

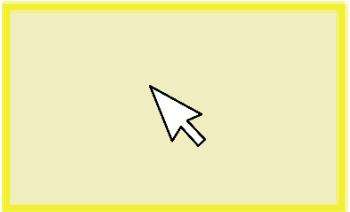
In this study, we are asking you to use a tool called *Cognitive-Affective Map* to depict your thoughts, feelings and assessments regarding your attitude towards an emerging technology, which you will be informed about shortly. The following instructions will help you to understand how to use this tool.

Example farmers' market:

Julia regularly shops at the farmers' market and has many different thoughts and impressions about farmers' markets versus alternative grocery stores.

Using the mind-mapping tool, Julia is able to draw the impressions and thoughts she has about "shopping at the farmers' market". She is also able to evaluate and link her written impressions with each other.

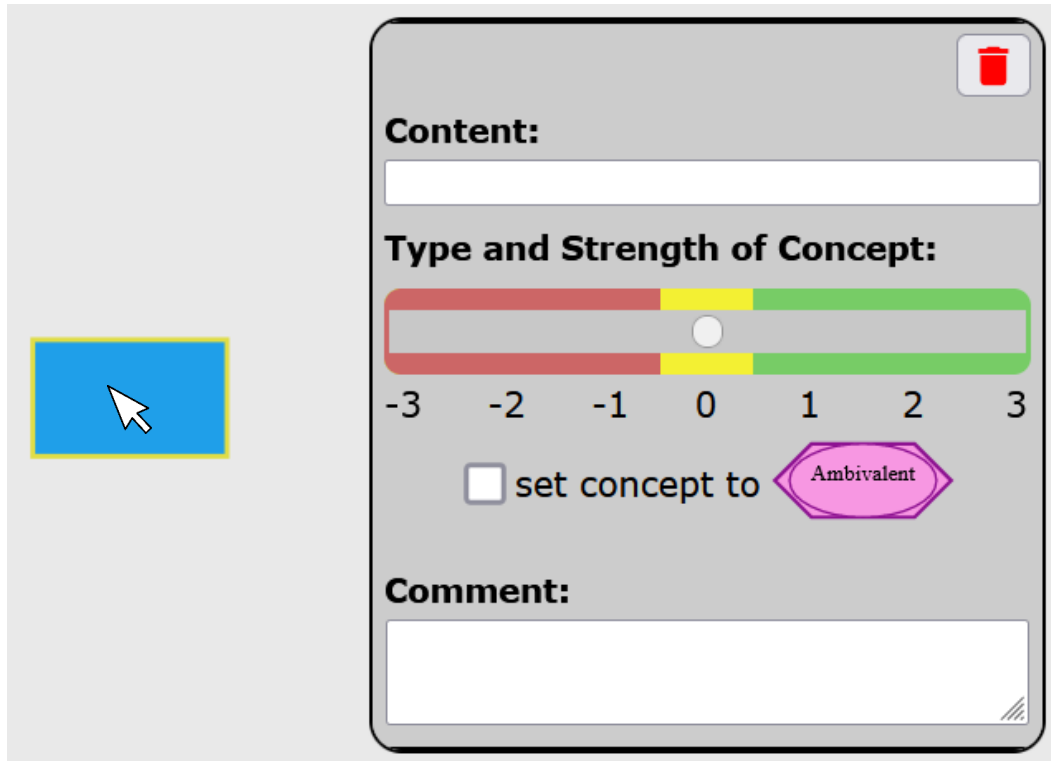
To add ideas, she simply clicks on the white background of the C.A.M.E.L. software



A yellow box will appear.

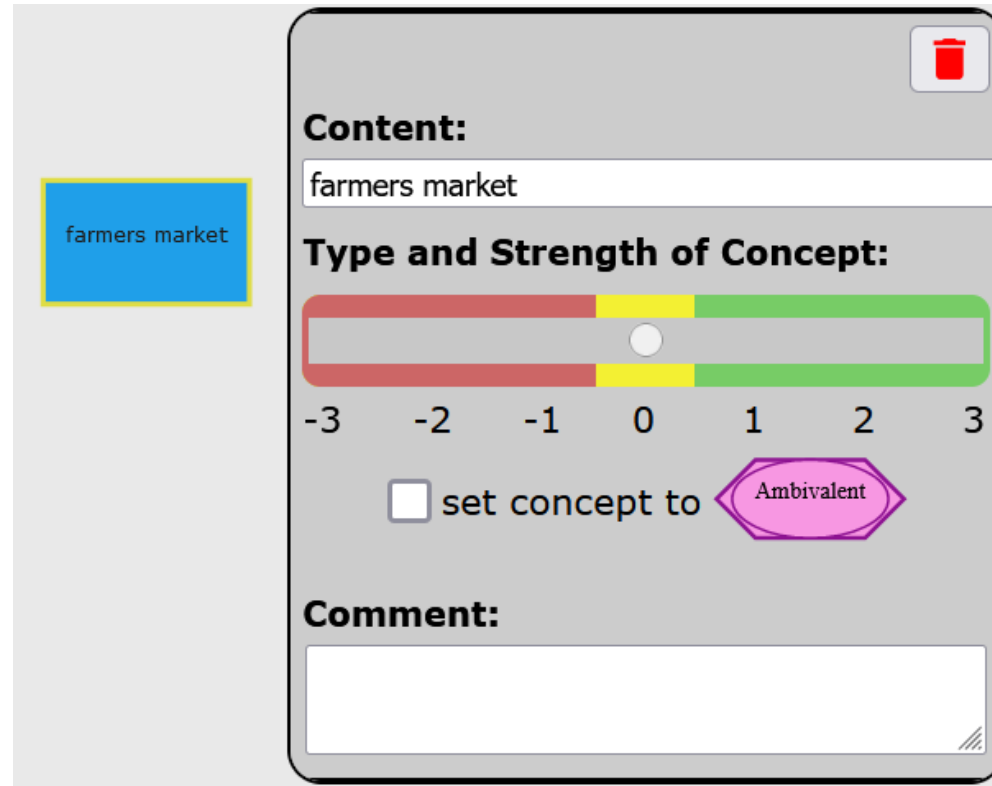
By clicking again on a free space on the white background, Julia can add more concepts.

To change ideas, Julia double clicks on the drawn concept.



A dialogue window pops up.
Here you can change the content,
type and strength of the concept
and add a comment.

