic (digitally empowered) technique used to determine whether certain word/text is positive, negative or neutral.

Sentiment Detection



Hate Speech and Sentiment Analysis



*a. „If you want a [N-word] for a neighbour, vote Liberal or Labour.”**

b. „Their performance was poor, especially their lack of movement.”

**In 1964, conservative MP Peter Griffiths won the Smethwick seat with this slogan in the West Midlands. <https://www.bbc.com/news/stories-53749800>*

How we did it?

Activities:

A1 Construction of Hate Speech Lexicon

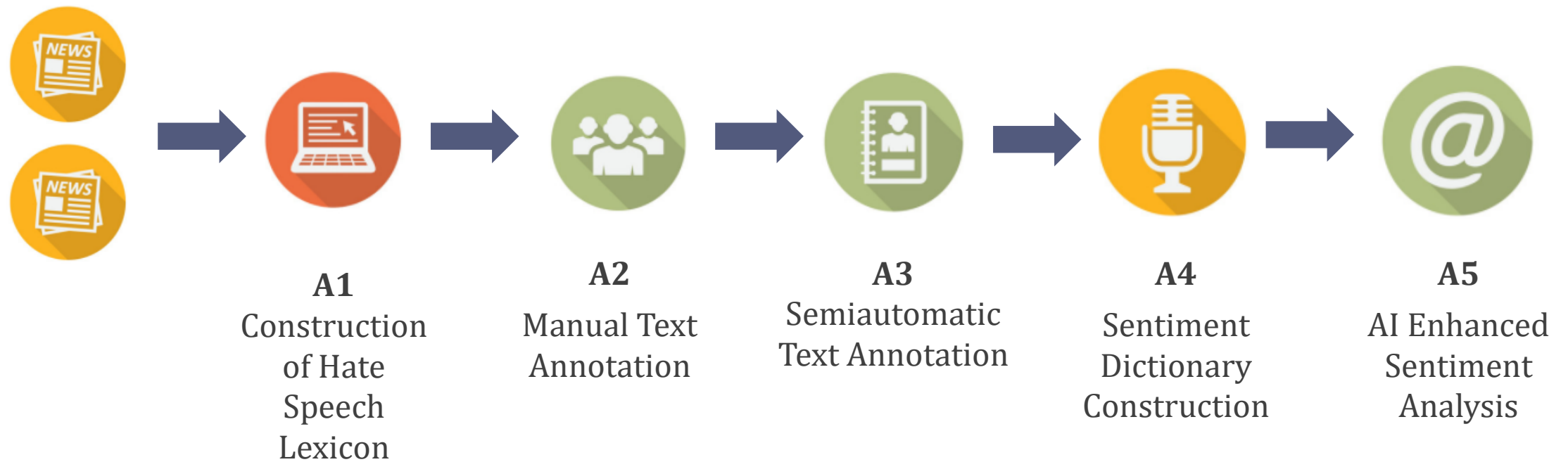
A2 Manual Text Annotation

A3 Semiautomatic Text Annotation

A4 Dictionary Construction

A5 Sentiment Analysis Using Machine Learning

Our workflow



Annotate / Traditional

-2- M01/101/21(1)

Write a commentary on one of the following:

1. (a) **business**

3rd person
Tension
Small community
family dispute
honour

She was almost through with her figures when she heard a cart drive up to the gate, and looking out of the window she saw her two older brothers. They had seemed to avoid her ever since **Carl's** arrival, four weeks ago that day, and she hurried to the door to welcome them. She saw at once that they had come with some very definite purpose. **They followed her stiffly** into the sitting-room. **Oscar** sat down, but **Lou** walked over to the window and remained standing, his hands behind him.

"You are by yourself?" he asked, looking toward the doorway into the parlor.

"Yes. **Carl and Emil** went up to the Catholic fair."

For a few moments neither of the men spoke.

Then Lou came out **starchly**. "How soon does he intend to go away from here?"

"I don't know, Lou. Not for some time, I hope." **Alexandra spoke in an even, quiet tone that often exasperated her brothers.** They felt that **she was trying to be superior** with them.

