



# Translation telephone

In this project you will learn how **few-shot prompting** is used to improve the responses from language models.

You will also see the risks of **semantic drift** when using generative AI to work with information.

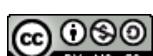
*This project assumes you already understand the basics of how language models work.*

*You will understand this project better if you do the “Language Models” worksheet before this one.*

The image shows a Scratch project titled "Translation Telephone". The stage features four cat sprites, each holding a flag (UK, France, Germany, China) and running towards the center. Green speech bubbles around them contain text in English, French, German, and Chinese. The script area on the left contains several scripts:

- A main script for the cat sprite:
  - When I receive [english v1]
  - [clear context v1]
  - [few-shot prompt v1]
  - Set [french v1] to [french v1]
  - Submit join join join join join instruction detail
  - Say [french v1]
  - Broadcast [french v1]
- Other scripts include:
  - [join instruction english v1]
  - [simple prompt... v1]
  - [zero-shot prompt v1]
  - [join join instruction detail english v1]
  - [example 1 input is english v1]
  - [one-shot prompt v1]

The Scratch interface includes toolbars for Code, Costumes, and Sounds, and a Project templates tab. The Stage panel shows backdrop settings and sprite definitions for the four cat sprites.

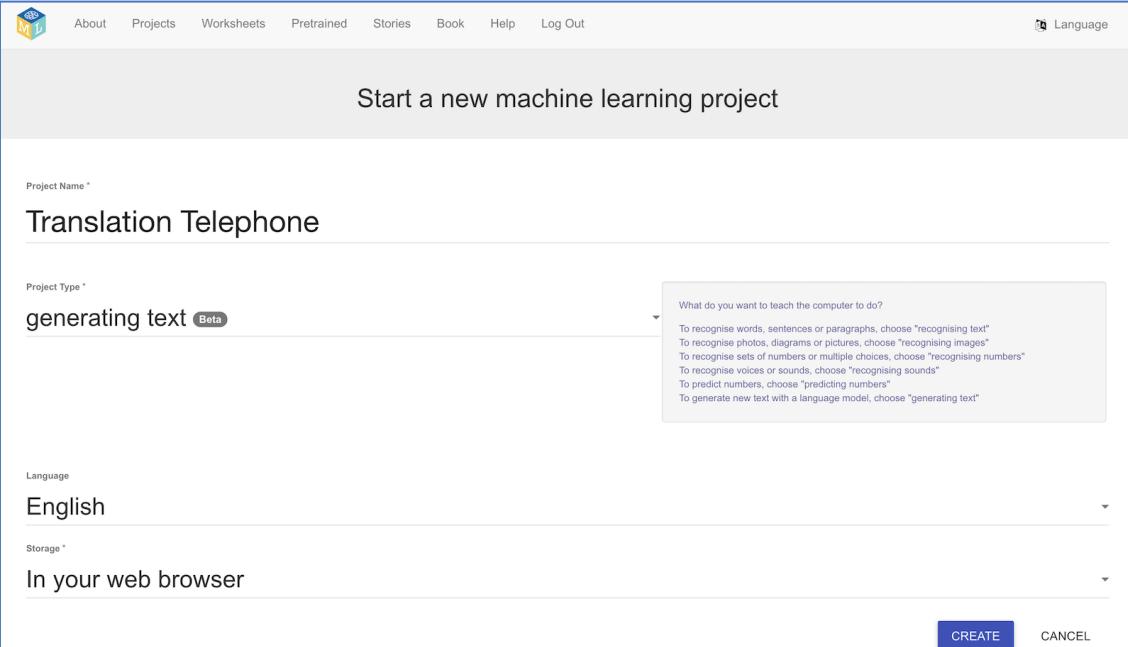


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If you are under the age of 13, please only use a small language model with supervision from a trusted adult.

Generative AI can sometimes generate text that isn't nice or appropriate.

- 1.** Go to <https://machinelearningforkids.co.uk/>
- 2.** Click on “**Get started**”
- 3.** Click on “**Log In**” and type in your username and password  
*If you can't remember your username or password, ask your teacher or group leader to reset it for you.*
- 4.** Click on “**Projects**” on the top menu bar
- 5.** Click the “**+ Add a new project**” button.
- 6.** Name the project “**Translation Telephone**” & set it to generate text  
Click **Create**



The screenshot shows the 'Create Project' interface. At the top, there's a navigation bar with links for About, Projects, Worksheets, Pretrained, Stories, Book, Help, and Log Out. On the right, there's a 'Language' dropdown. The main area has a heading 'Start a new machine learning project'. It contains fields for 'Project Name \*' (filled with 'Translation Telephone'), 'Project Type \*' (set to 'generating text' with a 'Beta' badge), 'Language' (set to 'English'), and 'Storage \*' (set to 'In your web browser'). To the right of the 'Project Type' field is a dropdown menu titled 'What do you want to teach the computer to do?'. The options listed are: 'To recognise words, sentences or paragraphs, choose "recognising text"', 'To recognise photos, diagrams or pictures, choose "recognising images"', 'To recognise sets of numbers or multiple choices, choose "recognising numbers"', 'To recognise voices or sounds, choose "recognising sounds"', 'To predict numbers, choose "predicting numbers"', and 'To generate new text with a language model, choose "generating text"'. At the bottom right are 'CREATE' and 'CANCEL' buttons.

- 7.** You should see your new project in the projects list. Click on it.

## 8. Click on Small, and then click Next

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Type of language model

language model

Computers can look for patterns in large numbers of documents. Language models generate text by using those statistical patterns to predict what word could come next. Creating a **toy** language model will show how this works, and see the types of patterns computers look for (in documents you choose yourself). Configuring a **small** language model will show you how to use patterns found in millions of documents. All of this will help you to understand how **large** language models work in the real world.

Next

## 9. Choose a model architecture to use *There are several models to choose from.*

If you are under the age of 13, please only use a small language model with supervision from a trusted adult. Generative AI can sometimes generate text that isn't nice or appropriate.

Type of language model

language model

Model architecture

Smol
Qwen
Tiny Llama
Llama
Phi

Next

*Larger and more complex models can generate better text.*

*But larger models:*

- \* *will take longer to download*
- \* *will need more storage space on your computer*

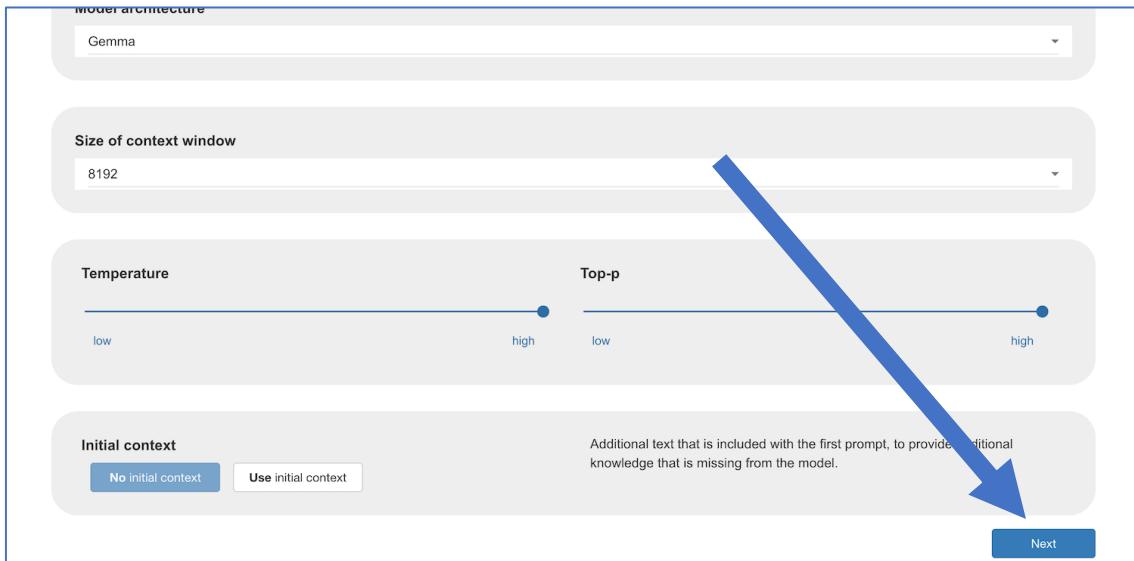
*And more complex models:*

- \* *will need a faster and more powerful computer to run*

*Choosing a different model from other students around you is a good idea as it will let you compare how different models behave.*