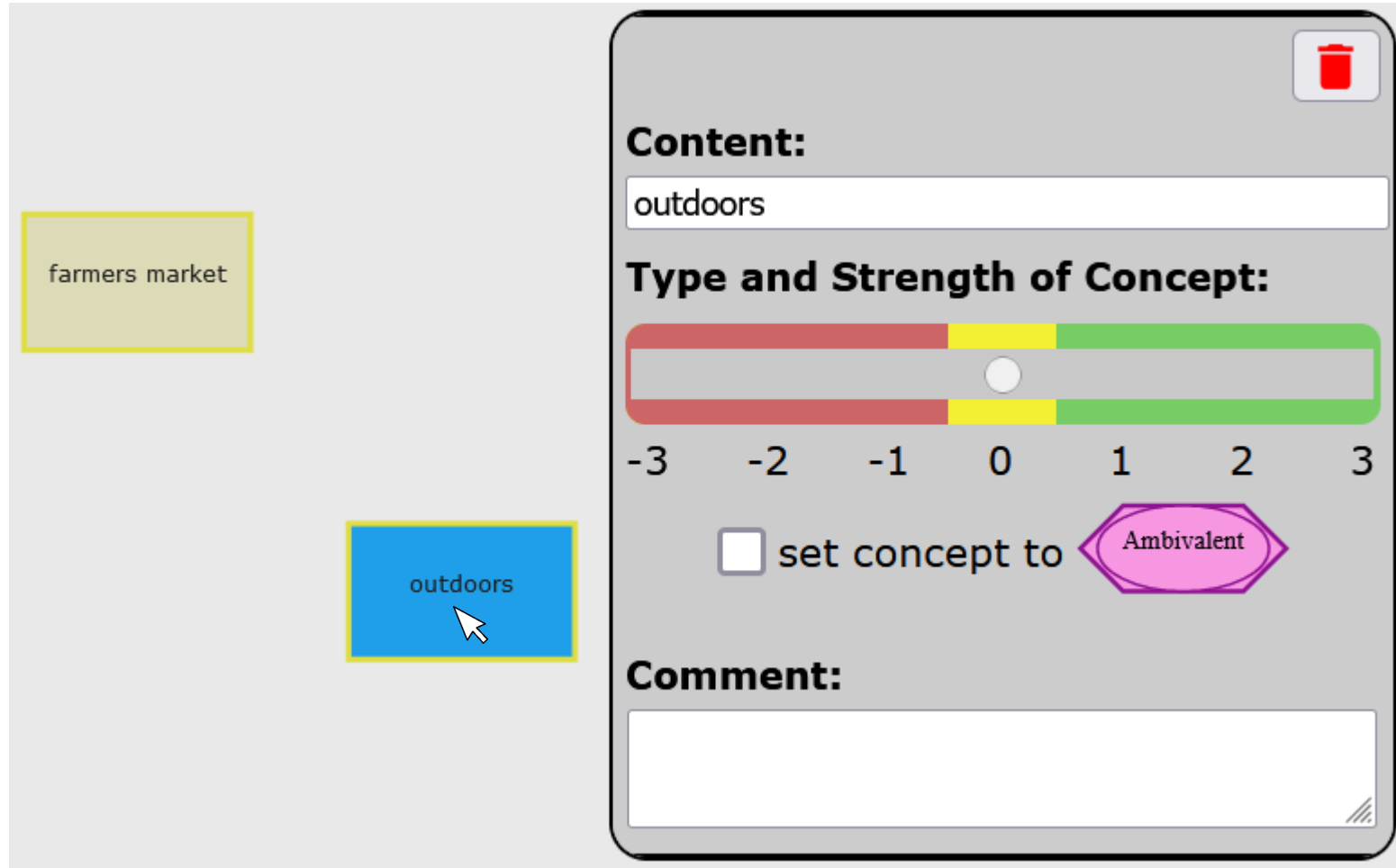
Julia changed the **content** of the concept to “farmers’ market” by simply writing within the content field:



The screenshot shows a software interface for creating cognitive-affective maps. On the left, a blue rectangular concept card with a yellow border contains the text "farmers market". To its right is a larger, detailed view of a concept card. This card has a grey background and a red trash icon in the top right corner. It contains the following fields:

- Content:** A text input field containing "farmers market".
- Type and Strength of Concept:** A horizontal slider bar with a white dot in the center. The bar is divided into three colored segments: red on the left (labeled -3, -2, -1), yellow in the middle (labeled 0), and green on the right (labeled 1, 2, 3).
- ☐ set concept to **Ambivalent**: A checkbox followed by a pink hexagonal button labeled "Ambivalent".
- Comment:** A large text area for additional notes.

Julia can now include other concepts that are important to her decision to shop at the farmers’ market.

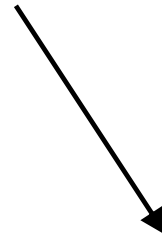


The interface displays a map with two nodes: "farmers market" (yellow) and "outdoors" (blue). A context menu is open for the "outdoors" node, showing the following options:

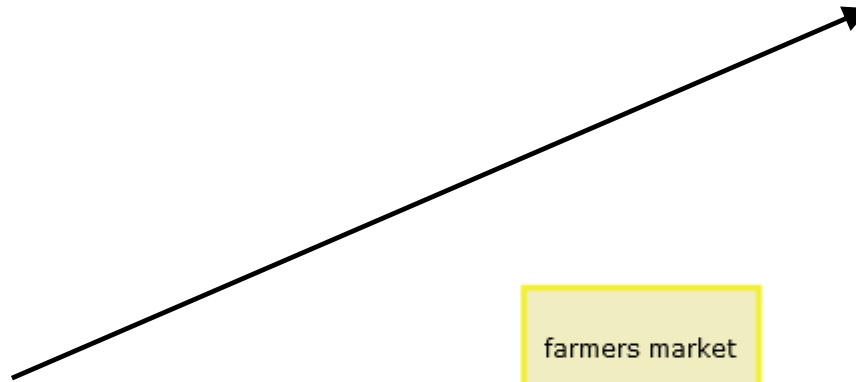
- Content:** outdoors
- Type and Strength of Concept:** A slider ranging from -3 to 3, currently set at 0. The slider is divided into three segments: red (negative), yellow (neutral), and green (positive).
- ☐ set concept to **Ambivalent**
- Comment:** A text input field.

Next, she notes that the farmers' market takes place outdoors

Julia adds two more concepts.



more expensive



farmers market

regional food


outdoors

Yellow squares represent concepts that are neutral.

farmers market


However, concepts can be positive, negative, neutral, or ambivalent.

Double-click a concept and using the slider to adjust the emotion towards the concept




Content:
regional food

Type and Strength of Concept:



-3 -2 -1 0 1 2 3

☐ set concept to 

Comment:

Julia feels positive about “regional food”.

Positive concepts are represented by green ovals.

The concept turns green when the slide bar is moved further to the right.



