



Storyboards

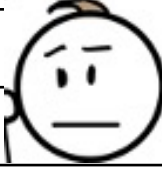
Task description: you will read five storyboard **scenarios about getting assistance from a chatbot for critical thinking during scientific paper reading**. Try to emphasize with the persona in each scenario. **We will ask you to share your experience (e.g., rate the frequency) about the scenarios and thoughts (e.g., rate the potential usefulness) about the chatbot**. Each scenario is about to take 4 minutes, in total 20 minutes.

General materials

Persona: You are a university student and needs to exercise critical thinking (e.g., comprehend and criticize the paper content) in reading a scientific paper that he has little experience in the domain. You could be the below persona:

Name	Mary	
Gender	Female	
Age	20	
Major	Math	
Personality	Hardworking	

Name	Peter	
Gender	Male	
Age	21	
Major	Computer Science	
Personality	Creative	

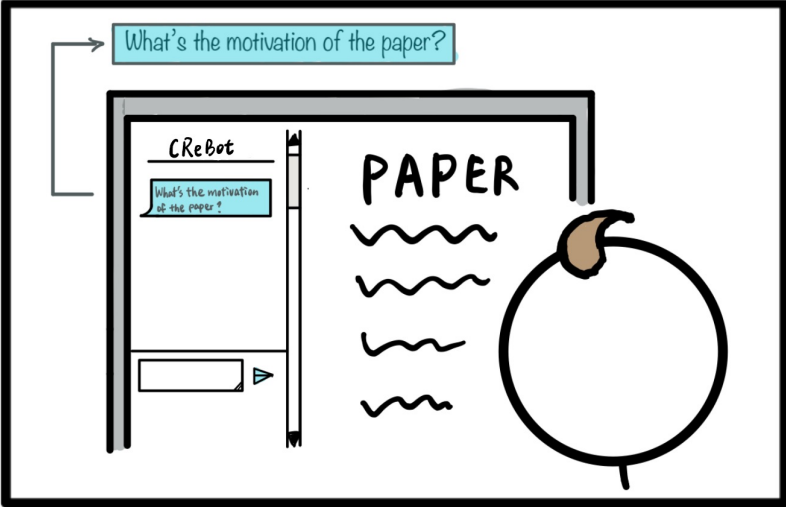
Name	Tommy	
Gender	Male	
Age	20	
Major	Social Science	
Personality	Thoughtful	

CReBot: an agent powered by natural language processing techniques to help users think critically about the paper.

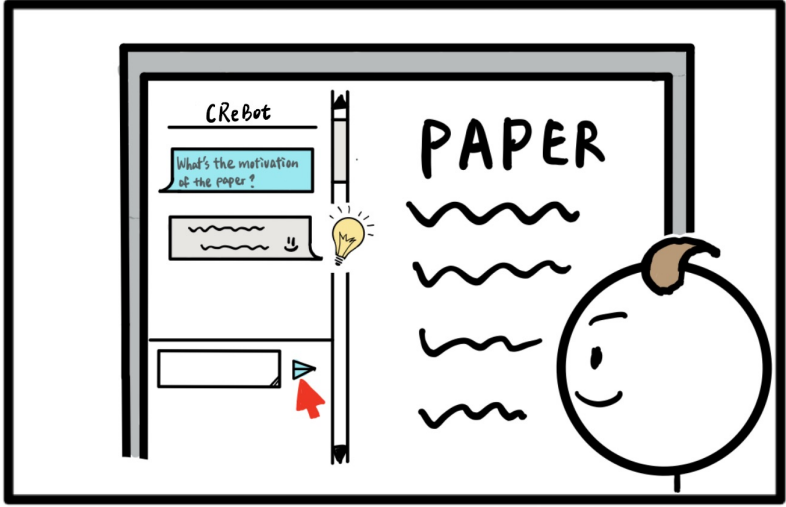
S1. Comprehension questions



Peter is reading a paper and wants to better understand it, but he does not know what comprehension questions to figure out in this paper.



CReBot asks Peter a comprehension question, e.g., what's the motivation of the paper, when he is reading the paper.