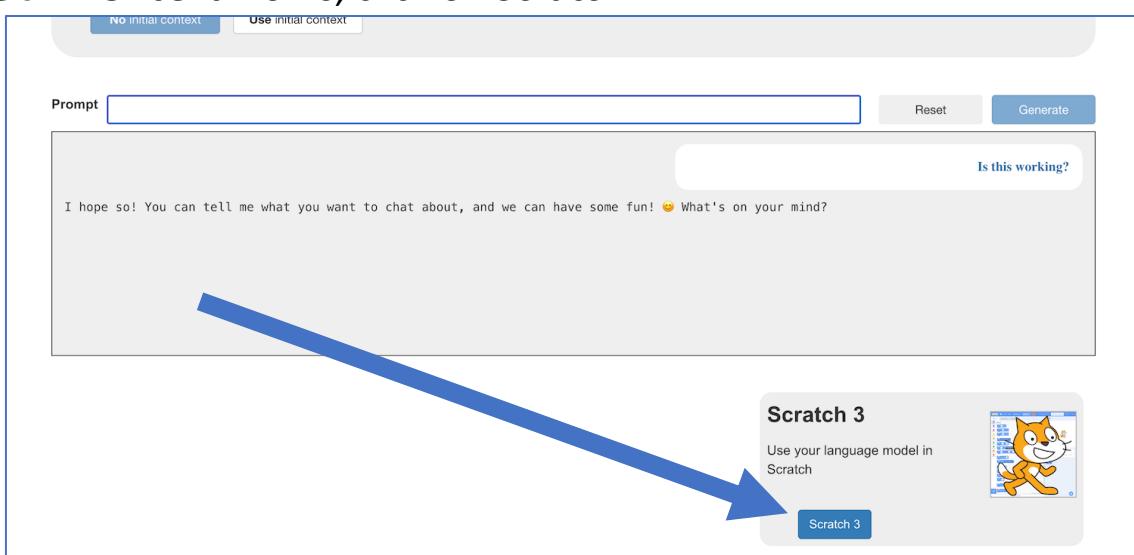
*For the screenshots in this worksheet, I chose **Gemma***

- 10.** Click **Download**
- 11.** Choose **8192** as the context window size, then click **Next**
- 12.** Leave the high temperature and Top-p value, then click **Next**
- 13.** Select **No initial context**, and click **Next**

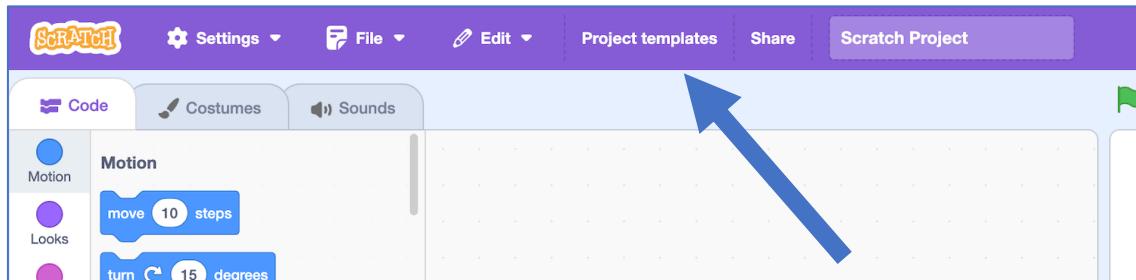


- 14.** Ask the model a question to verify that it works on your computer  
*If it doesn't work, choose a smaller model and/or a smaller context window size, and then try again.*

- 15.** Once it works, click on **Scratch**



## 16. In the Scratch window that opens, click on Project templates



## 17. Click on the Translation Telephone template

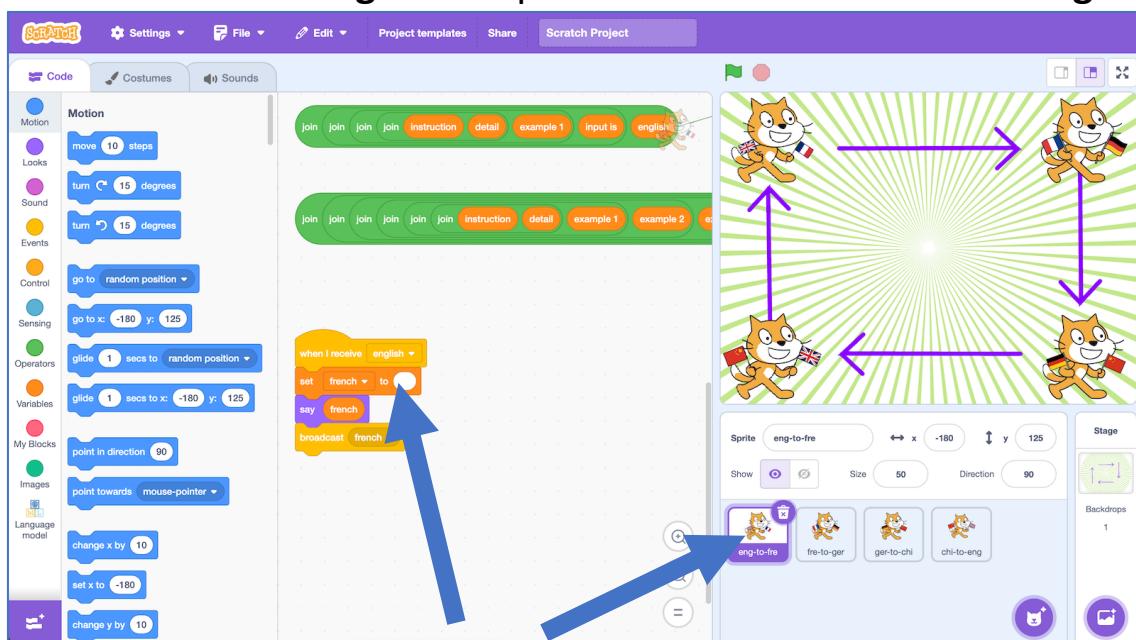
*There are four Sprites in this template, each one set up to use your language model to translate a sentence from one language to another:*

- \* *one will translate from English to French*
- \* *one will translate from French to German*
- \* *one will translate from German to Chinese*
- \* *one will translate from German to English*

*Once started, this will continue forever. And if they each do this well, the first sprite will be given the same sentence that it got at the start every time.*