Slightly
positive



Intermediate
positive



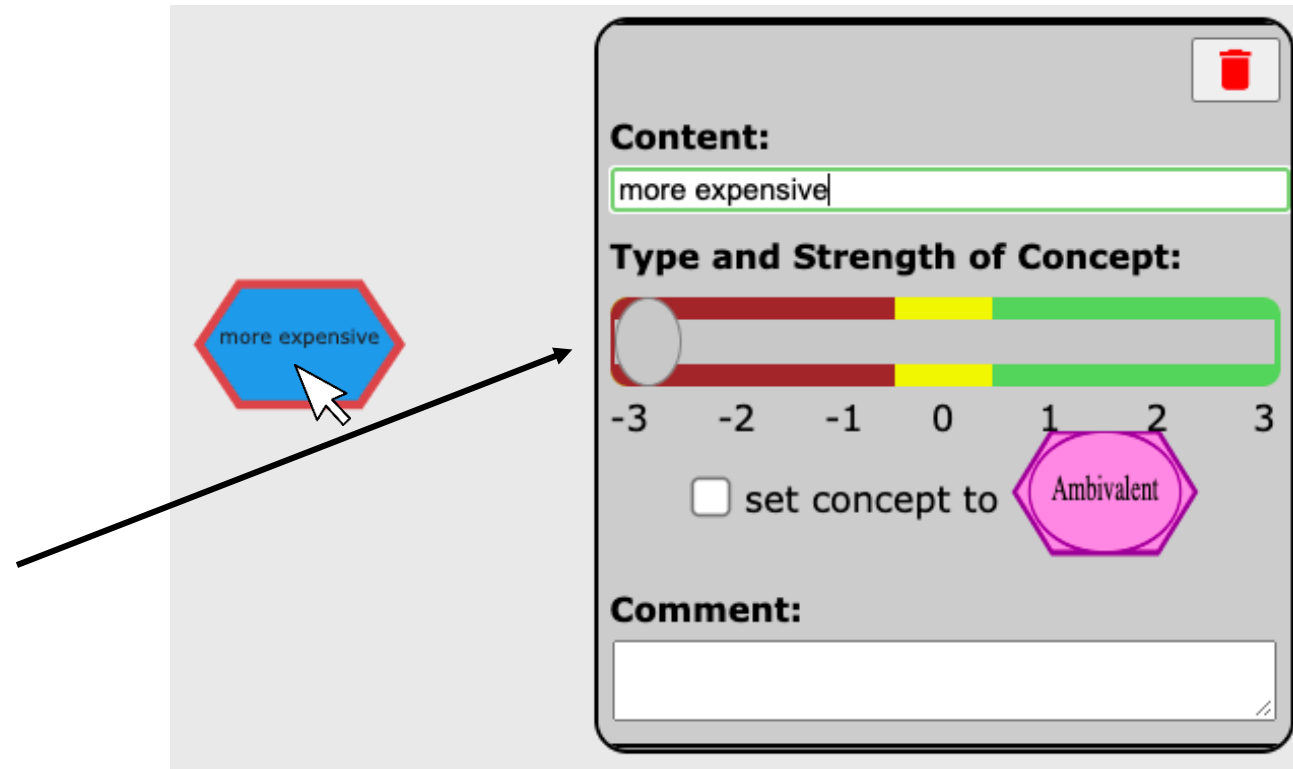
Very
positive

The slide bar offers **three strengths** for positive evaluation.

The thicker the border, the more positive the concept weighs!

Julia does not like that the food is more expensive than at the supermarket. **Negative** concepts are represented in the shape of a **red hexagon**. For negative concepts, the same logic applies as for the positive concepts.

Julia chooses “-3” to indicate that this point is very negative for her.



The screenshot shows the Cognitive-Affective Maps interface. On the left, a blue hexagon with a red border and the text "more expensive" is being clicked by a mouse cursor. An arrow points from this hexagon to a detailed configuration panel on the right. The panel has a trash icon in the top right corner. It contains the following sections:

- Content:** A text input field containing "more expensive".
- Type and Strength of Concept:** A horizontal slider with a scale from -3 to 3. The slider is currently set to -3, indicated by a grey circle at the left end. The slider bar is divided into three colored segments: red (negative), yellow (neutral), and green (positive). Below the slider, there is a checkbox labeled "set concept to" followed by a pink hexagon labeled "Ambivalent".
- Comment:** A text input field at the bottom.

Julia feels negative about “more expensive”.

Negative concepts are represented by **red hexagons**.

The concept turns more reddish when the slide bar is moved further to the left.



Slightly
negative



Intermediate
negative



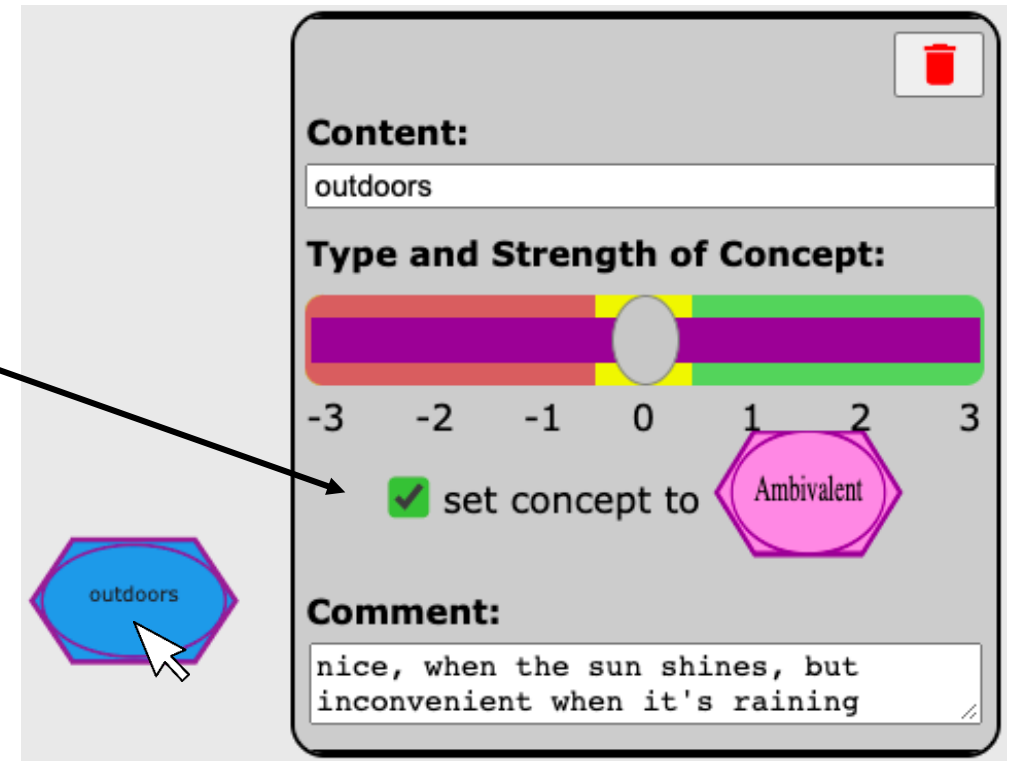
Very
negative

The slide bar offers **three strengths** for **negative evaluation**.

The thicker the border, the more negative the concept weighs!

Julia is **ambivalent** about the fact that the farmers' market is "outdoors".
Ambivalent indicates that Julia has mixed, meaning both positive and negative, feelings about it.

To indicate **ambivalence**, Julia clicks the box under the slider. Ambivalences are shown as superimposed violet ovals and hexagons.



The screenshot shows a software window titled "Cognitive-Affective Maps". Inside, there is a concept card for "outdoors". The card has a "Content:" field with "outdoors" and a "Type and Strength of Concept:" section. This section features a horizontal slider with a scale from -3 to 3. The slider is divided into three color-coded regions: red for negative values, yellow for zero, and green for positive values. A grey circular slider knob is positioned exactly at the 0 mark. Below the slider, there is a checked checkbox labeled "set concept to" followed by a pink hexagon containing the word "Ambivalent". At the bottom of the card is a "Comment:" field with the text "nice, when the sun shines, but inconvenient when it's raining". To the left of the card, a blue hexagon with the word "outdoors" is shown, with a mouse cursor hovering over it. An arrow points from the text in the left column to this hexagon.

Content:
outdoors

Type and Strength of Concept:

-3 -2 -1 0 1 2 3

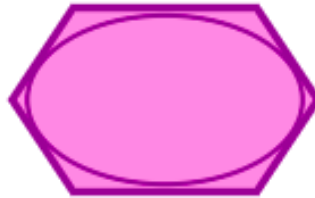
☒ set concept to Ambivalent

Comment:
nice, when the sun shines, but inconvenient when it's raining

Below you can see all colors, shapes and their meanings.
The thicker the border (for green and red), the more intense the feeling.