Oscar spoke up **gruffly**. "We thought we ought to tell you that people have begun to talk," he said meaningly.

Alexandra looked at him. "What about?"

Oscar met her eyes **blankly**. "About you, keeping him here so long. **It looks like he has to be hanging on to a woman this way.** People think you're getting taken in."

Alexandra shut her account-book **firmly**. "Boys," she said **serenely**, "don't let's go on with this. We won't come out anywhere. I can't take advice on such a matter. I know you mean well, but you must not feel **responsible** for me in things of this sort. If we go on with this talk it will only make hard feeling."

Lou **whipped about** from the window. "You ought to think a little about your family. **You're making an all ridiculous.**"

"How am I?"

"People are beginning to say **you want to marry the fellow**."

"Well, and what is ridiculous about that?"

Lou and Oscar exchanged **amazed looks**.

"Alexandra! Can't you see **he's just a tramp and he'll after your money?** He wants to be taken care of, he does!"

"Well, suppose I want to take care of him? Whose business is it but my own?"

"Don't you know he'd get hold of your **property?**"

"He'd get hold of what I wished to give him, certainly."

Oscar sat up suddenly and Lou clutched at his bristly hair.

"Give him?" Lou shouted. "Our property, our homestead?"

"I don't know about the homestead," said Alexandra quietly. "I know you and Oscar have always expected that it would be left to your children, and I'm not sure but what you're **right**. **But I'll do exactly as I please with the rest of my land, boys.**"

"The rest of your land!" cried Lou, **growing more excited every minute.** "Didn't all the land come out of the homestead? **It was bought with money borrowed on the homestead, and Oscar and me worked ourselves to the bone paying interest on it.**"

221-001
2

-3- M01/101/21(1)

"Yes, you paid the **interest**. But when you married we made a **division of the land**, and you were satisfied. I've made more on my farms since I've been alone than when we all worked together."

"Everything you've made has come out of the **original land** that us boys worked for, hasn't it? The farms and all that comes out of them **belongs to us as a family.**"

Alexandra **waved her hand impatiently**. "Come now, Lou. Stick to the facts. You are talking nonsense. Go to the county clerk and ask him who owns my land, and whether my titles are good."

Lou turned to his brother. "**This is what comes of letting a woman saddle in business,**" he said **bitterly**. "We ought to have taken things in our own hands years ago. But she liked to run things, and we humored her. We thought you had good sense, Alexandra. We never thought you'd do anything foolish."

Alexandra tapped impatiently on her desk with her knuckles. "Listen Lou. Don't talk wild. You say you ought to have taken things into your own hands years ago. I suppose you mean before you left home. But how could you take hold of what wasn't there? I've got most of what I have now since we divided the property; I've built it up myself, and it has nothing to do with you."

Oscar spoke up **solemnly**. "The property of a family really belongs to the men of the family, no matter about the title. If anything goes wrong, **it's the men that we hold responsible.**"

"Yes, of course," Lou broke in. "Everybody knows that. Oscar and me have always been easy-going and we've never made any fuss. We were willing you should hold the land and have the good of it, but you got no right to part with any of it. We worked in the fields to pay for the first land you bought, and whatever's come out of it has got to be kept in the family."

Oscar reinforced his brother, his mind fixed on the one point he could see. "The property of a family belongs to the men of the family, because they are held responsible, **and because they do the work.**"

Alexandra looked from one to the other, **her eyes full of indignation.** She had **been impatient before**, but now she was beginning to feel **angry**. "And what about my work?" she asked in an **unsteady voice**.

Lou looked at the carpet. "Oh, now, Alexandra, you always took it pretty easy! Of course we wanted you to. You liked to manage round, and we always honored you. We realize you were a great deal of help to us. **There's no woman anywhere around that knows as much about business as you do,** and we've always been proud of that, and thought you were pretty smart. But, of course, **the real work always fell on us.** Good advice is all right, but it don't get the weeds out of the corn."