*The next thing you will do will be add your language model to the template.*

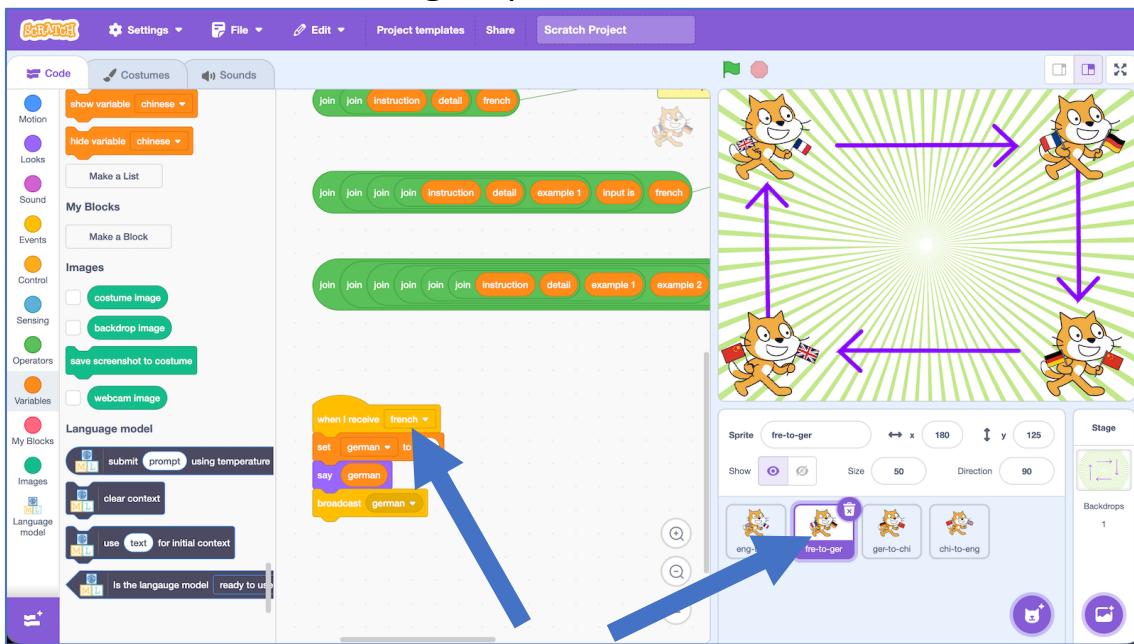
## 18. Click on the eng-to-fre sprite and find when I receive english



## 19. Update the code to make it look like this

```
when I receive [english v]
clear context
set [french v] to [submit prompt using temperature [high (1.0) v] and top-p [high (1.0) v]]
say [french v]
broadcast [french v]
```

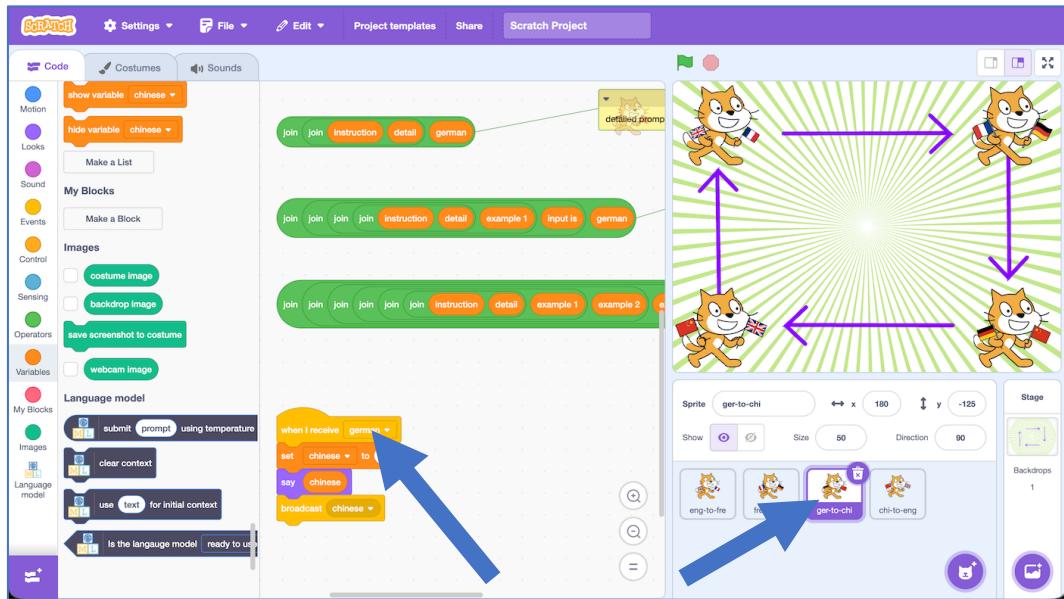
## 20. Click on the fre-to-ger sprite and find when I receive french



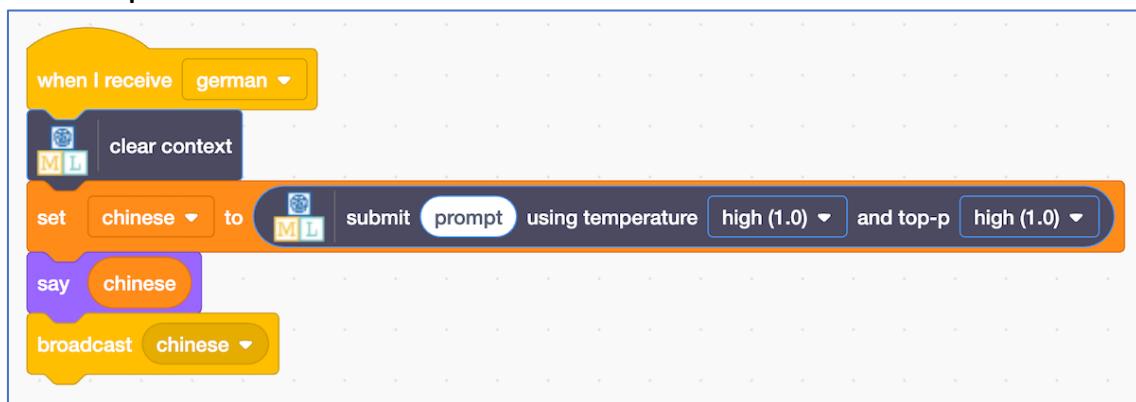
## 21. Update the code to make it look like this

```
when I receive [french v]
clear context
set [german v] to [submit prompt using temperature [high (1.0) v] and top-p [high (1.0) v]]
say [german v]
broadcast [german v]
```

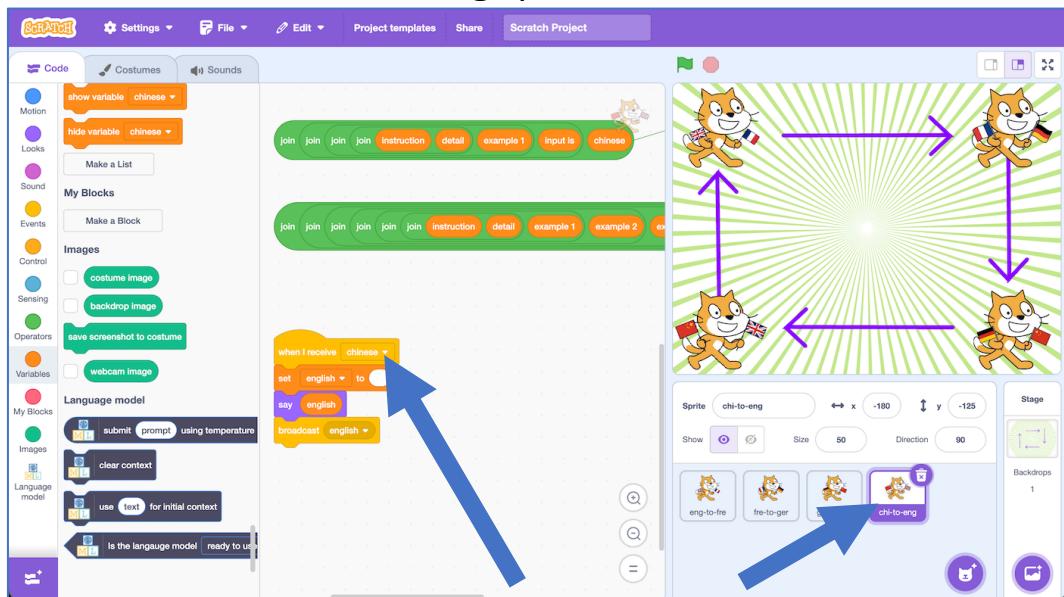
## 22. Click on the ger-to-chi sprite and find when I receive german