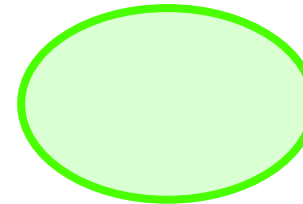
neutral



ambivalent

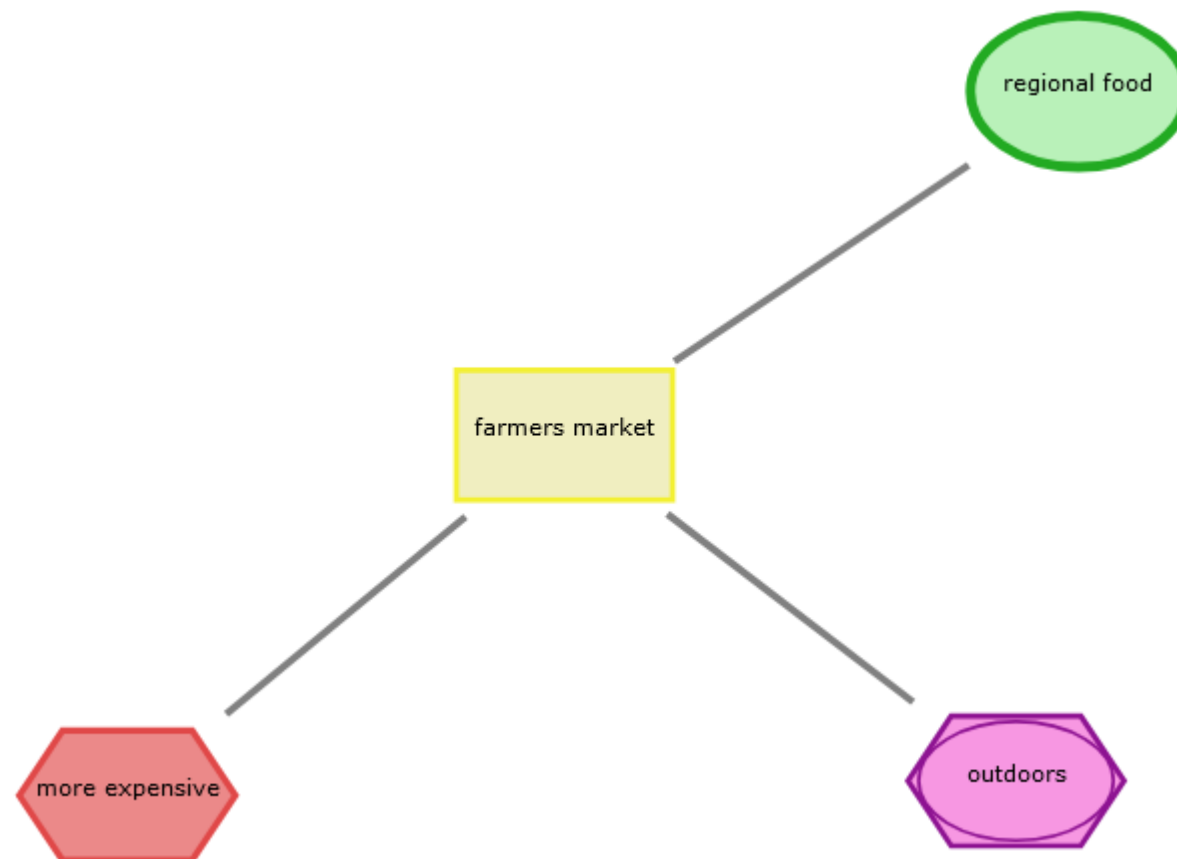


negative

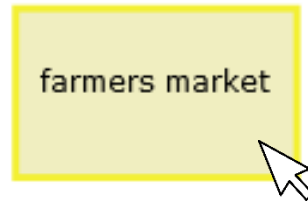


positive

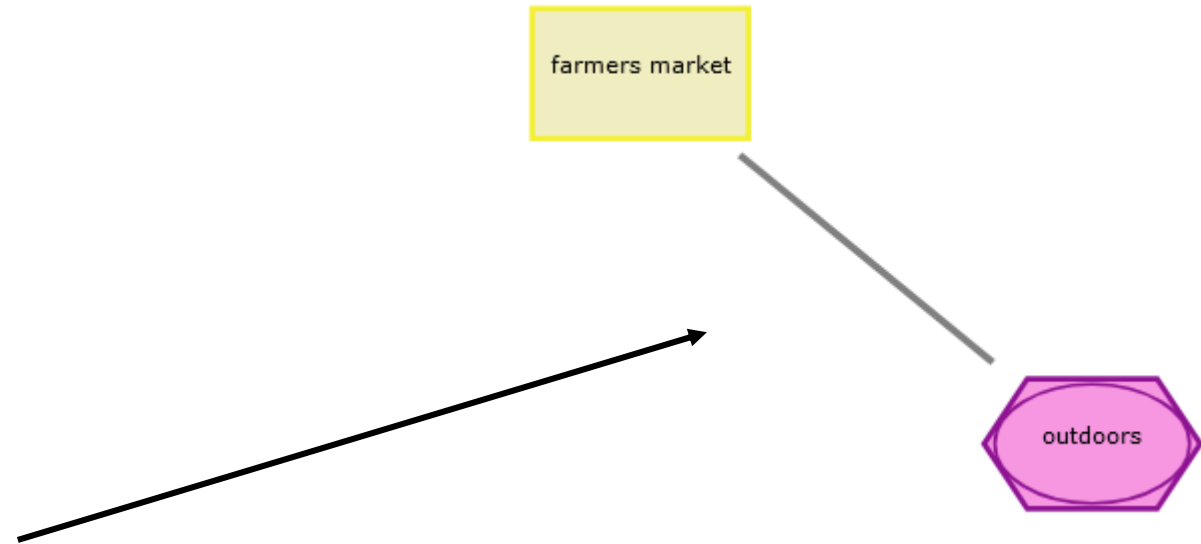
Next, Julia wants to relate concepts with each other.



To connect two concepts, Julia must single-click on both.

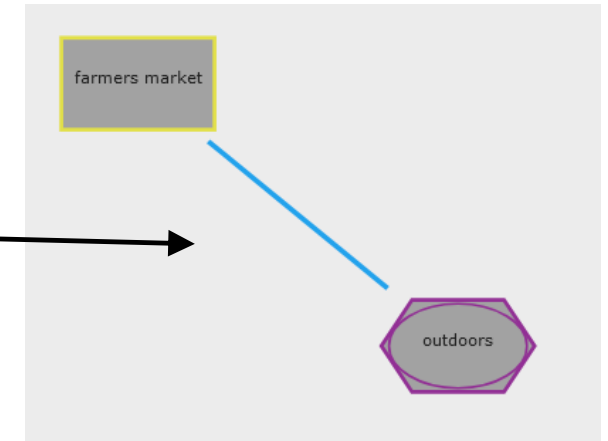


Single-clicking a concept will highlight the border in blue.



Single-clicking on the second concept will lead to a connection appearing between the two concepts.

Let's look at the different connector options.
If Julia double-clicks the link, the menu appears.

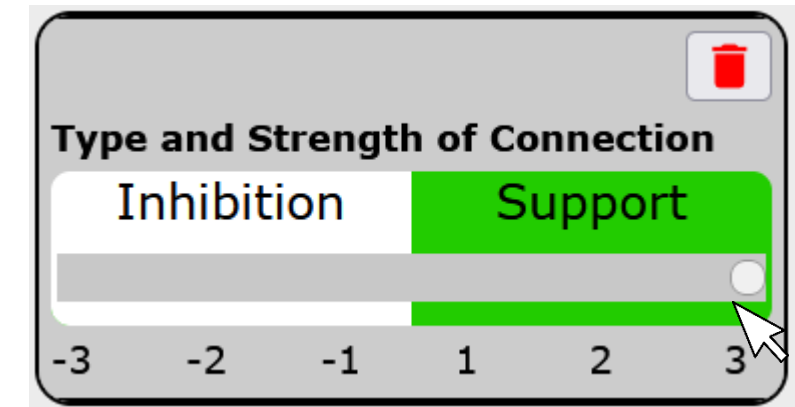
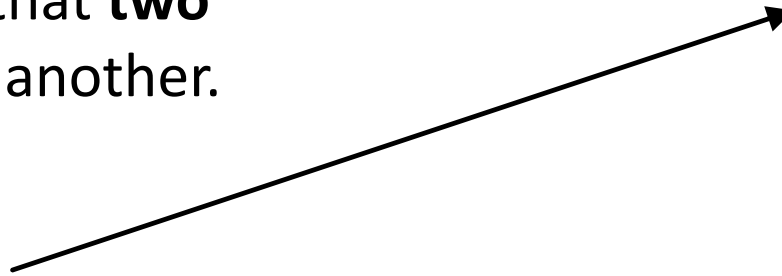


The default setting of a slight solid connection.