"Maybe not, but it sometimes puts in the crop, and it sometimes keeps the fields for corn to grow in," said Alexandra dryly. "Why, Lou, I can remember when you and Oscar wanted to sell this homestead and all the improvements to old preacher Ericson for two thousand dollars. **If I'd consented, you'd have gone down to the store and scraped along on poor farms for the rest of your lives.**"

Willa Cather, *O Pioneers!* (1913)

Adventure/hardship
newfrontiers

Turn over/Voir au dos/Véase al dorso

Sounds like a call -
a rallying cry before
a battle

TASK 2 : RE-READING AND ANNOTATING [10-30 MINUTES]

PART ONE

Our Way / Digital Collaborative Annotation

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negative

positive

Input for
annotation

Annotated text

Sentiment Dictionary Examples

Croatian word	Apriori sentiment	Simple translation
naklonost	4	affection
odobranje	4	approval
odobrenje	3.5	approval
divan	4	superb
izvrstan	4	excellent
krasan	4	beautiful
hrabar	4	brave
odvažan	4	brave
falsificirati	-3.5	falsify
ovisnost	-1	dependence
izopačen	-2.5	perversed
pogrdan	-4	derogatory
uvredljiv	-4	offensive
bezdan	-3	abyss
pojednostavljen	x1	simplified
oštrina	x2	sharpness
pretpostaviti	x2	assume
jezgra	0	core
odijelo	0	suit
pomaknuti	0	move
pomaknut	0	shifted
premještanje	0	moving

Hate Speech Target Categories

Biological groups (B)

age
beauty
race
skin complexion
gender
sexual orientation

Socio-economic groups (S)

place of living
occupation
wealth
social class
education
economy sector

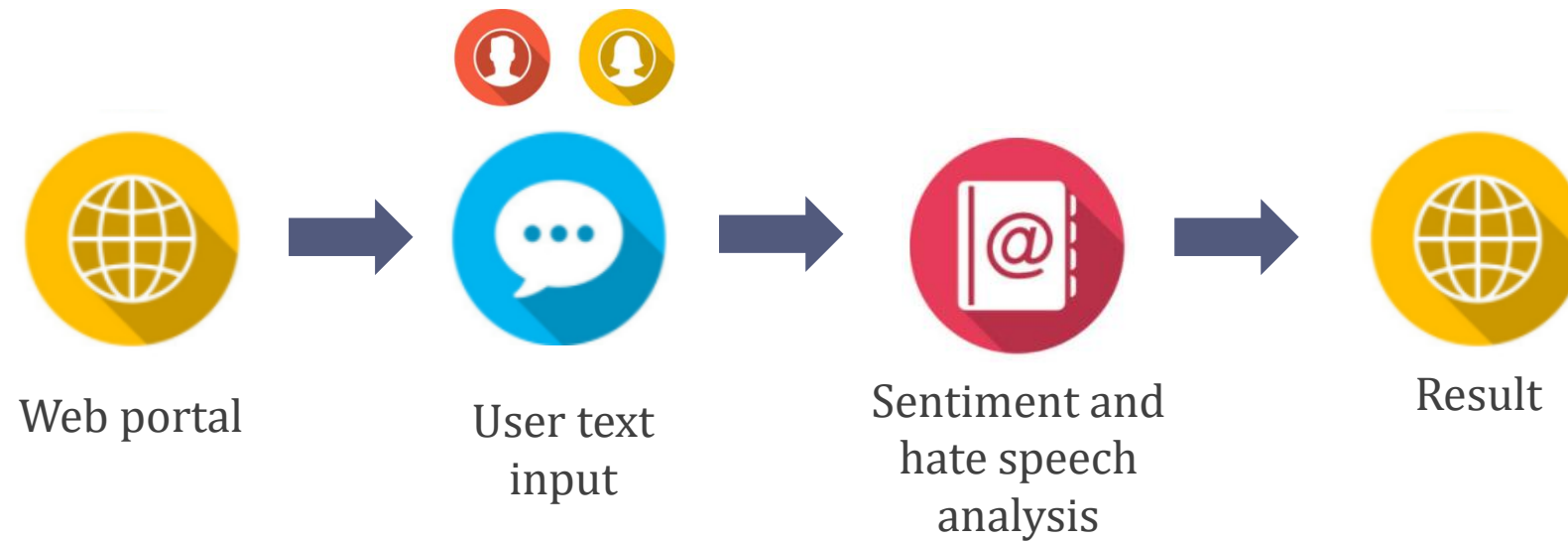
Cultural groups (C)

nationality
citizenship
ethnicity
religion
language/accent
belief
lifestyle
philosophy
political orientation
political affiliation
organization membership
sport team affiliation

