

Annotation Guideline

Structured Sentiment Analysis in  
Natural Environment Topics



By  
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Turin  
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## 1. Preliminary

Understanding of natural environment problems is very important so that all of us, especially the natural environment stakeholders like the government, can decide what we need to do to solve the issues. In this case, one of the solutions can be done by creating a system that can detect people's perceptions about the natural environment around them.

To realize this system, we need your help to provide a good annotation so that we can build the main model for the system and benchmark to decide whether our system has a good performance or not.

## 2. Task and Label Explanation

In this annotation task, we ask you to annotate i.e. giving labels to a collection of tweets. In general, there are two label types that need to be annotated i.e. **Span** and **Relation**. **Span** labeling means you give entity labels in several words and/or phrases. Meanwhile, **Relation** labeling means you give a relation label between two entities. The detailed explanations for **Span** and **Relation** labels can be seen in Table 1 and Table 2.

Table 1. **Span** label explanation

Span Label	Label Definition	Class Label	Class Explanation	Example
Holder	Holder is the entity (people, organization, etc.) that gives the expression (sentiment).	Hol_Citizen	Means the holder of the expression is a citizen, i.e. an ordinary person/group that is not affiliated with any official community/organization.	<i>I, We, They</i> (who does not refer to an official community), an unofficial activist fans club, etc.
		Hol_Government	Means the holder of the expression is a government (whether central or sub-unit) or its stakeholders.	The name of the government unit (e.g. ministry), sub-unit (e.g. department of ministry), or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Hol_PoliticalParty	Means the holder of the expression is a political party or its stakeholders.	The name of the political party (e.g. Republican, Democrat, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).

		Hol_Media	Means the holder of the expression is a mass media or its stakeholders.	The name of a mass media (e.g. BBC, CNN, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Hol_Company	Means the holder of the expression is a company or its stakeholders.	The name of a company (e.g. Google, Amazon, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Hol_Private Foundation	Means the holder of the expression is a private foundation or its stakeholders.	The name of a private foundation (e.g. Gates Foundation, Bezos Earth Fund, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Hol_NGO	Means the holder of the expression is a non-governmental organization (NGO).	The name of an NGO (e.g. Greenpeace, Friends of the Earth, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
Expression	Expression is a word/phrase that contains sentiment polarity.	Exp_Positive	Means the sentiment of the expression is positive, like supporting, giving a good rating, or appreciating an act or policy.	Word/phrase that indicates something positive, e.g. <i>good, great, etc.</i>
		Exp_Negative	Means the sentiment of the expression is negative, like refusing, giving a bad rating, or criticizing an act or policy.	Word/phrase that indicates something negative, e.g. <i>bad, ruin, etc.</i>
Target	Target is the entity (people, organization, etc.) who becomes the objective of the expression	Tar_Citizen	Means the target of the expression is a citizen, i.e. an ordinary person/group who is not affiliated with an official community/	<i>I, We, They</i> (who does not refer to an official community), an unofficial activist fans club, etc.

	(sentiment).		organization.	
		Tar_Government	Means the target of the expression is a government (whether central or sub-unit) or its stakeholders.	The name of the government unit (e.g. ministry), sub-unit (e.g. department of ministry), or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Tar_PoliticalParty	Means the target of the expression is a political party or its stakeholders.	The name of the political party (e.g. Republican, Democrat, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Tar_Media	Means the target of the expression is a mass media or its stakeholders.	The name of a mass media (e.g. BBC, CNN, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Tar_Company	Means the target of the expression is a company or its stakeholders.	The name of a company (e.g. Google, Amazon, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Tar_Private Foundation	Means the target of the expression is a private foundation or its holders.	The name of a private foundation (e.g. Gates Foundation, Bezos Earth Fund, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
		Tar_NGO	Means the target of the expression is a non-governmental organization (NGO).	The name of an NGO (e.g. Greenpeace, Friends of the Earth, etc.) or its stakeholders and its coreference ( <i>We, They, etc.</i> ).
Topic	Topic is the natural environment theme discussed	Top_Environment	Means the topic discussed is about environment in general.	Word/phrase that is related to general environment problems like water, air, livable

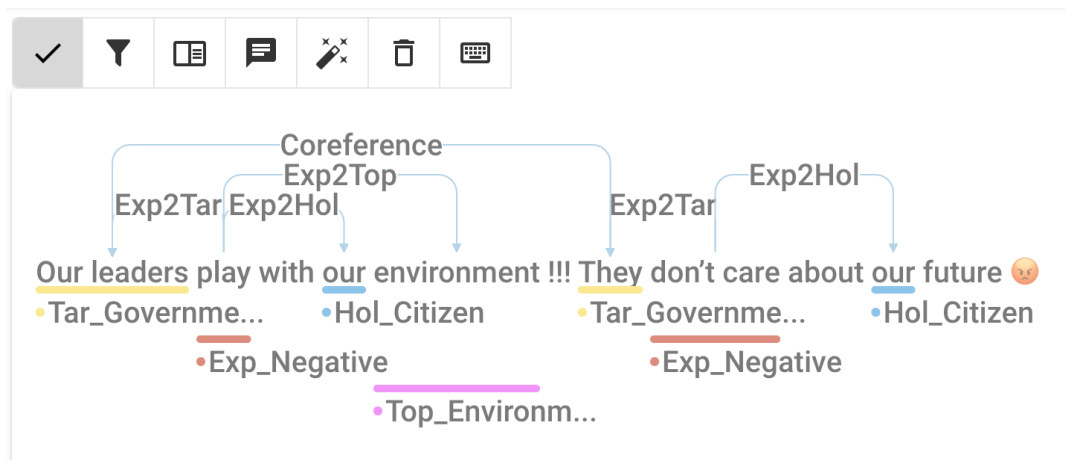
	in the text.			places, and urban issues in general.
		Top_Green	Means the topic discussed is about green environment.	Word/phrase that is related to green environment issues like green parks/ areas/spaces, green tourism/hotels, green consumerism, and green governance.
		Top_Sustainability	Means the topic discussed is about sustainable environment.	Word/phrase that is related to sustainable environment like sustainable development goals (SDGs), sustainable urban system/ mobility/transport, sustainable tourism/ hotels, sustainable agriculture, and sustainable consumption.
		Top_Food	Means the topic discussed is about food issues related to environment.	Word/phrase about food issues that is related to environment like food quality/safety, food contamination/ poisoning, organic/ gluten-free food, alternative/ plant-based food, and genetically modified organism (GMO)-based food.
		Top_Organism	Means the topic discussed is about organism issues related to environment.	Word/phrase about organism that is related to environment like genetically modified organism (GMO) in general.
		Top_Climate Change	Means the topic discussed is about climate change.	Word/phrase that is related to climate change issues like climate change in general, climate action,