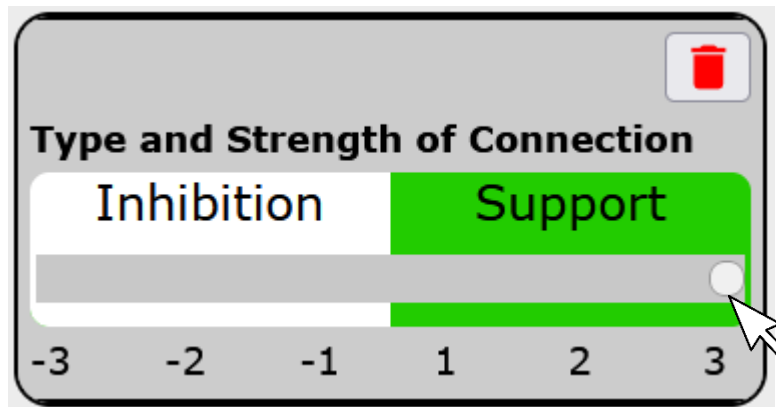
A **solid connection** indicates that **two concepts agree or support** one another.

A **dashed connection** indicates that **two concepts conflict or inhibit** one another.

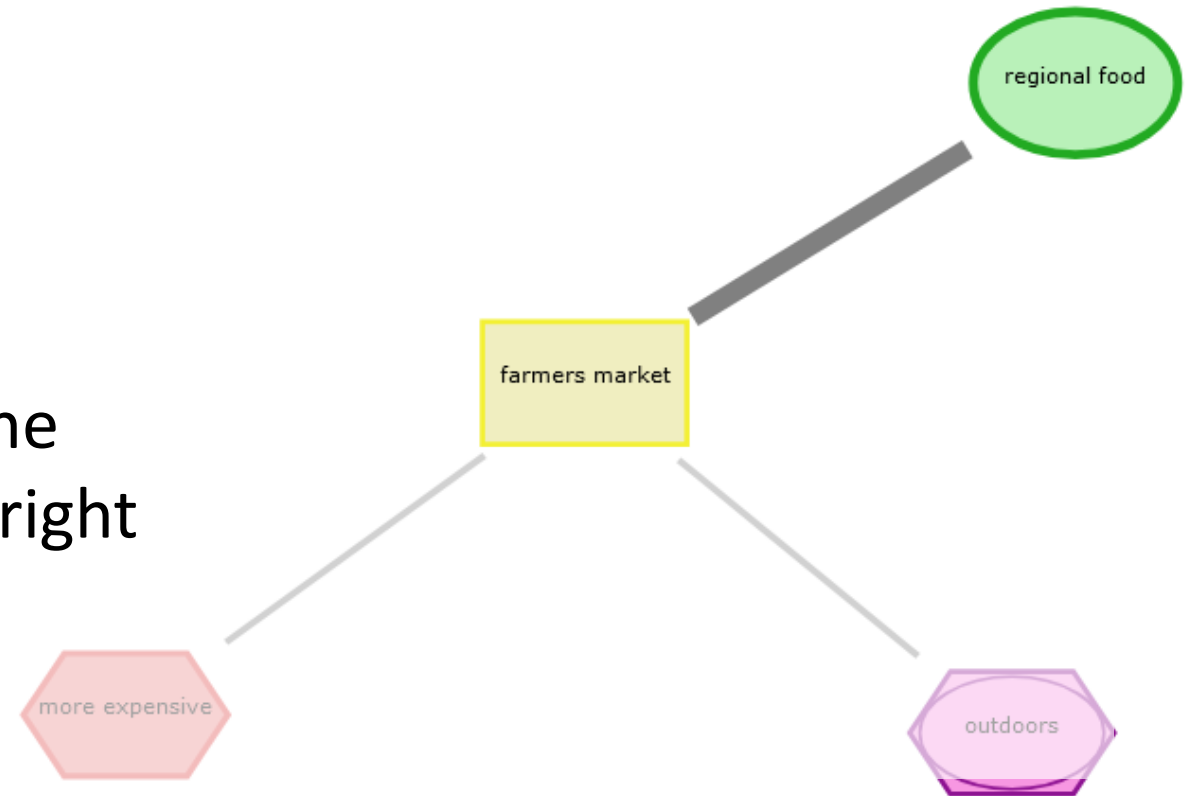
Julia can indicate agreement or disagreement using the slider.



Based on the thickness of the lines, we can see that for Julia, the influence of “regional” food on the decision to go to the farmers’ market is stronger than the influence of “outdoors”