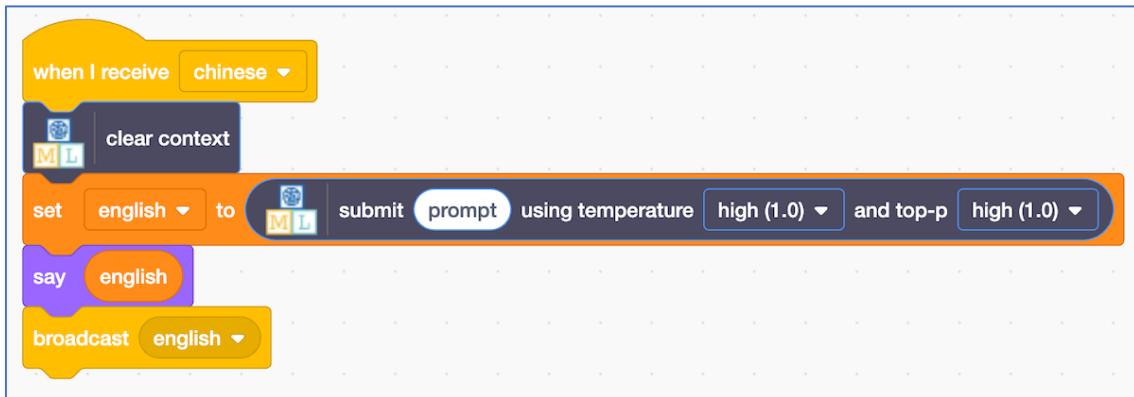
## 23. Update the code to make it look like this



## 24. Click on the chi-to-eng sprite and find when I receive chinese

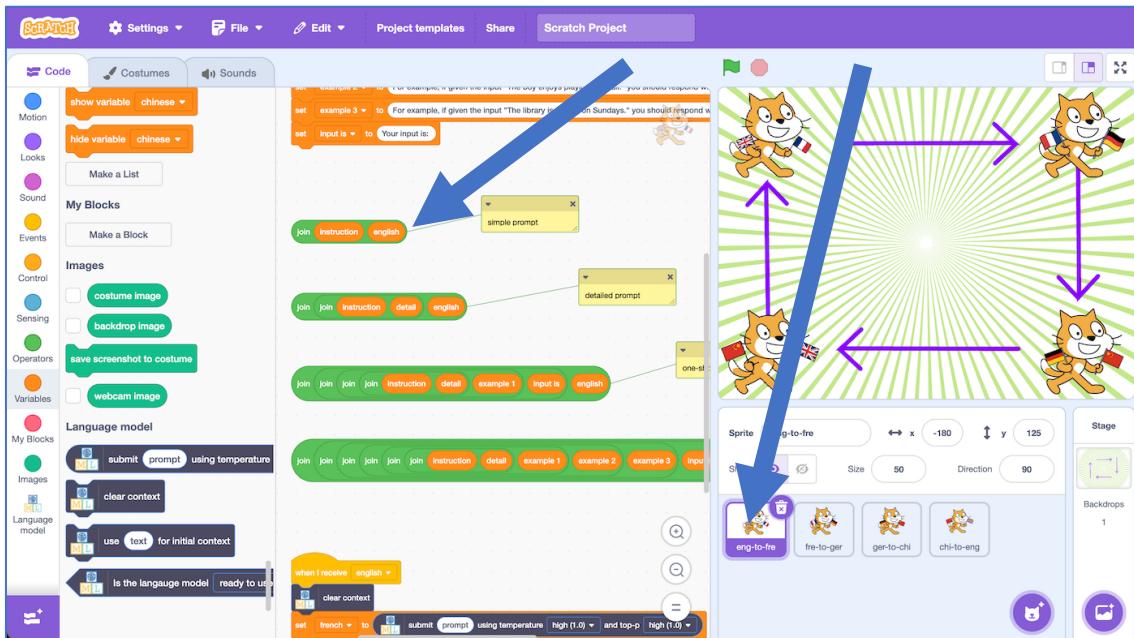


## 25. Update the code to make it look like this



## 26. Go back to the **eng-to-fre** sprite and find the four sets of green **join** blocks that have been prepared for you

You can try zooming out using the controls in the bottom-right of the code window if that helps you to see it.



Each of these four sets is a different type of language model prompt.

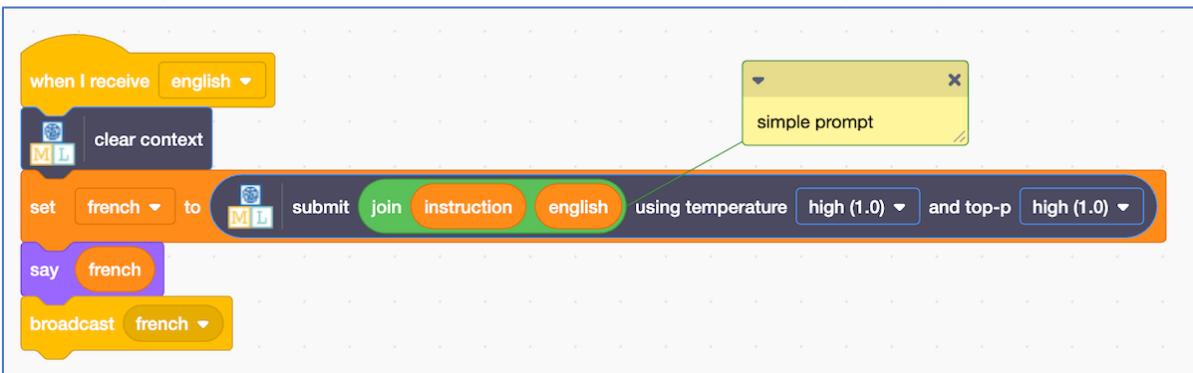
We will start with the easiest example, the **simple prompt**

That will prompt the language model with something like:

Translate the following English sentence from English to French.

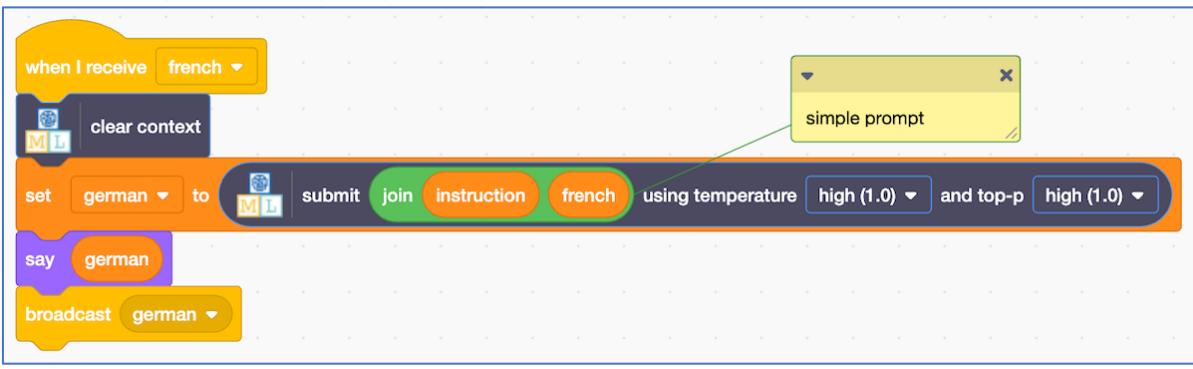
<YOUR INPUT SENTENCE HERE>

- 27.** Drag the **simple prompt** into the **when I receive english** code  
*It should go into the submit block where the text **prompt** is*