				climate emergency, and global warming.
		Top_Carbon	Means the topic discussed is about carbon issues related to environment.	Word/phrase about carbon issues that is related to environment like carbon footprint/ leakage/taxation/ price/credit, greenhouse/GHG issues, carbon dioxide/CO2 issues, methane/CH4 issues, and decarbonisation issues.
		Top_Energy	Means the topic discussed is about energy issues related to environment.	Word/phrase about energy that is related to environment like fossil fuel/wind power/nuclear energy, renewable/ green/sustainable energy, and energy saving.
		Top_Waste	Means the topic discussed is about waste.	Word/phrase that is related to waste issues like menstrual cup/plastic/food waste, sewage/ sanitation waste, waste collection/ recycling, waste management and policy e.g. plastic ban policy.
		Top_Pollution	Means the topic discussed is about pollution.	Word/phrase that is related to pollution issues like pollution in general, air/water/ ground pollution, and emission.

Table 2. **Relation** label explanation

Class Label	Class Explanation	Example
Exp2Hol	This relation is used to connect the sentiment expression to the correspondence holder.	“Our leaders play with our environment” play -> Exp2Hol -> our
Exp2Tar	This relation is used to connect the sentiment expression to the correspondence target.	“Our leaders play with our environment” play -> Exp2Tar -> Our leaders
Exp2Top	This relation is used to connect the sentiment expression to the correspondence topic.	“Our leaders play with our environment” play -> Exp2Top -> environment
Coreference	This relation is used to connect pronouns (I, We, They, etc.) to the correspondence noun (holder or target).	“Our leaders play with our environment. They don’t care about our future.” They -> Coreference -> Our leaders

To make it more clear, the visualization of the example in Table 2 is can be seen in the figure below. For more examples, you can see them in Section 4 (Examples and Notes for Annotation Process).



### 3. How to Annotate

#### 3a. Log in and Go To Project

1. In the Prolific platform, click **Open study link in a new window**. You will be redirected to our annotation platform. Click on the project name to go to the annotation project. The project name may a little different from the figure below but it should only contain one project that you need to annotate. If you see more than one project or not at all, please contact us immediately through the Prolific messaging feature or email (see the footer of this guideline).



## Sentiment Analysis in the Natural Environment Topics

By Muhammad Okky Ibrohim

£18.00 • £9.00/hr 120 mins 9 places

In this annotation task, we ask you to annotate i.e. giving labels to a collection of tweets. In general, there are two label types that need to be annotated i.e. **Span** and **Relation**. **Span** labeling means you give entity labels in several words and/or phrases. Meanwhile, **Relation** labeling means you give a relation label between two entities.

Please read this annotation guideline before you start the annotation task: <https://bit.ly/ShortGuideline>

Devices you can use to take this study:

Desktop

Open study link in a new window

Search

<input type="checkbox"/>	Name	Description
<input type="checkbox"/>	SA in NE Test for Guideline	This project is used for trial and error in defining the annotation guideline for SA in NE topics.

- On the left sidebar, click **Start Annotation** and you will enter the annotation page.

SA in NE Test for Guideline

Start Annotation

Guideline

Dataset

Completion Code

@sayitnspinit The world started defrosting long be4 we got here. C0 is good for plant growth. The planet had a high CO level when the dinosaurs ruled, evrything was plush and green. Use climate money on drainage systems and moving the water to drought areas. Instead of imaginary clean energy

- Tips: If you do not like the bright theme, you can switch to the dark theme by clicking the theme symbol (sun/moon) in the top right corner.

line

@sayitnspinit The world started defrosting long be4 we got here. C0 is good for plant growth. The planet had a high CO level when the dinosaurs ruled, evrything was plush and green. Use climate money on drainage systems and moving the water to drought areas. Instead of imaginary clean energy