Individual attributes (I)

physical attributes
height
weight
facial features
physical disabilities and
diversity
cognitive disabilities and
diversity
moral and behavioral disabilities
dependencies

Platform for ASA and DHS / Usage



Melia Observatory Platform for ASA and DHS

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

User input for
analysis



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Output



Negative input score:

0,60

Positive input score:

0,21

Overall polarity score:

NEGATIVE

Result


(0,60 vs 0,21)

MELIA Observatory Interface

Sentiment Analysis **Sentiment Analysis**

- ◆ Evaluate
- Project
- Technology
- User manual
- Portal report

Paste text or links here.



Text type: Language:

Sentiment Analysis **Sentiment Analysis**

- ◆ Evaluate
- Project
- Technology
- User manual
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Paste text or links here.

Text type: Language:

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Paste text or links here.

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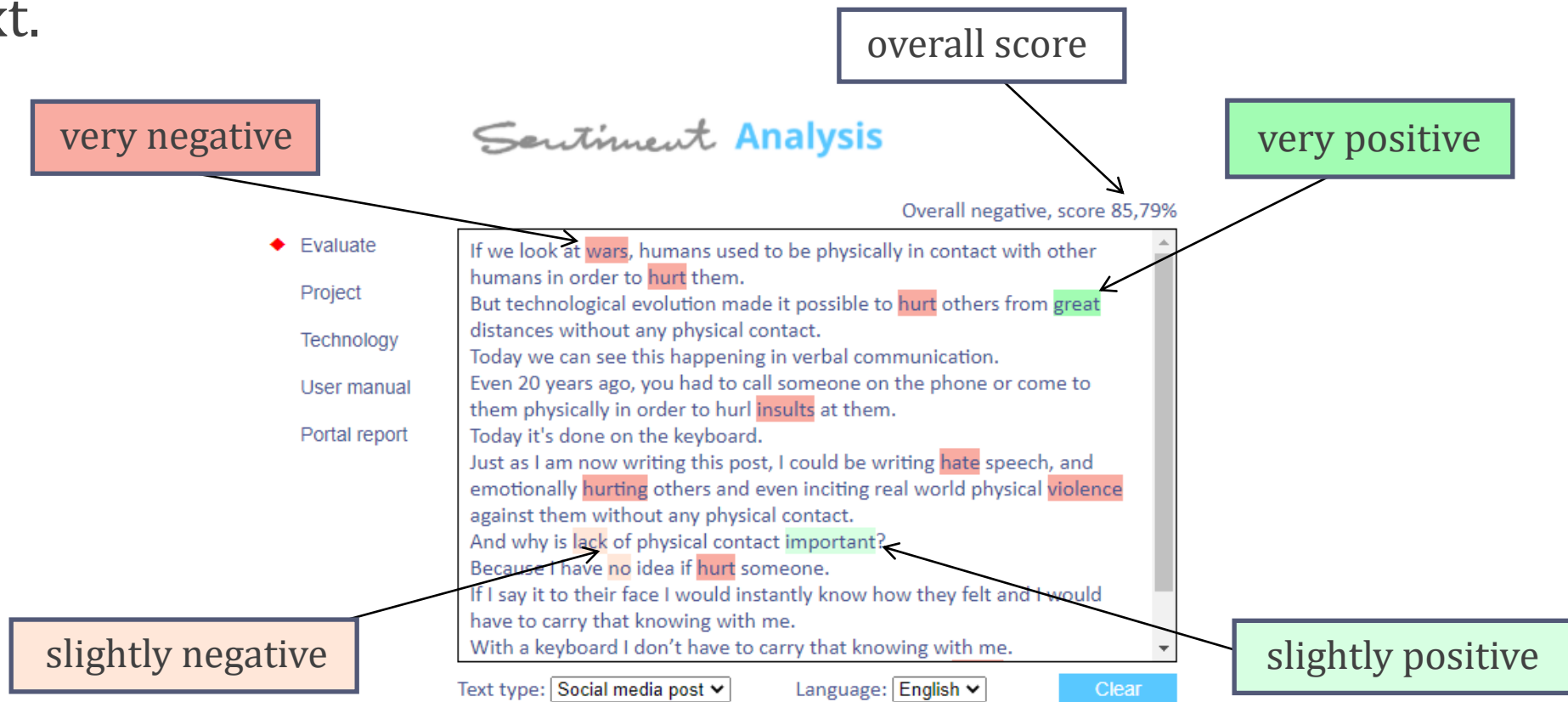
Paste text or links here.