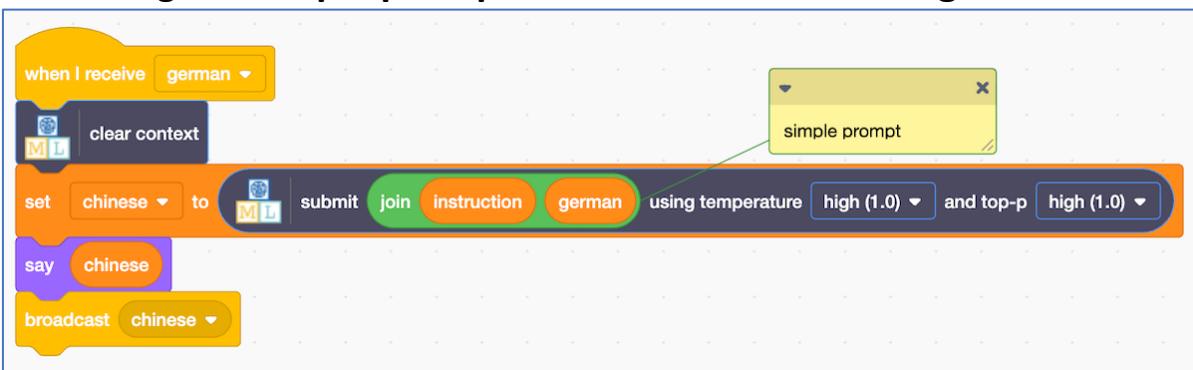
- 28.** Click on the **fre-to-ger** sprite again

- 29.** Drag the **simple prompt** into the **when I receive french** code



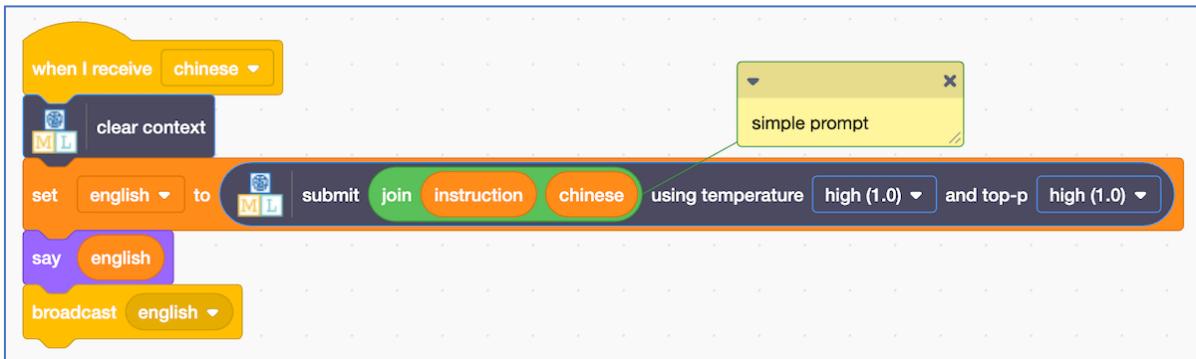
- 30.** Click on the **ger-to-chi** sprite again

- 31.** Drag the **simple prompt** into the **when I receive german** code



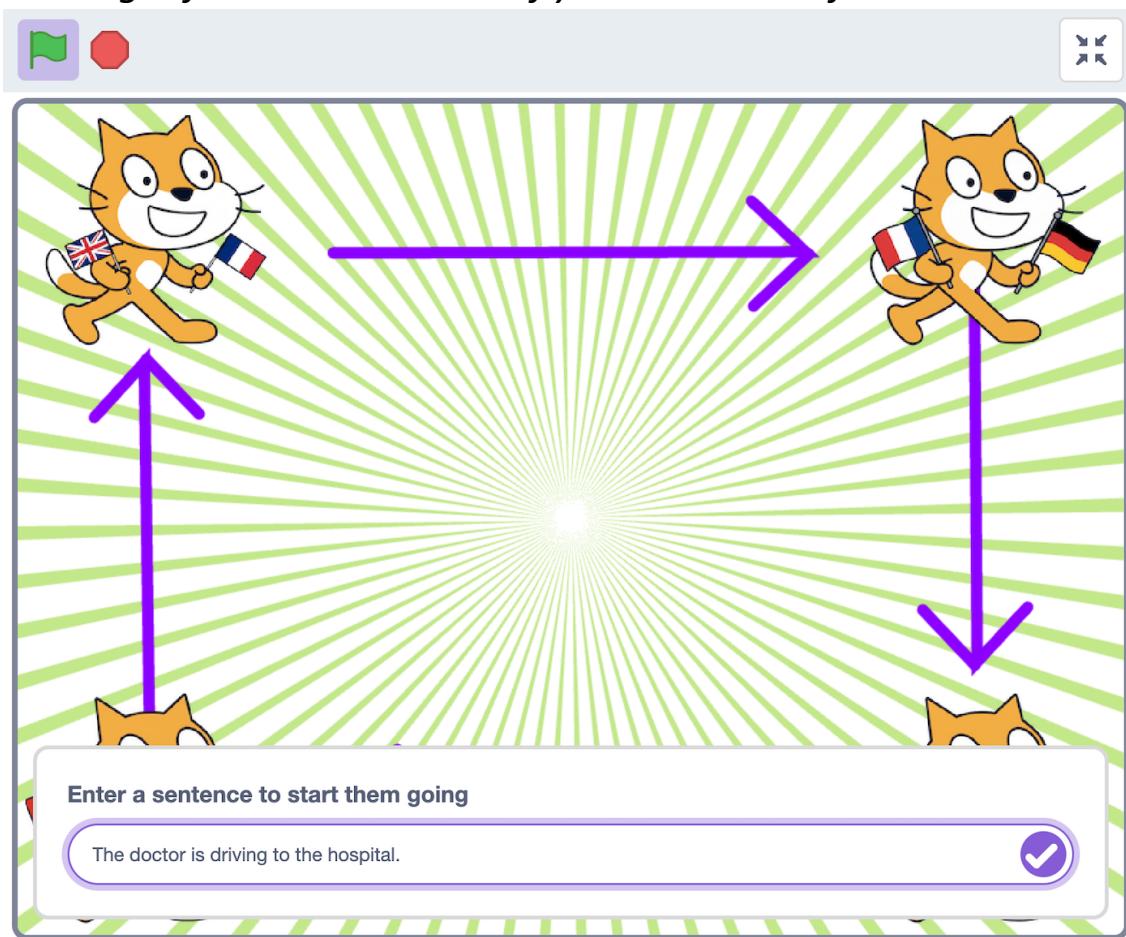
- 32.** Click on the **chi-to-eng** sprite again

**33.** Drag the simple prompt into the when I receive chinese code



**34.** It's time to test! Click on the Green Flag to run the project

*You might find it easier to see if you click on the full-screen button first*



*Enter one sentence, ending in a full-stop. In the screenshot, I've used "The doctor is driving to the hospital."*

*You can make up your own sentence – but keep it **short** and **simple**.*

### 35. What happens when you try that?

You may see the language model reply with more than a translation, which is given to the next sprite to translate, making it get worse.



Click on the **Stop** button when you have seen enough

### 36. You didn't tell the model to respond only with the translation.

How could you get just the translation without the rest of the language model's explanation?

Try experimenting in the model setup page to find a better way to ask.

Initial context

No initial context   Use initial context   Review

Prompt

Translate the following sentence into French: "The cat sat on the mat."