1 of 100 < > >I

Progress

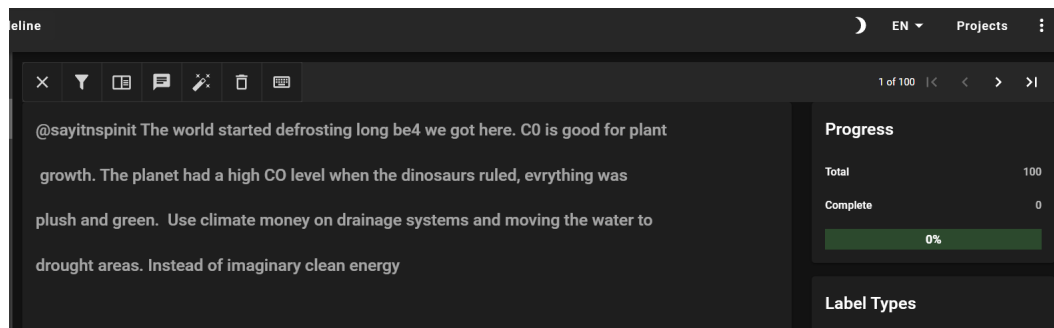
Total100

Complete0

0%

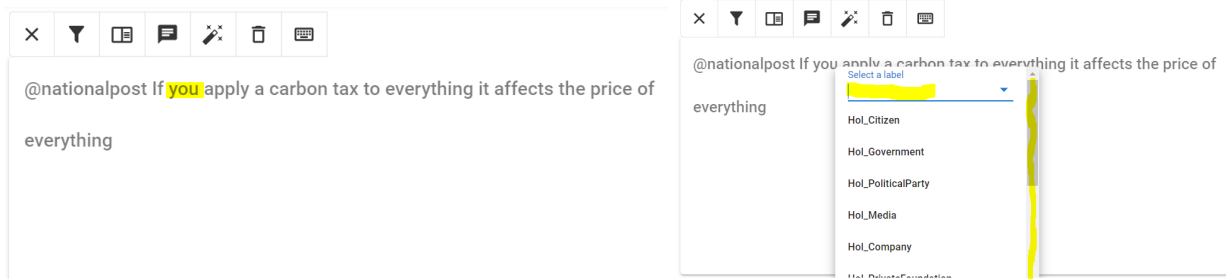
Label Types



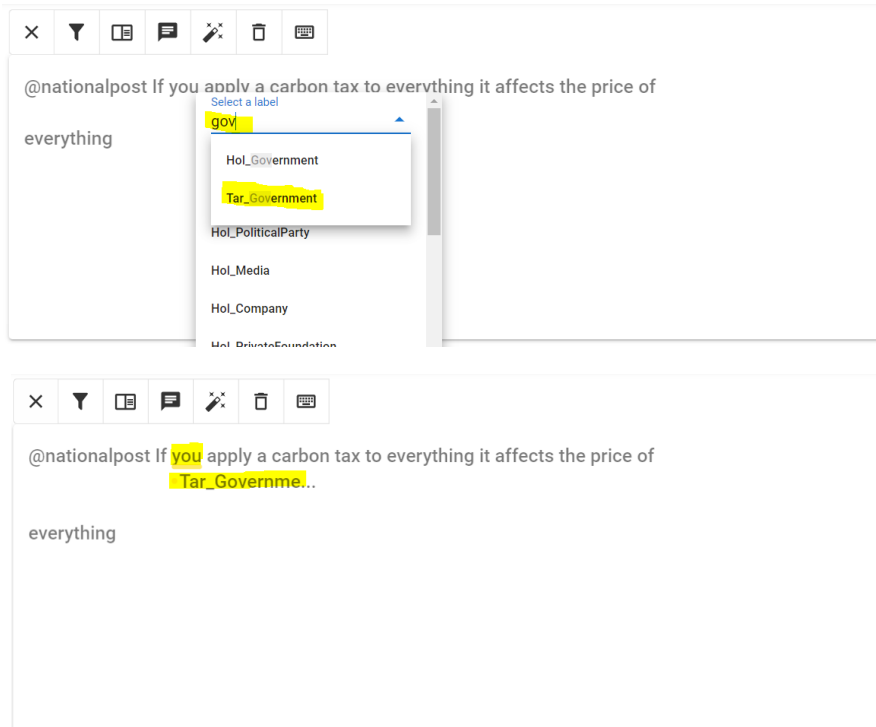


### 3b. Annotate the Span Label

1. Block the word/phrase with your mouse/trackpad that you want to annotate. For example, in this sentence, we block the word “you”. Search the appropriate span label either by scrolling down or typing the entity class name.

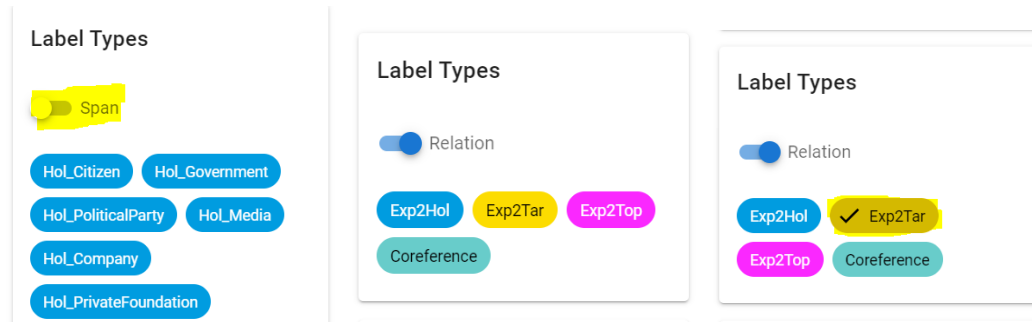


2. Click the chosen entity class and the entity class label will appear on the text.



### 3c. Annotate the Relation Label

1. Before annotating the relation label, it is better to annotate all span labels first. On the **Label Types** (right sidebar), switch the label from **Span** to **Relation** by clicking the **Span** or the **Relation** button. Then, check the relation class label that you want to annotate by clicking it. For example, in this sentence, we want to annotate the **Exp2Tar** class label.