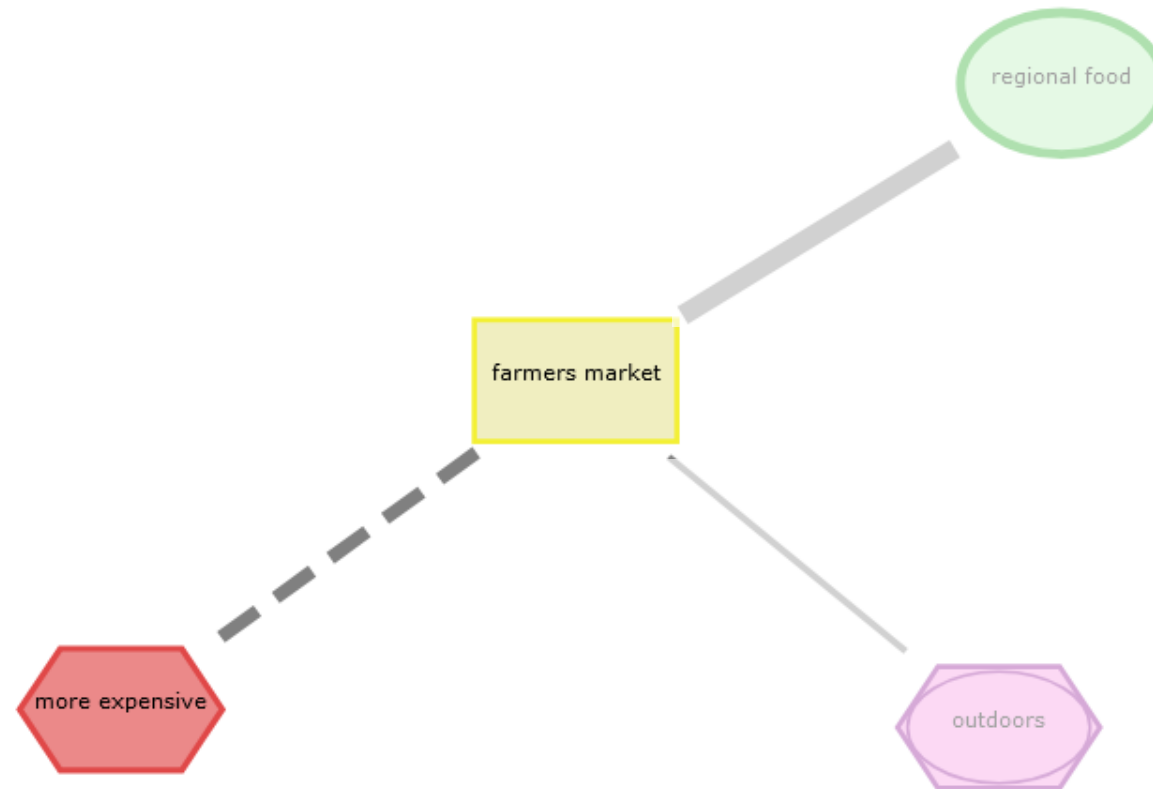


She moves the slider to the right

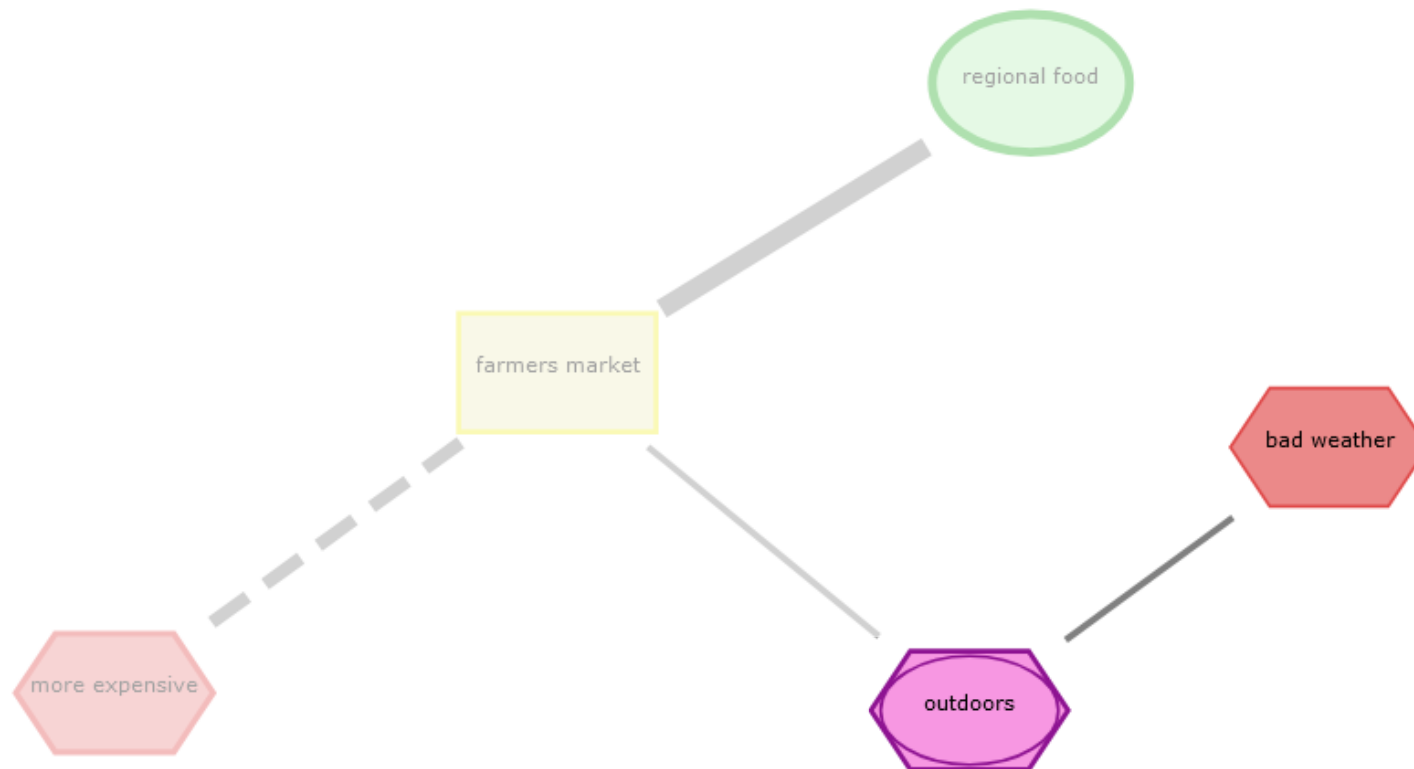


In comparison to the "regional" factor, “more expensive” food conflicts with “shopping at the farmers’ market” and is represented by a **dashed connection**.

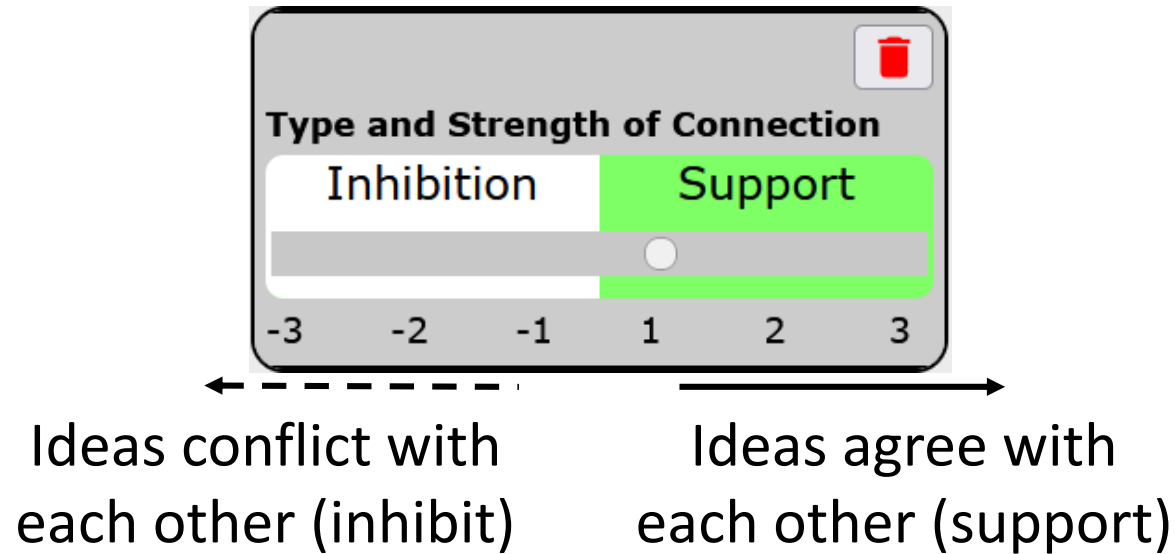
This means: The more expensive the food, the less likely Julia is to go shopping at the farmers’ market.



Note that the type of connection is independent of the type of concept. A **negative concept** can also be connected via a **solid connection**: This means, as the market takes place outdoors, there is the risk of being exposed to bad weather.