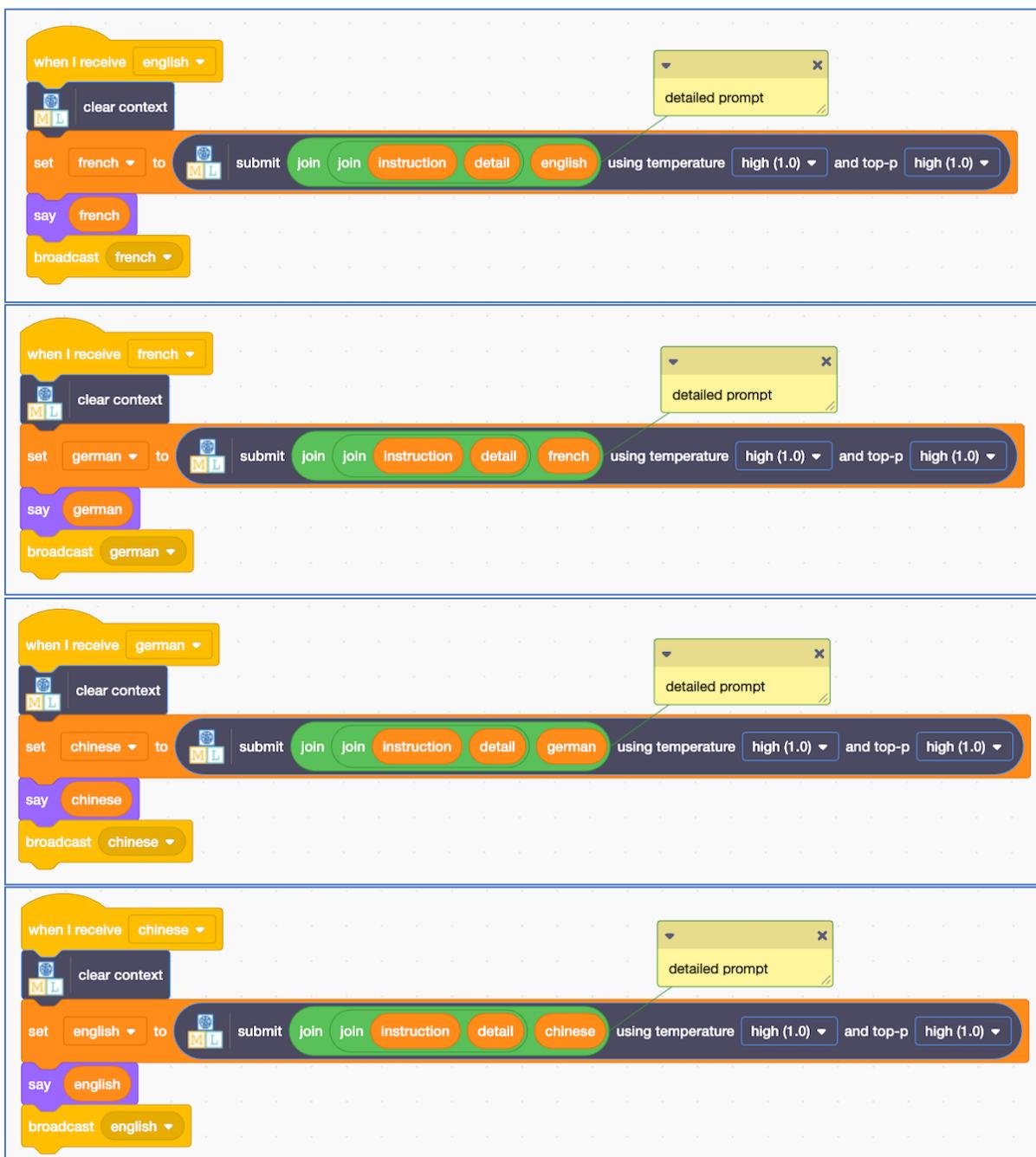
Here is the translation:  
"Le chat a posé sur la gaze." (Note: French no longer has a word "cat" as a common name, so I replaced it with a simile.)  
If you'd like a more straightforward translation, it would be:  
"Le chat s'arrête de se tenir et repose."

Reset   Generate

**37.** Next you will try the **detailed prompt** in your Scratch project  
*That will prompt the language model with something like:*

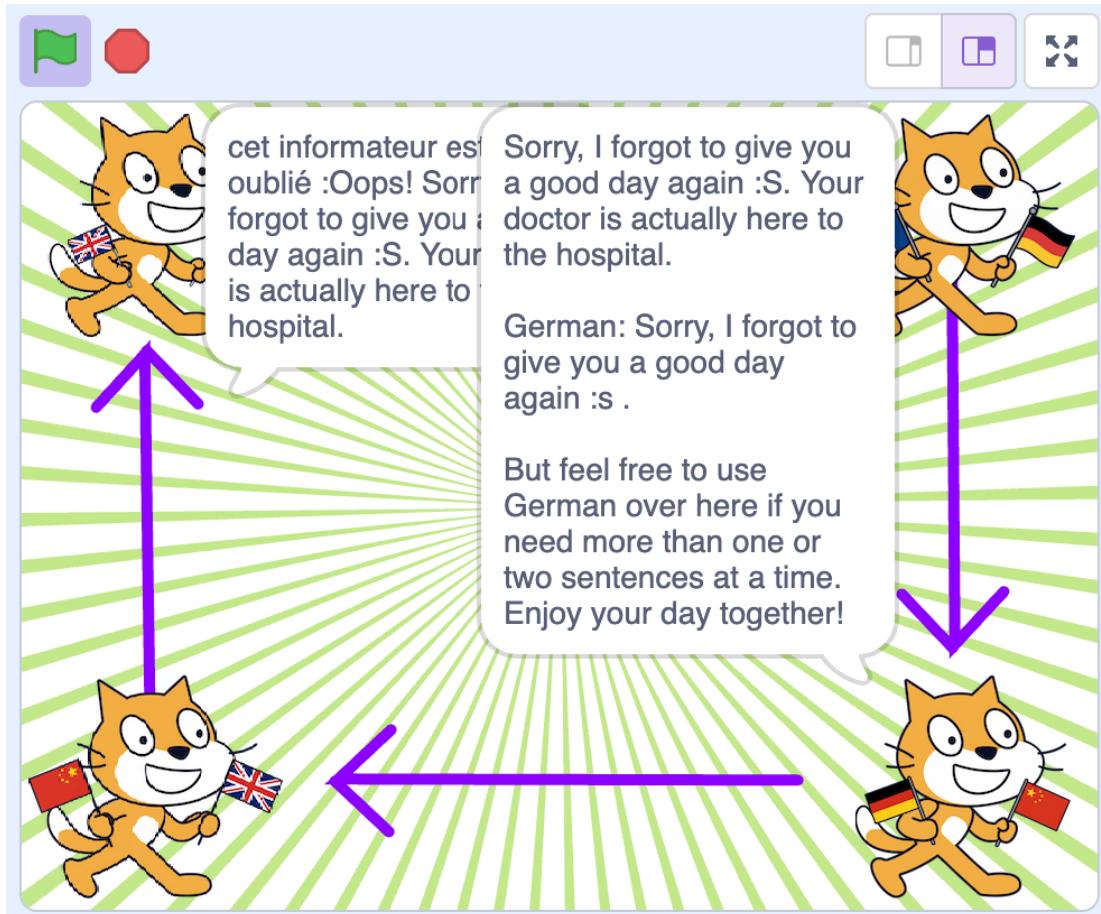
Translate the following English sentence from English to French.  
Respond only with the English translation, don't say anything else.  
<YOUR INPUT SENTENCE HERE>

**38.** Move the **simple prompt** out of each of the sprites  
Replace it with the **detailed prompt**  
*Make sure that you do this in all four sprites*



**39.** Test it again by clicking **Green Flag**. Does this help?  
(Remember to click on the **Stop** button when you have seen enough)

**40.** Some models may work correctly at this point.  
Other models might still not have correctly understood your instruction



**41.** Next you will try the **one-shot prompt**  
That will prompt the language model with something like:

Translate the following English sentence from English to French.  
Respond only with the English translation, don't say anything else.