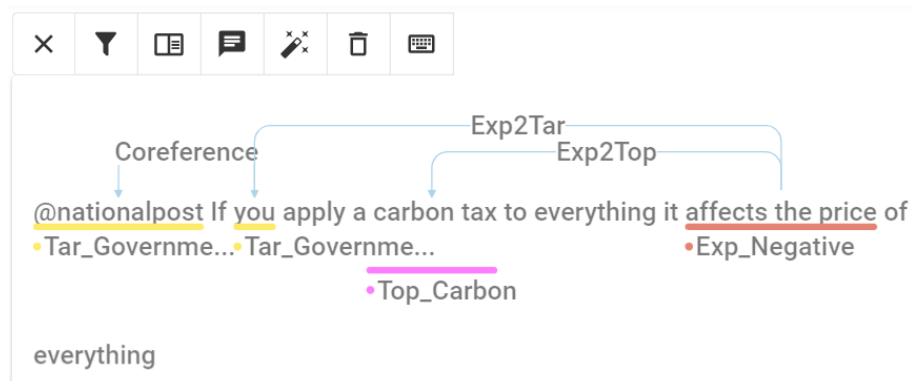
2. For **Exp2Tar** or **Exp2Hol** or **Exp2Top** relation, click on the appropriate expression entity first and then click on the target, holder, or topic that wants to be connected through the chosen relation (the order of the clicks cannot be reversed, look at the arrows in the relation annotation results).



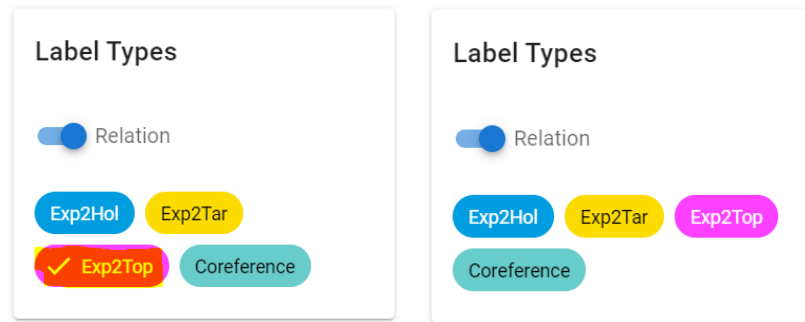
- For **Coreference** relation, click on the pronoun entity first and then click on the referred noun entity. (the order of the clicks cannot be reversed, look at the arrows in the relation annotation results).



- Repeat until all relations are annotated.

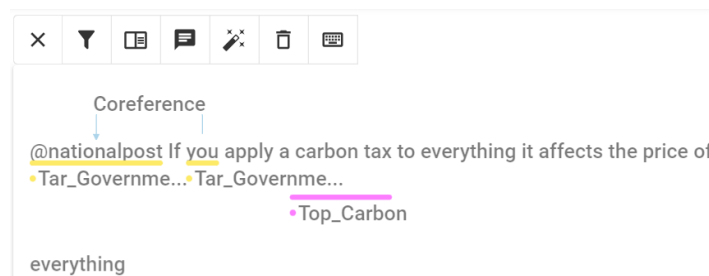
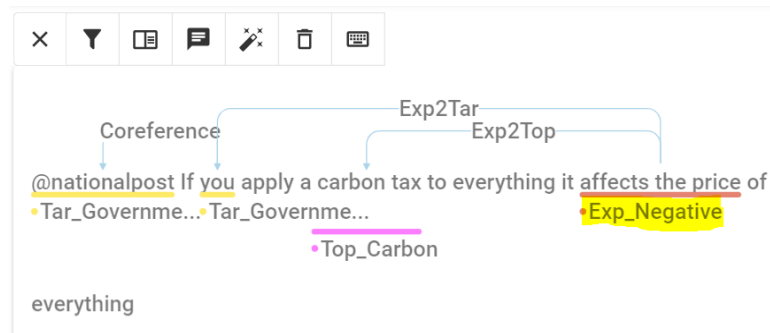


- After all span and relation labels are annotated, uncheck the last checked relation by clicking it.

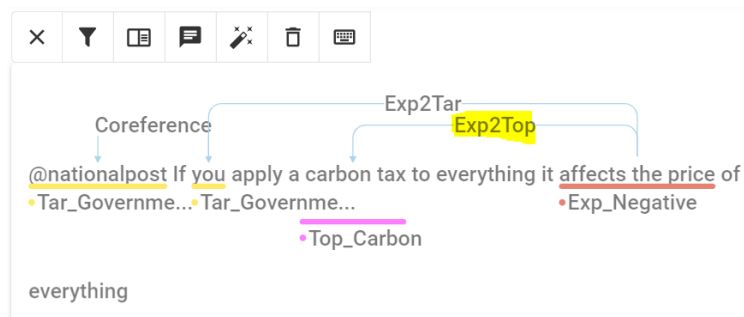


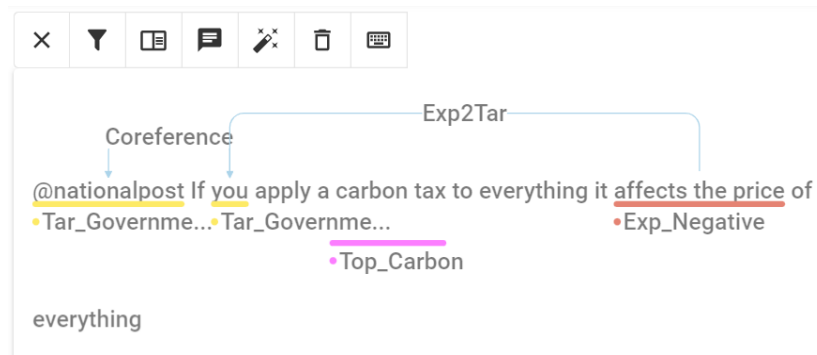
### 3d. Remove/Change Annotation

- To remove the span annotation, right-click on the span class label that you want to remove. Note that removing the span annotation will also remove the relation annotation which connects to the span class label.