Text type: Language:

How does the platform interface work?

What does the colors mean: words?

Users will see highlighted essential words that show the sentiment of the text.

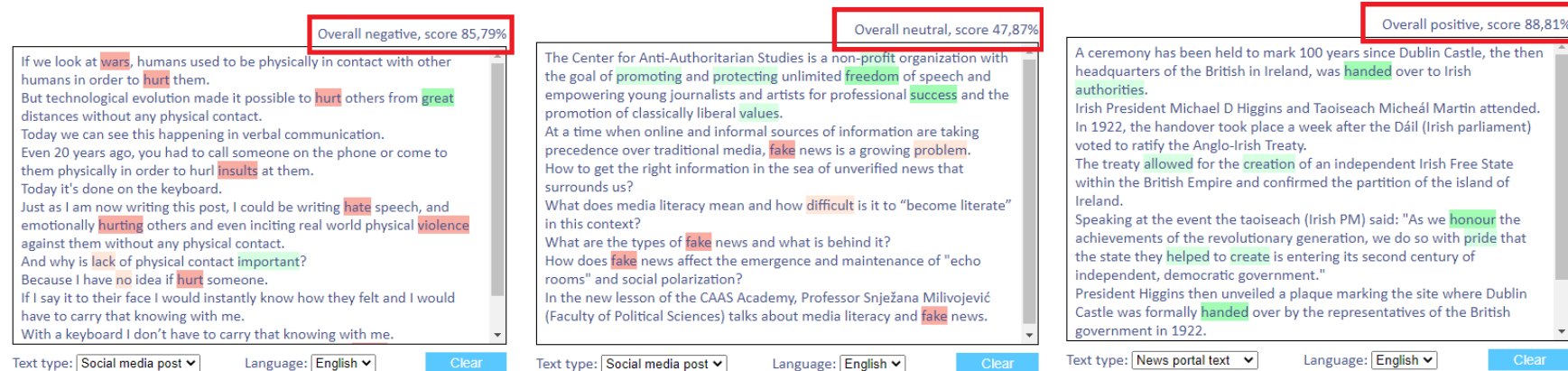


The screenshot shows a web interface for "Sentiment Analysis". At the top, it displays "overall score" and "Overall negative, score 85,79%". On the left, there is a navigation menu with items: Evaluate, Project, Technology, User manual, and Portal report. The main text area contains a paragraph about technology and communication, with several words highlighted in colored boxes: "wars" (red), "hurt" (red), "great" (green), "insults" (red), "hate" (red), "hurting" (red), "violence" (red), "lack" (green), "important" (green), "no" (orange), and "hurt" (red). Arrows point from external boxes to these words: "very negative" (red box) points to "wars"; "very positive" (green box) points to "great"; "slightly negative" (orange box) points to "no"; and "slightly positive" (green box) points to "important". At the bottom, there are dropdown menus for "Text type: Social media post" and "Language: English", along with a "Clear" button.

Analysis results

Overall rating – range scale

Users can also see the overall sentiment score for the text.



The image displays three examples of the MELIA Observatory's sentiment analysis interface. Each example shows a text input field, a dropdown menu for 'Text type', a dropdown menu for 'Language', and a 'Clear' button. The overall sentiment score is displayed in a red box above each text area.