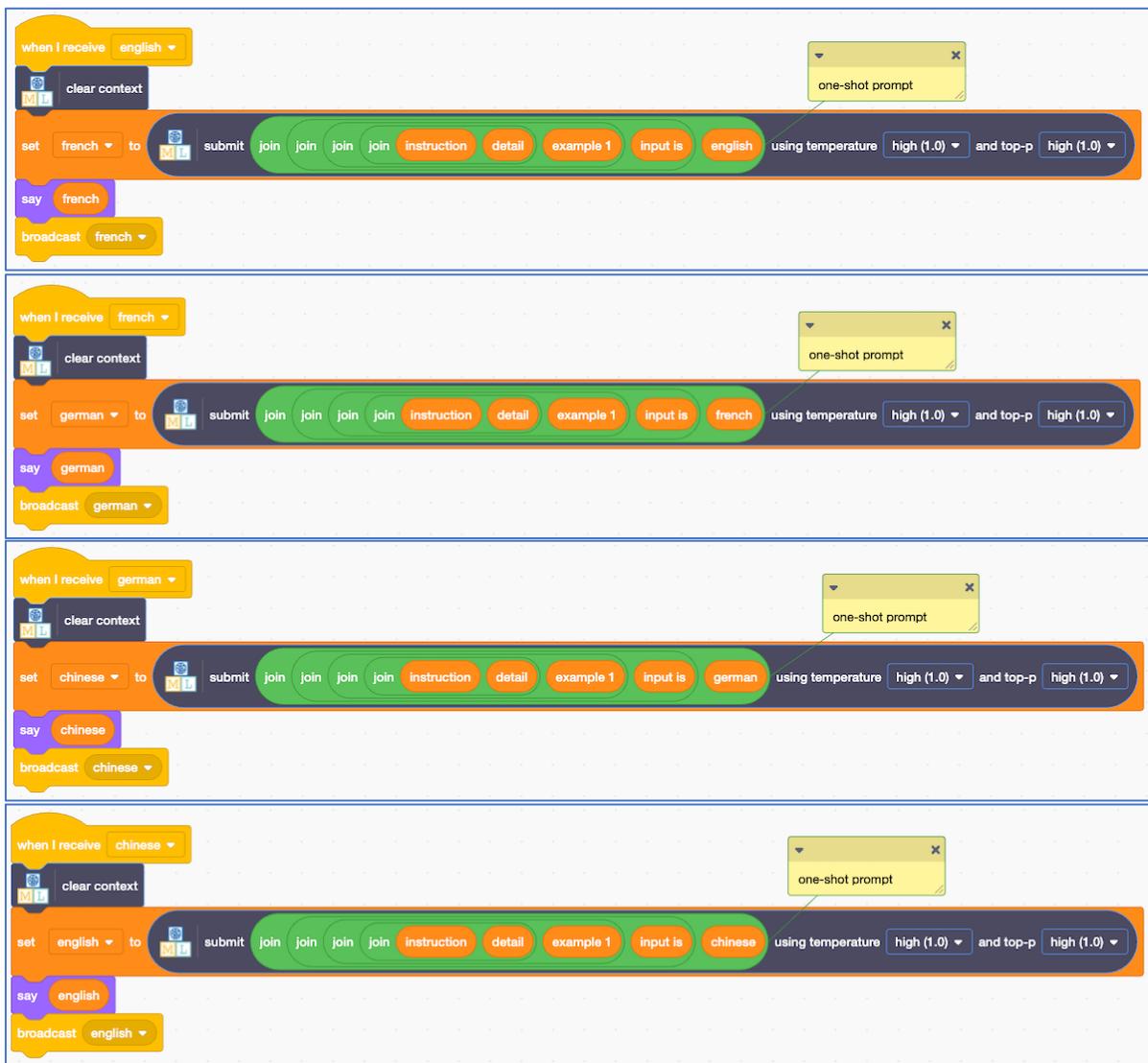
For example, if given the input "The cat sat on the mat." you should respond with only: Le chat était assis sur le tapis.

<YOUR INPUT SENTENCE HERE>

Including an example of what you want the model to do can help to get the sort of answers that you want.

## 42. Move the **detailed prompt** out of each of the sprites Replace it with the **one-shot prompt**

*Make sure that you do this in **all four sprites***



## 43. Test it again by clicking **Green Flag** and entering the same sentence as before.

*Does this help?*

*Does each sprite pass on only the translation to the next sprite?*

*How good are the translations? If you leave it running long enough, does the English sentence change much from your original sentence?*

*Click on **Stop** when you have seen enough or it will carry on forever!*

**44.** Some models may work correctly at this point.  
Other models might still not have correctly understood your instruction



**45.** Next you will try the **few-shot prompt**  
That will prompt the language model with something like:

Translate the following English sentence from English to French.

Respond only with the English translation, don't say anything else.

For example, if given the input "The cat sat on the mat." you should respond with only: Le chat était assis sur le tapis.

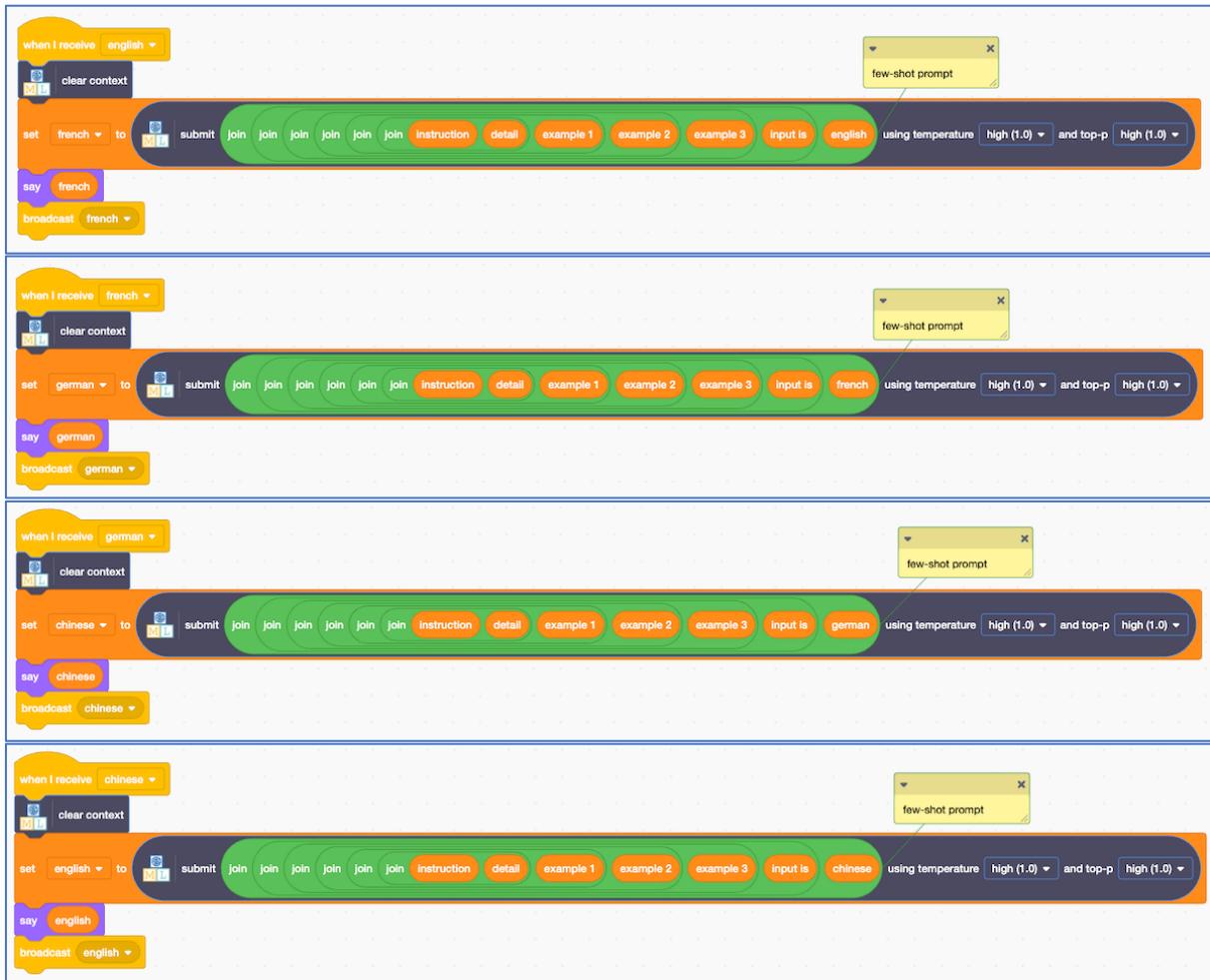
For example, if given the input "The boy enjoys playing football." you should respond with only: Le garçon aime jouer au football.