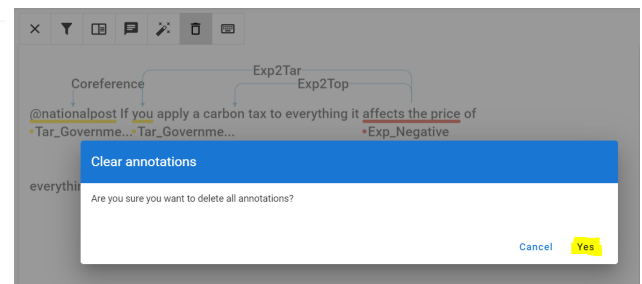
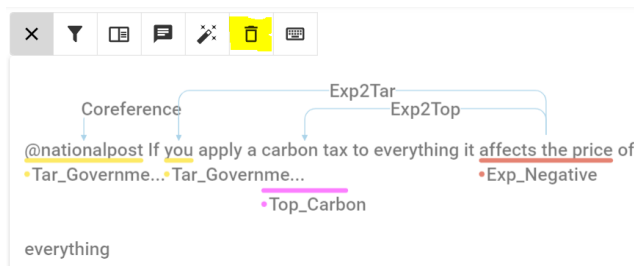


- To remove the relation annotation, right-click on the relation class label that you want to remove.



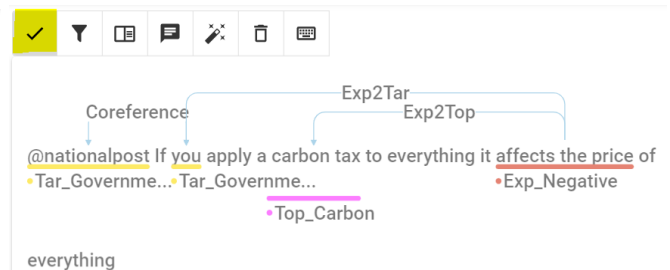
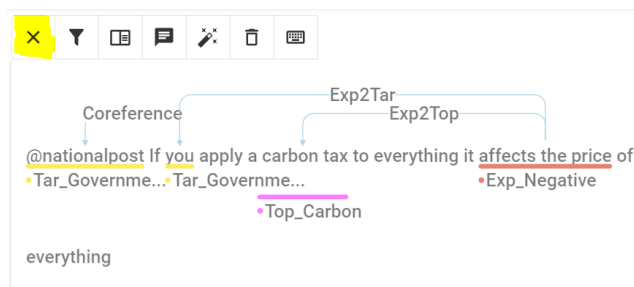


3. To change the annotation (whether it is span or relation), first you need to remove the annotation that you want to change, and then re-annotate with the new class label.
4. To remove all annotations (reset annotation), click the delete symbol on the annotation tab and click **yes** to confirm.

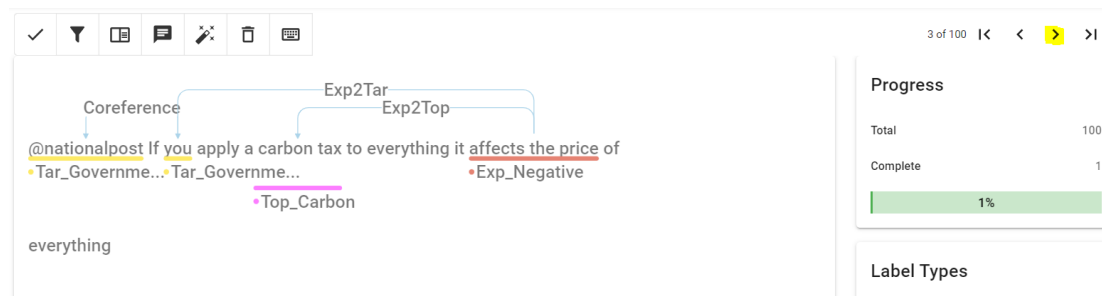


### 3e. Confirm Annotation

1. To confirm that you have annotated all span and relation labels on the given text, mark **Checked** by clicking the **Not Checked** symbol on the annotation bar.



2. To go to the next text, click the next symbol on the top right sidebar.



3. Tips: If you doubt your annotation, you can directly click next without marking **Checked** your annotation. Your annotation is automatically saved whether you mark **Checked** or not. You can take a second look at your annotation that you still doubt and then edit and/or confirm it later.

### 3f. Take a Second Look at the Annotation Result

1. On the **Dataset** menu, click **Annotate** on the data text that you want to take a second look at. After taking a second look at the annotation that you doubt, you can directly mark it as Checked or edit/change the annotation first before marking Checked. Then, click the next button on the right sidebar.