Here you can see again the connector types:



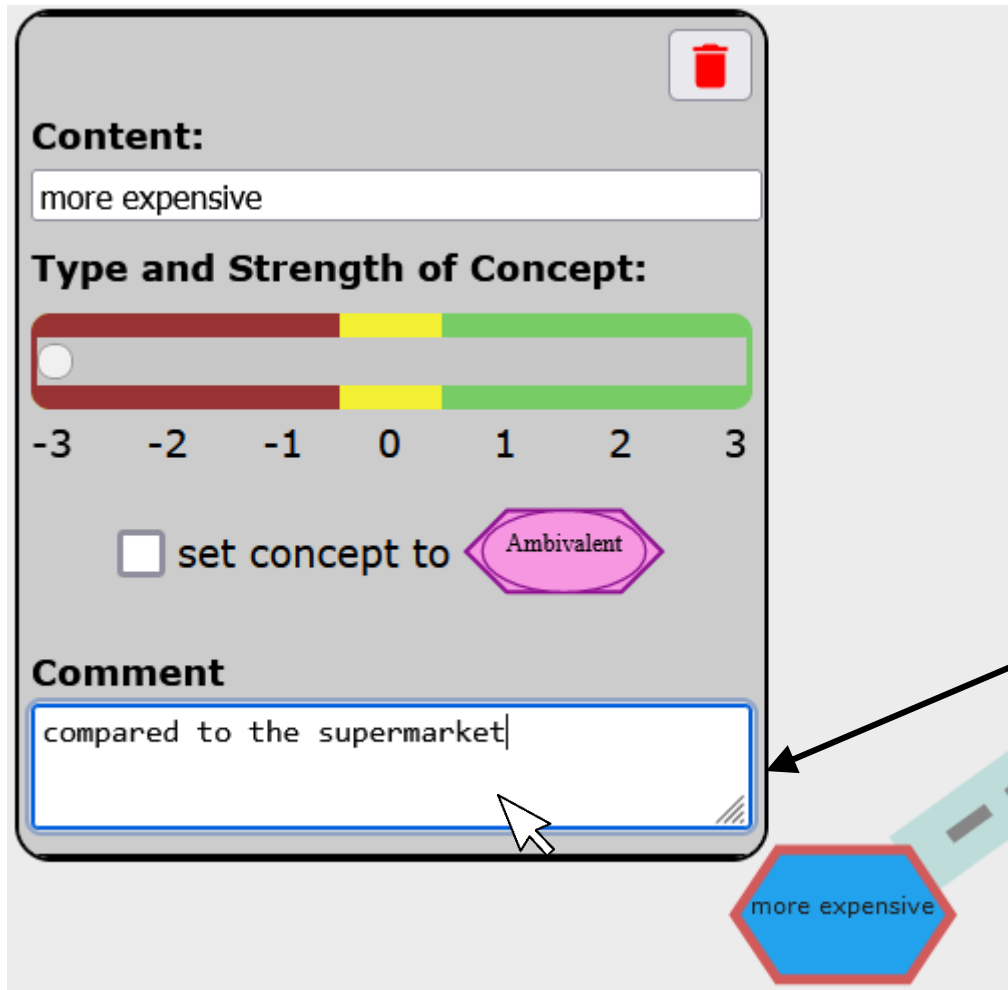
Examples:

- If the weather is bad, I don't go to the farmers' market
- If "bad weather" then no "farmers' market"

Examples:

- When the weather is good I go to the farmers' market
- - If "good weather" then "farmers' market"

As Julia can only type up to **three words** into the 'Content' textbox, she can also **comment** on each concept in her map by double-clicking it and then typing into the 'Comment' textbox.



The screenshot shows a concept card for 'more expensive'. The card has a 'Content' field with the text 'more expensive'. Below it is a 'Type and Strength of Concept' section with a horizontal bar divided into three colored segments: red (negative), yellow (neutral), and green (positive). The bar is currently set to the red segment, indicating a negative concept. Below the bar is a checkbox labeled 'set concept to' followed by a pink hexagon labeled 'Ambivalent'. At the bottom of the card is a 'Comment' field with the text 'compared to the supermarket'. A mouse cursor is pointing at the bottom right corner of the card. Below the card is a blue hexagon with the text 'more expensive'.

Content:
more expensive

Type and Strength of Concept:

-3 -2 -1 0 1 2 3

☐ set concept to Ambivalent

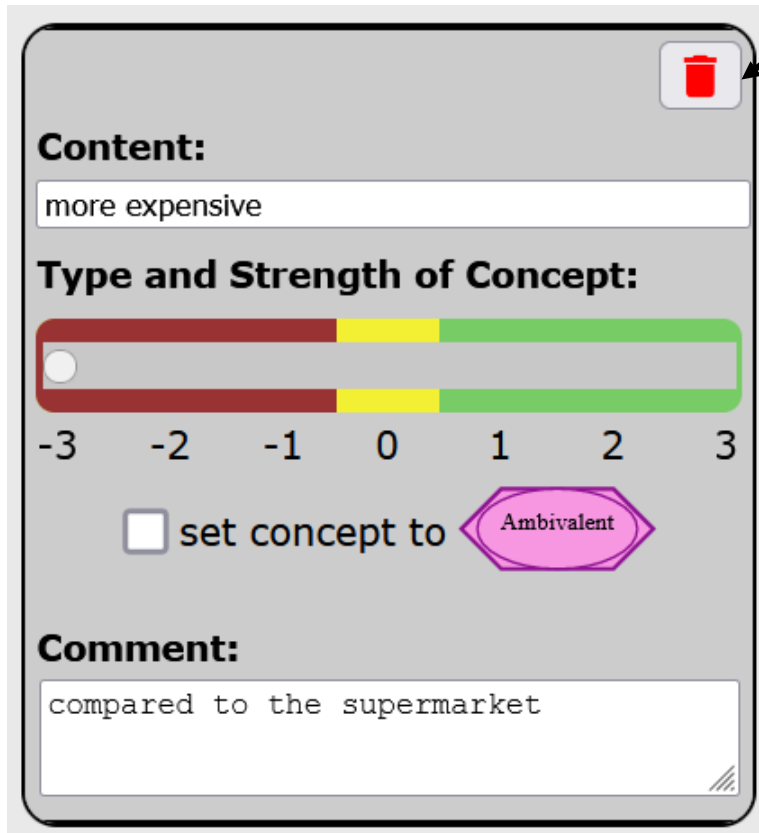
Comment
compared to the supermarket

more expensive

Julia types the following comment in the text box.

You can delete concepts and connectors by double-clicking them and clicking on the red trashcan-symbol.

On the next page, you can see Julia's final map!