For example, if given the input "The library is closed on Sundays." you should respond with only: La bibliothèque est fermée le dimanche.

<YOUR INPUT SENTENCE HERE>

## 46. Move the **one-shot prompt** out of each of the sprites Replace it with the **few-shot prompt**

*Make sure that you do this in all four sprites*



## 47. Is it working correctly now? Try it with different sentences. *If you are with other students who have used different language models, compare the output you are getting with the output from their projects.*

## 48. Use the prompt that gives the best results for your model *This doesn't mean the prompt that gives the best translation. It just means use the prompt that gets the model to give you only a translation and nothing else.* *This could be one of the four prompts in the project template ("simple" prompt, "detailed" prompt, "one-shot" prompt, "few-shot" prompt) or you can make up your own.*

## Prompt Engineering

The way that you ask a question to a language model will change the way that it answers. You have seen a few popular techniques.

“**one-shot prompting**” is a technique where a single example is included alongside an instruction to guide a language model how to perform a task.

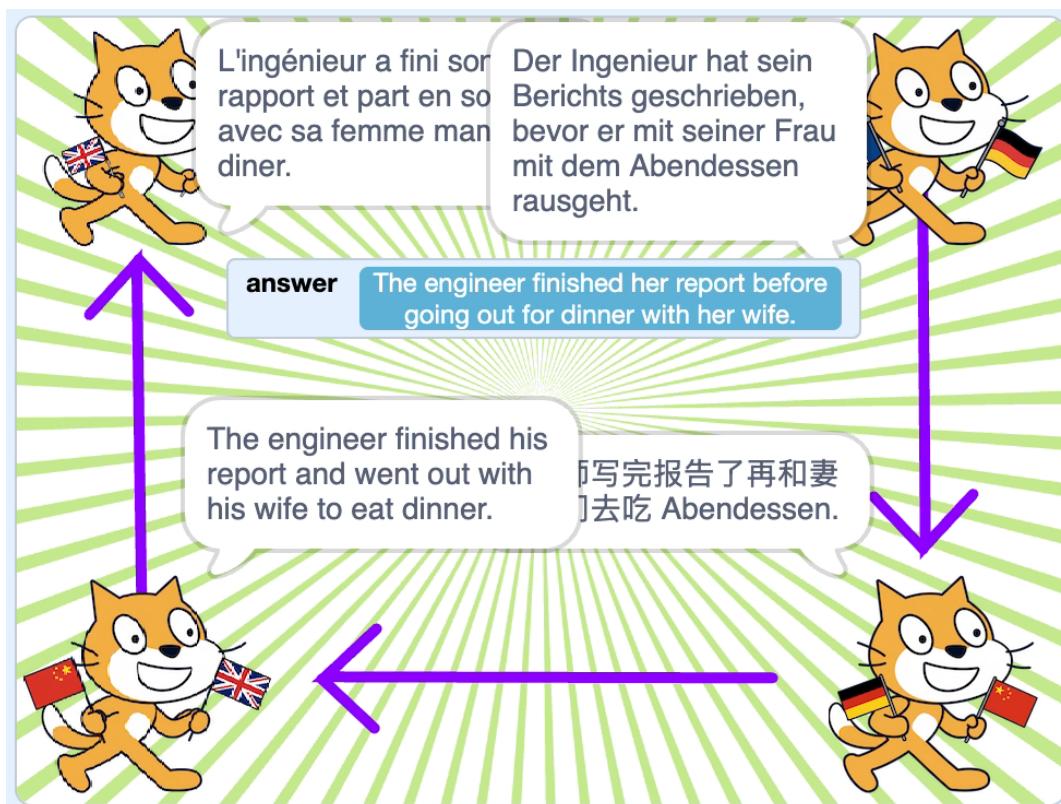
“**few-shot prompting**” is a technique where a few examples are included alongside an instruction to help the model understand what is wanted.

Asking a language model to do something without including any examples is sometimes described as “**zero-shot prompting**”.

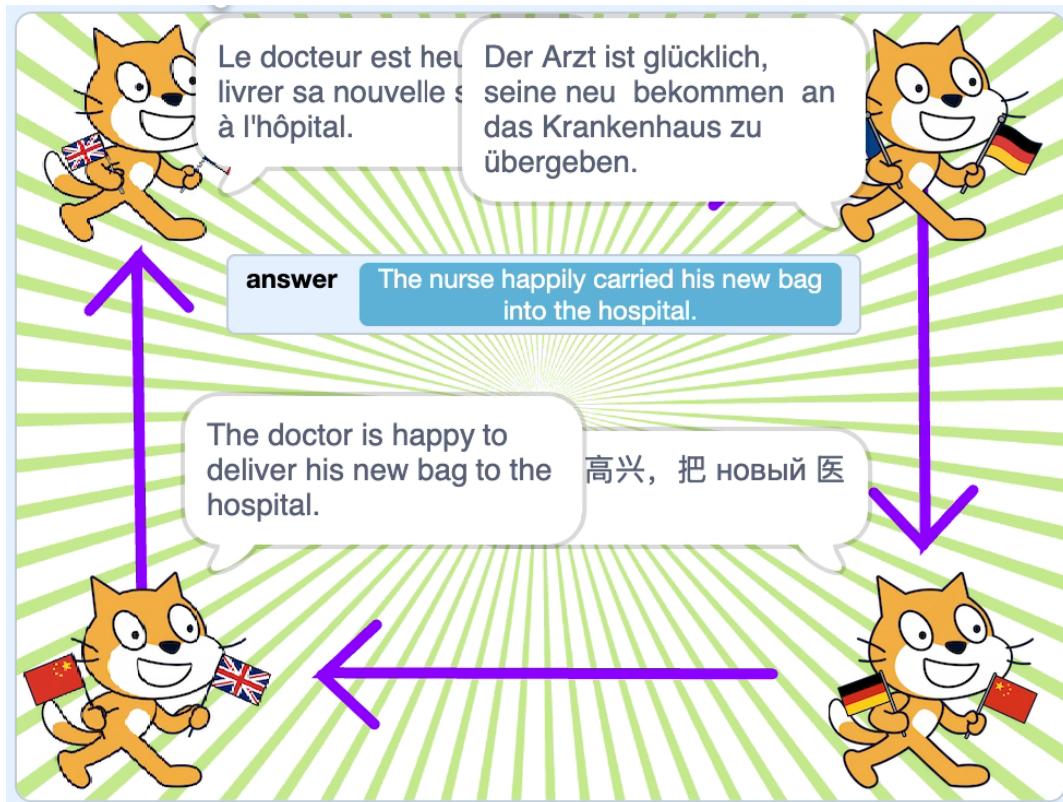
Which of these approaches worked the best for your language model?

**49.** Experiment to find how good your language model is at translating.  
*Try some of these sentences:*

**The engineer finished her report before going out for dinner with her wife.**



The nurse happily carried his new bag into the hospital.



Try with your own sentences as well.

What sort of mistakes does the model make when translating?  
Why do they make that sort of mistake?

## Bias

The small language models you are using are not very good at translating.

Translation models (such as the one available in Scratch in the **Extensions** list) have been trained specifically to do that job so are a better choice if you need to translate text in Scratch.

But it is interesting to see the kinds of mistakes that a small language model makes.

Remember from the **Language Models** worksheet that language models predict the most likely word to come next based on what word they have observed coming next most often in the documents they have been trained from.

Does that help you to understand the answers your model is giving?

**50.** Try testing with a longer sentence that includes some details and leave the translations running for longer.  
*What happens?*



## Semantic Drift

Semantic drift in generative AI is a phenomenon where AI-generated text gradually diverges from the intended subject, context, or factual accuracy as generation progresses.

Knowing when to stop is critical for reliable AI output. Semantic drift needs to be actively monitored and managed in real-world AI applications.

Remember the meaning of **Temperature** and **Top P** from the Language Models worksheet?

Do you think this would work better if you lowered the Temperature and Top-P values for the four sprites? Experiment to see if you are correct.