SA in NE Test for Guideline

Start Annotation

Guideline

**Dataset**

Completion Code

ID	Status	Text	Metadata	Comments	Action
99	In progress	Listen to you dumbasses going on about renewable energy has you knobs not figured that renewable don't work on such a large scale. We do not have the power banks anywhere near big enough to cope with ...	{ "id": 1575309691361820700 }	0	Annotate
109	In progress	@PeterRussell02 @sophiadahl1 @Scary_Claire4 Climate change is a scam. oxygen carbon dioxide nitrogen is normal https://t.co/aAHseu5qDF	{ "id": 1574836559563530200 }	0	Annotate
119	Finished	@bkaydw Absolutely...climate change will NOT wait on us, so we have to ACT. Please consider donating to us as we know the severity of the situation and getting the right leaders in place with a PLAN...	{ "id": 1575856179036692500 }	0	Annotate
129	In progress	The residents of LA Supervisorial District 2 are experiencing an air quality index of 17 (good). https://t.co/uxjNwKg0JS	{ "id": 1571903340866580500 }	0	Annotate

Annotations for the tweet: @PeterRussell02 @sophiadahl1 @Scary\_Claire4 Climate change is a scam. oxygen carbon dioxide nitrogen is normal https://t.co/aAHseu5qDF

Annotations:

- Exp2Top: Climate change is a scam. (Top\_ClimateC..., Exp\_Negative)
- Exp2Top: oxygen carbon dioxide nitrogen is normal (Top\_Carbon, Exp\_Positive)

Progress: 2 of 100, 2% Complete

Label Types: Span

Annotations for the tweet: @nationalpost If you apply a carbon tax to everything it affects the price of everything

Annotations:

- Coreference: Tar\_Governme..., Tar\_Governme...
- Exp2Tar: Tar\_Governme..., Tar\_Governme...
- Exp2Top: affects the price of (Top\_Carbon, Exp\_Negative)

Progress: 3 of 100, 2% Complete

Label Types: Span

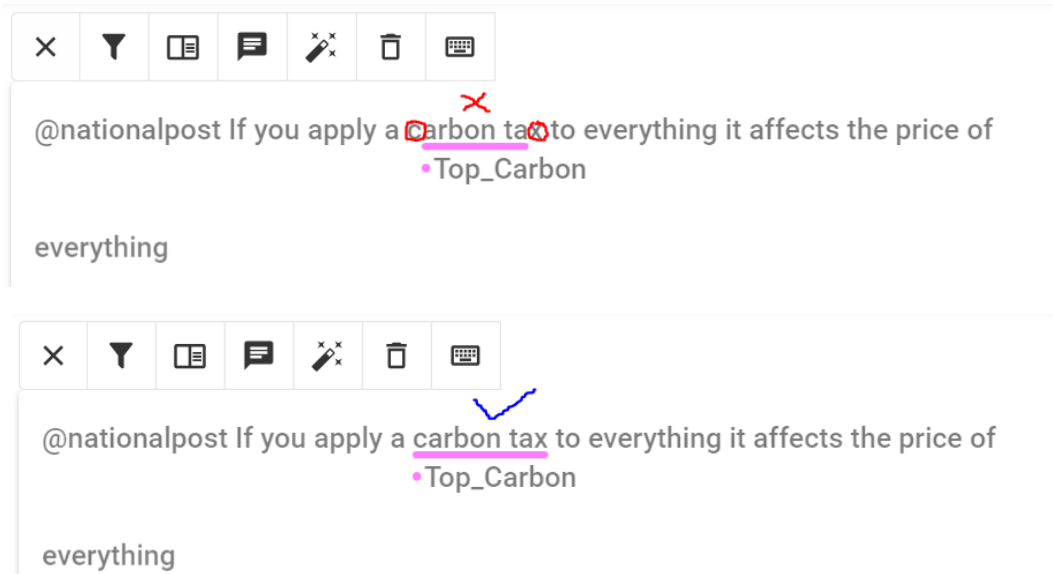
- If you only want to take a look at the annotations that you doubt, you can filter them by clicking the filter symbol on the annotation bar and then clicking Undone.

The first screenshot shows the annotation interface with a tweet: "@nationalpost If you apply a carbon tax to everything it affects the price of". A span annotation "a carbon tax" is highlighted in pink. The filter icon (funnel) is highlighted in yellow. The second screenshot shows the same interface with a dropdown menu open, showing "Done" and "Undone" options. The "Undone" option is highlighted in yellow. The third screenshot shows the same interface with the span annotation removed, and the filter icon highlighted in yellow.

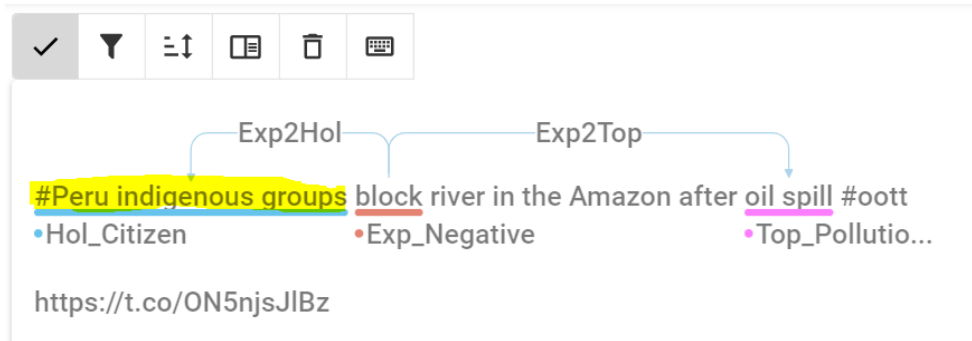
## 4. Examples and Notes for Annotation Process

- Beware when blocking the word/phrase that you want to annotate. Do not include the space before and after the word/phrase. Make sure all characters are blocked correctly without missing even one character. See the underline of the span annotation result.