- Example 1:** Text type: Social media post, Language: English, Overall negative, score 85,79%. The text discusses the impact of technology on communication and the spread of hate speech.
- Example 2:** Text type: Social media post, Language: English, Overall neutral, score 47,87%. The text discusses the Center for Anti-Authoritarian Studies and the promotion of freedom of speech and success.
- Example 3:** Text type: News portal text, Language: English, Overall positive, score 88,81%. The text describes a ceremony marking 100 years since Dublin Castle was handed over to Irish authorities.

The intensity of the sentiment is measured on a scale from 0% to 100%.

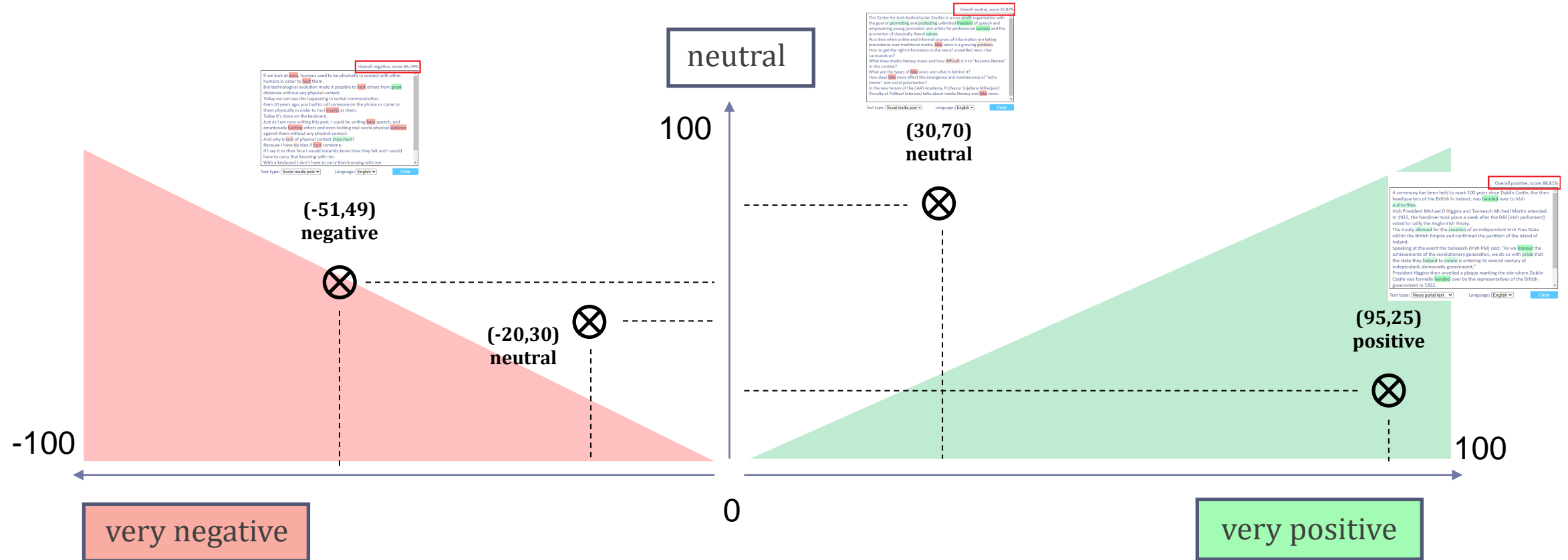
The platform interface selects the sentiment that prevails in the text and indicates its type and value from among the 3 possible sentiments of text. We can thus receive analyzed sentiments which can result in the following examples: 70% negative, 70% neutral or 70% positive, which are differing outcomes dependent upon various media texts.

The higher the percentage, the stronger the sentiment of the text.

How does the platform interface work?

What does the colors mean: overall score?