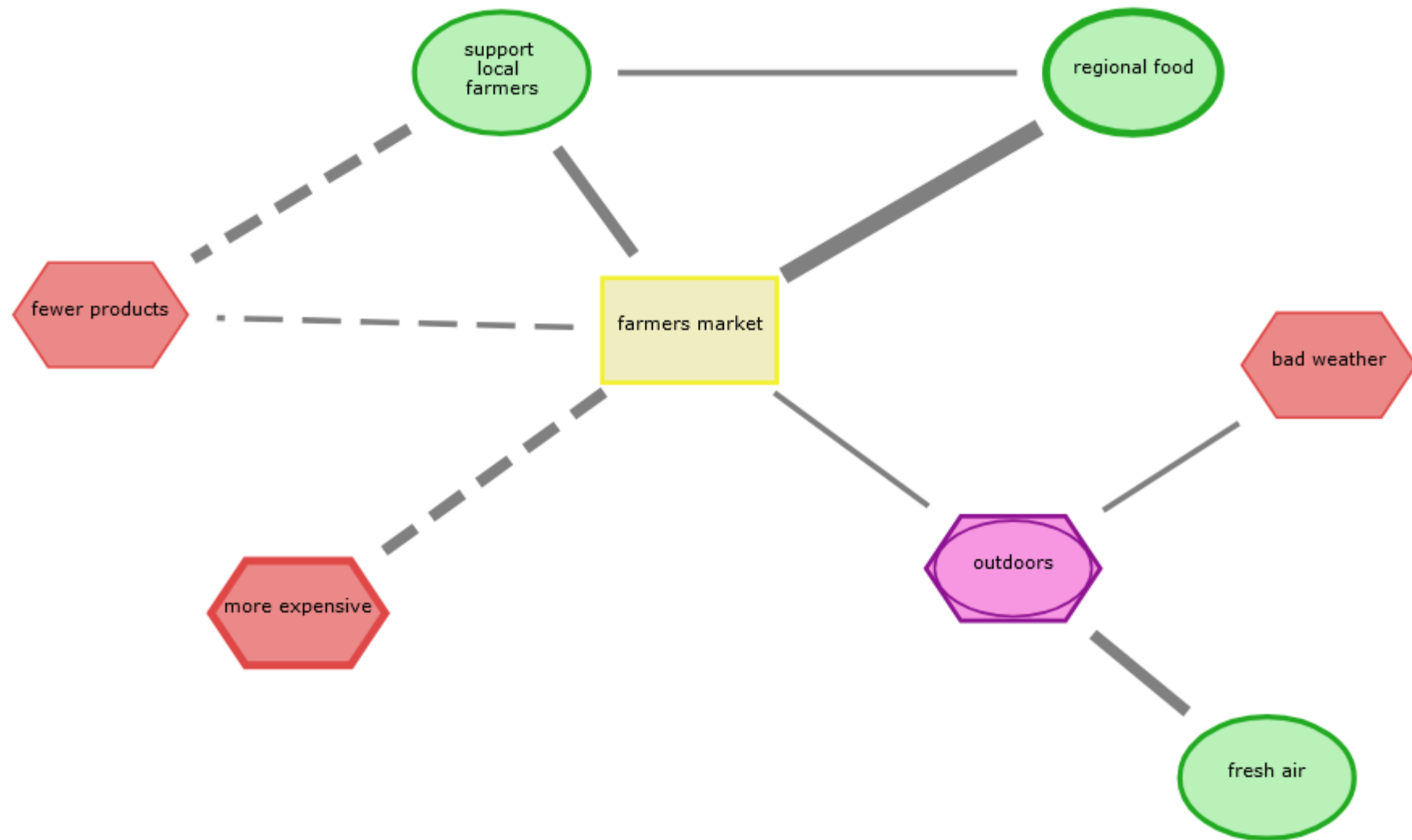
The screenshot shows a software window titled "Cognitive-Affective Maps". Inside, there is a concept card for the concept "more expensive". The card has a red trashcan icon in the top right corner. Below the title "Content:", the text "more expensive" is entered in a text box. Under the heading "Type and Strength of Concept:", there is a horizontal slider bar with a scale from -3 to 3. The bar is divided into three colored segments: red for negative values, yellow for zero, and green for positive values. The slider is currently positioned at approximately -2.5. Below the slider, there is a checkbox labeled "set concept to" followed by a pink hexagonal button labeled "Ambivalent". At the bottom, under the heading "Comment:", the text "compared to the supermarket" is entered in a text box.

Content:
more expensive

Type and Strength of Concept:

☐ set concept to **Ambivalent**

Comment:
compared to the supermarket



If Julia needs help to draw her Cognitive-Affective-Map, she can click on the green question mark symbol.

Quick reference

Legend

Concept

Connection

Buttons

Every concept is given a basic emotional value:

Positive

Positive concept

Negative

Negative concept

Ambivalent

Ambivalent concept

Neutral

Neutral concept

 Concepts support each other

- - -

 Concepts inhibit each other

Close

Quick reference

Legend

Concept

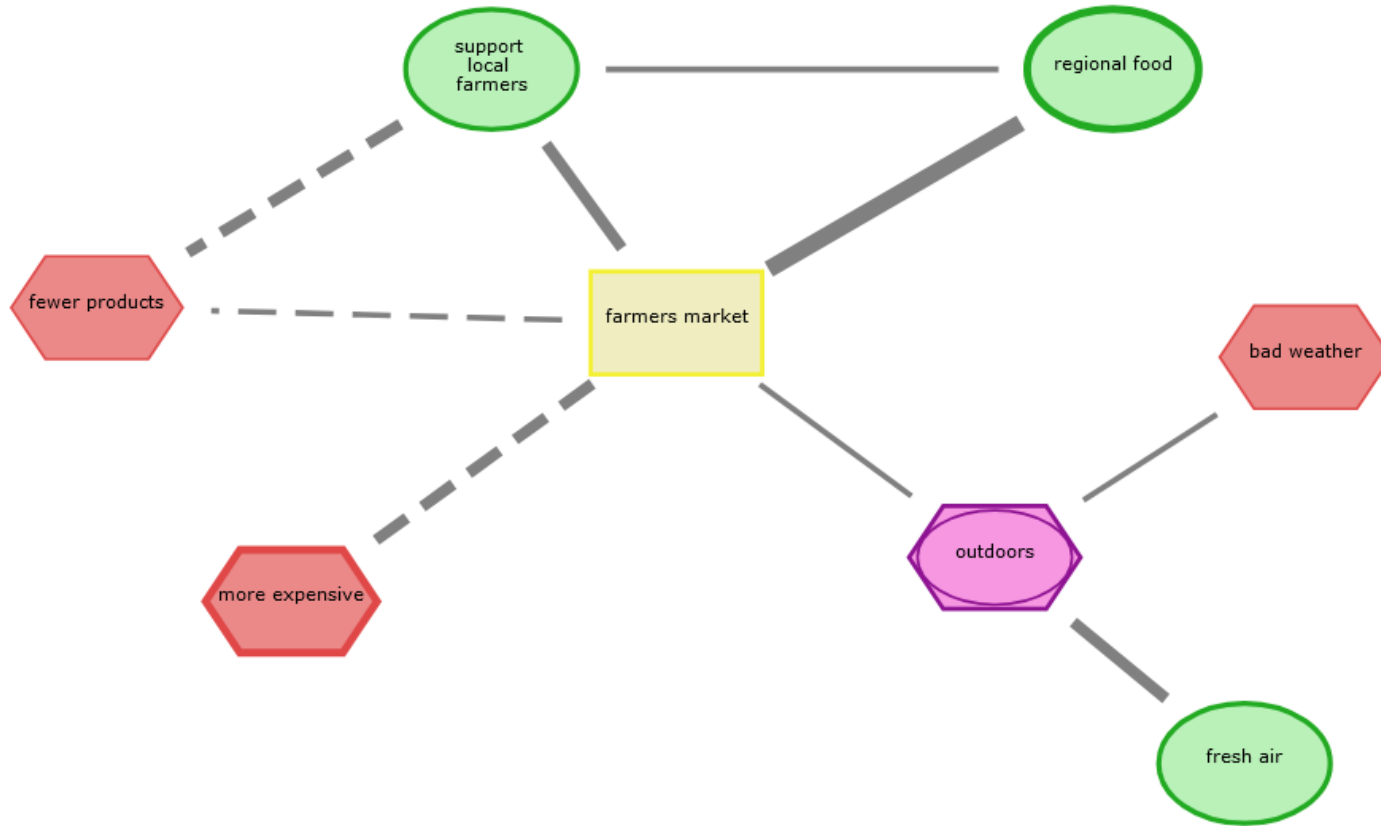
Connection


Buttons

Please click on the navigation bar if you need help how drawing a Cognitive Affective Map, otherwise you can just close this window.

Close

A menu with quick references will appear, in which she can navigate by clicking on the topics she needs help for.



When Julia has finished her Cognitive-Affective-Map she needs to click onto the little **disk symbol** to save it. 

Note: She can only save her Map when she has **connected all concepts**.

Additionally, she needs to draw **at least XX** concepts to save her Map.