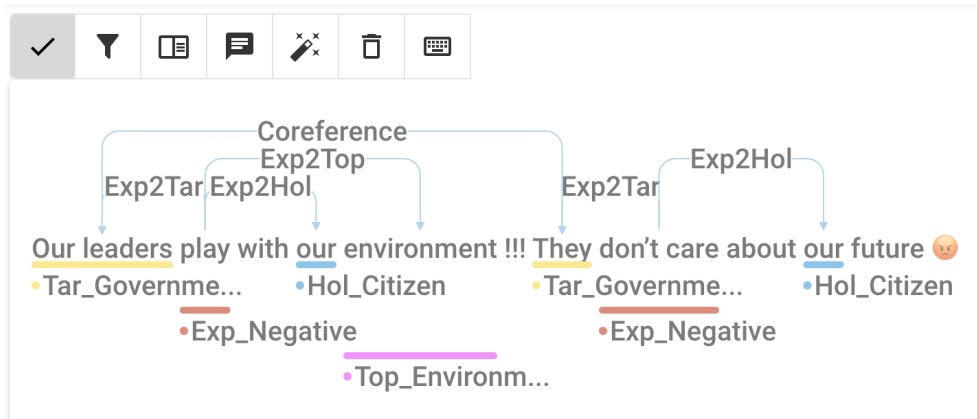
The screenshot shows the annotation interface with a tweet: "@nationalpost If you apply a carbon tax to everything it affects the price of". A span annotation "a carbon tax" is highlighted in pink. The filter icon (funnel) is highlighted in yellow.



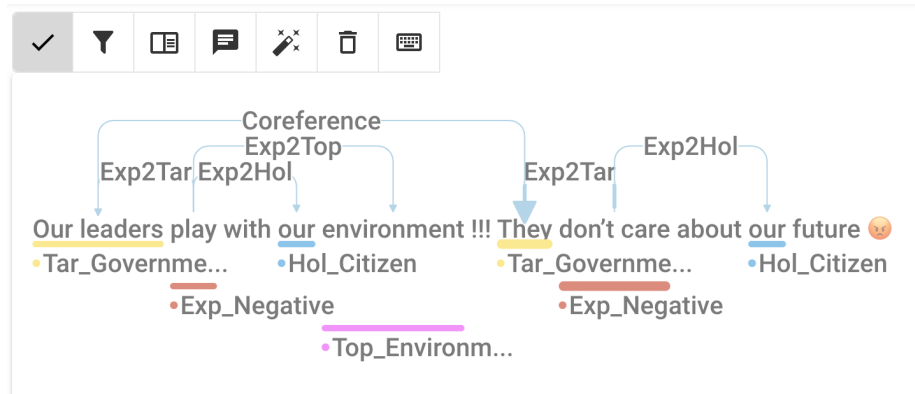
2. Beware when blocking holder and target word/phrase that contain additional characters like hashtag symbols or contraction subwords. In this annotation task, we include those kinds of additional characters. See the example below.



3. When annotating the data text that has quite complex relation labels, you may see that the visualization is overlapped and confusing. To check whether your relation annotation is in the correct position or not, you can hover (put your cursor to) the relation label. For example, we will hover over the Exp2Tar below to check whether that relation correctly connects the word don't care (Exp\_Negative) to They (Tar\_Government) or not.

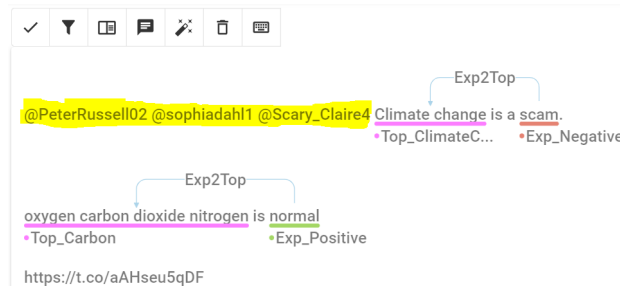




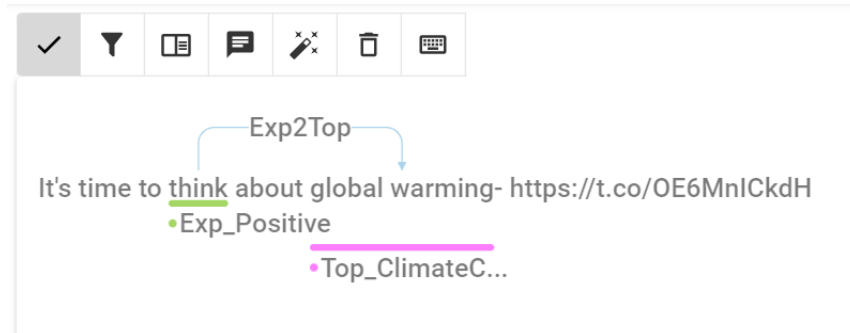


As you can see, the relation and span line become bold when we cover the relation class label.

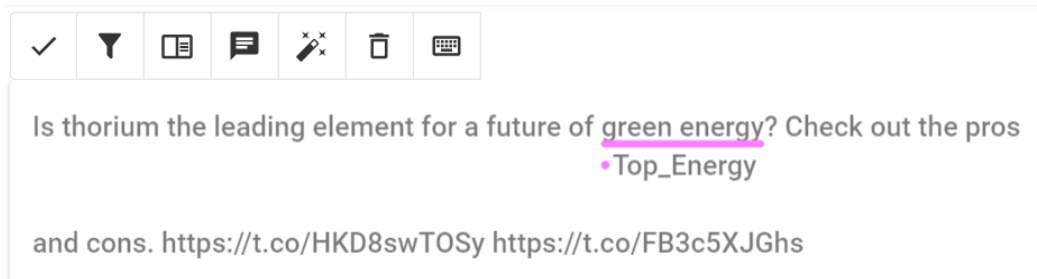
- Not all people mentioned in the text become a holder or target. For example, people tagged in the data text below are not a holder or target of the expression.