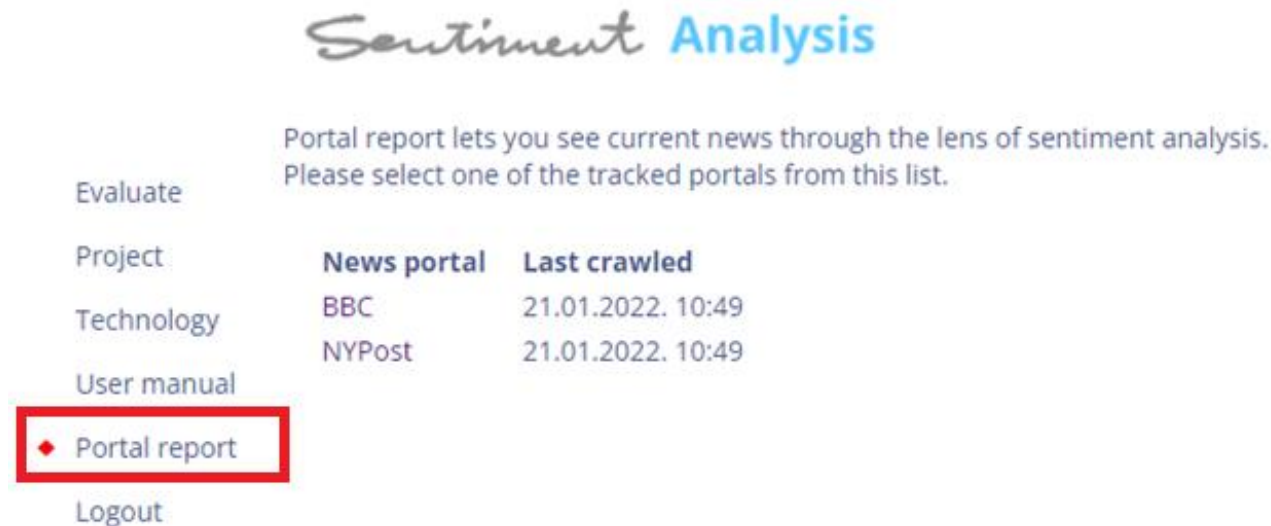
⊗ (x,y) result evaluation



Portal report

Users may also use the option Portal report and see when each one of the preselected news portals was crawled.

The interface thus crawls a list of news portals periodically, finds new content, labels its sentiment, and saves it to the local database.



Sentiment Analysis

Portal report lets you see current news through the lens of sentiment analysis.
Please select one of the tracked portals from this list.

Evaluate

Project

Technology

User manual

◆ Portal report

Logout

	News portal	Last crawled
	BBC	21.01.2022. 10:49
	NYPPost	21.01.2022. 10:49

Portal report

After selecting one of the portals, users will receive a list of searched articles which are automatically marked with sentiment models.

This list is helpful in providing a **quick glimpse of the general sentiment** orientation on the cover page of a news portal.










If a user selects any of the articles in the list, they will see a view similar to the text analysis presented at the beginning.

Analysis of the selected portals

Sentiment Analysis

Portal title news: **BBC, 21.01.2022.**

[← Back to list](#)

Evaluate	Publication	Score	Overall	Period on title page
Project	 Ukraine tension: Urgent US-Russia talks in Geneva as invasion fears grow	<u>-55,77%</u>	Negative	21.01.2022.-
Technology	 Netflix faces rocky road after pandemic wins	<u>-56,16%</u>	Negative	21.01.2022.-
User manual	 Moyenne Island: The world's smallest national park	69,45%	Neutral	21.01.2022.-
◆ Portal report	 Tonga: International aid efforts ramp up for tsunami-hit nation	<u>-76,99%</u>	Negative	21.01.2022.-
Logout	 Singer Meat Loaf dies aged 74	54,72%	Neutral	21.01.2022.-
	 US charges four Belarus officials with aircraft piracy over flight diversion	<u>-64,44%</u>	Negative	21.01.2022.-
	 Australian Open: Victoria Azarenka beats Elina Svitolina to reach last 16	84,95%	Neutral	21.01.2022.-
	 NBA: Brooklyn Nets' David Vanterpool fined for interception against Washington Wizards	<u>-50,93%</u>	Negative	21.01.2022.-
	 Why hybrid work is emotionally exhausting	55,8%	Neutral	21.01.2022.-



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