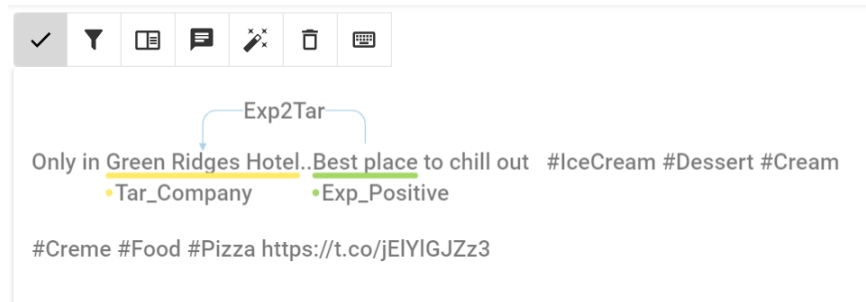
- Not all expressions must be connected to a particular holder or target. For example, the data text below does not have a holder and target.



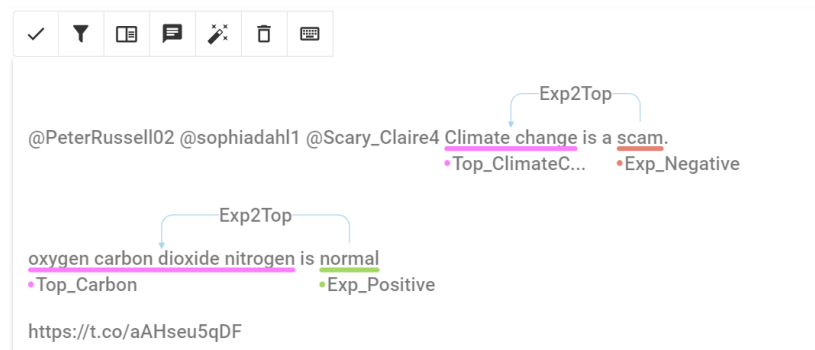
- Not all data text has positive or negative expressions. For example, the data text below discusses one of the natural environment topics but the text only gives neutral information.



- You may find a text that does not discuss a natural environment topic. For example, the data text below gives a positive review of a hotel (company) in terms of ambiance, not giving any review about the natural environment like sustainability or green aspect.

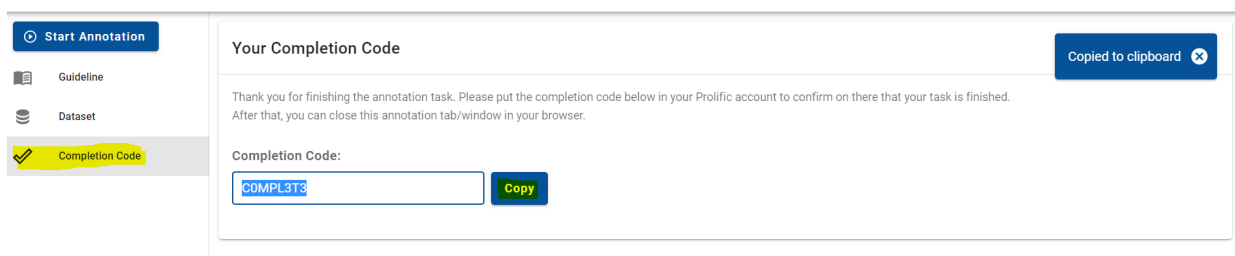


- One data text may have more than one expression which is contrary. For example, the data text below has one negative expression and one positive expression.

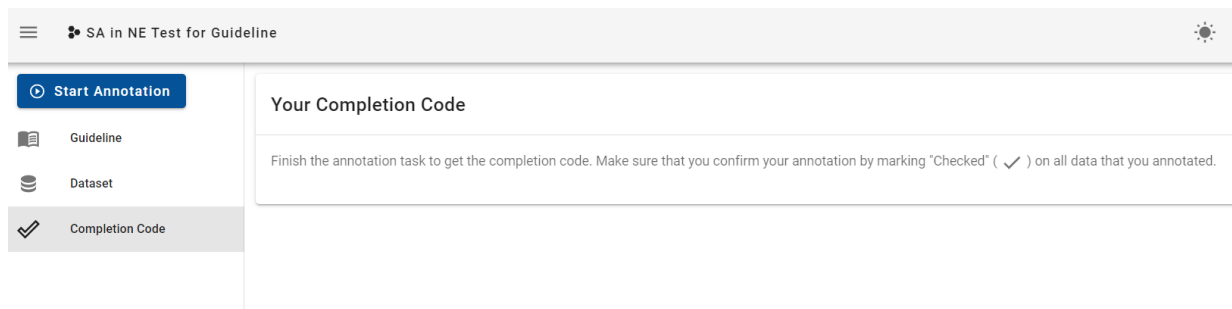


## 5. Get the Completion Code

- Once you finish the annotation task (all data already confirmed by marking it Checked), you can get your completion code by clicking the Completion Code menu in the left sidebar, copy the code by clicking Copy button, and then paste it into your Prolific account to confirm on there that your task is finished. After that, you can close this annotation tab/window in your browser.



- If you feel you have finished the annotation task but still did not get the code like the figure below, make sure that you have confirmed all the data annotations by marking Checked. Please refer to step **3f** to solve this issue.



## 6. Contact Person

If you have any questions/problems regarding this guideline or the annotation process, please do not hesitate to contact us via email at [muhammadokky.ibrohim@unito.it](mailto:muhammadokky.ibrohim@unito.it).