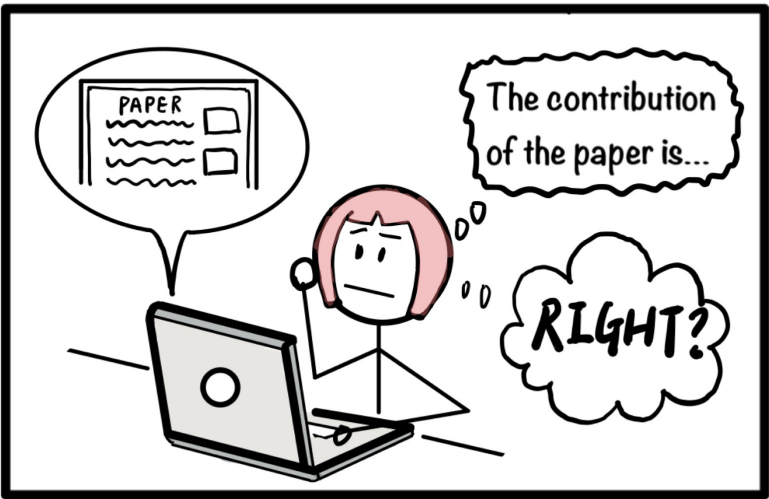


Peter responds to CReBot's comprehension question by sending his thought to the chat box.

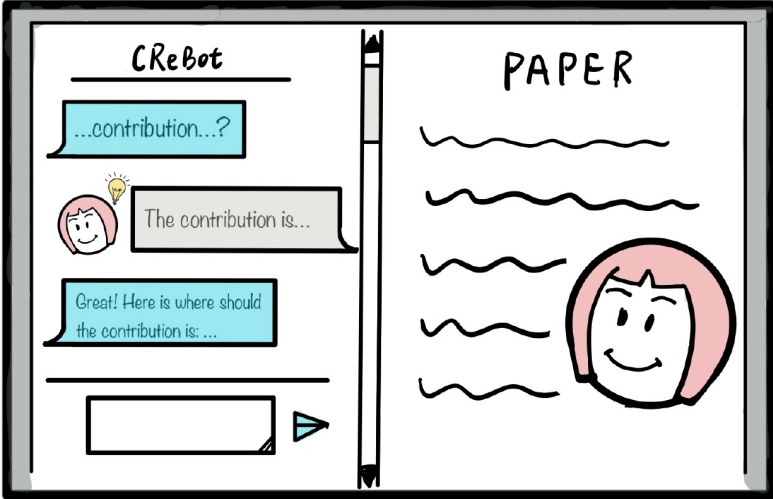
Name	Peter
Gender	Male
Age	21
Major	Computer Science
Personality	Creative

Directing Question: Have you (or someone you know) ever encountered the problem described in this scenario? If so, please describe a specific experience in detail.

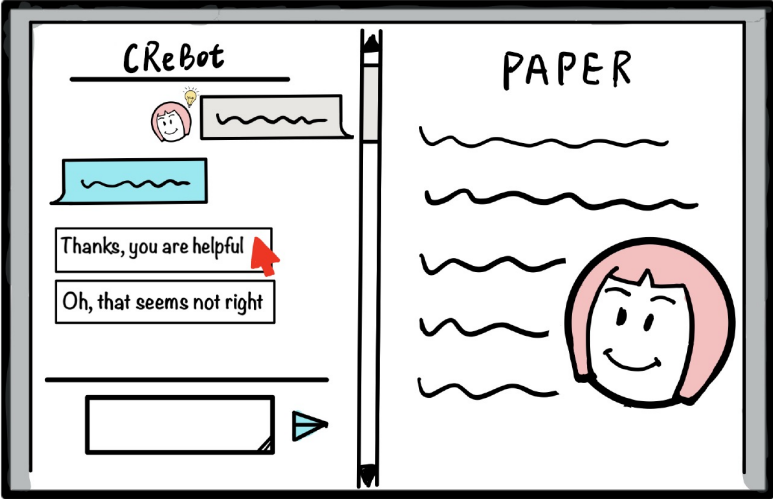
S2. Feedback on readers’ responses to comprehension questions



Mary has a thought on the paper, e.g., about its contribution, but she would like to verify if the understanding is right or not.



CReBot checks Mary’s response to its comprehension question, e.g., about the paper’s contribution, and gives a feedback to Mary.



Mary confirms that the feedback from CReBot is helpful.

Name	Mary
Gender	Female
Age	20
Major	Math
Personality	Hardworking

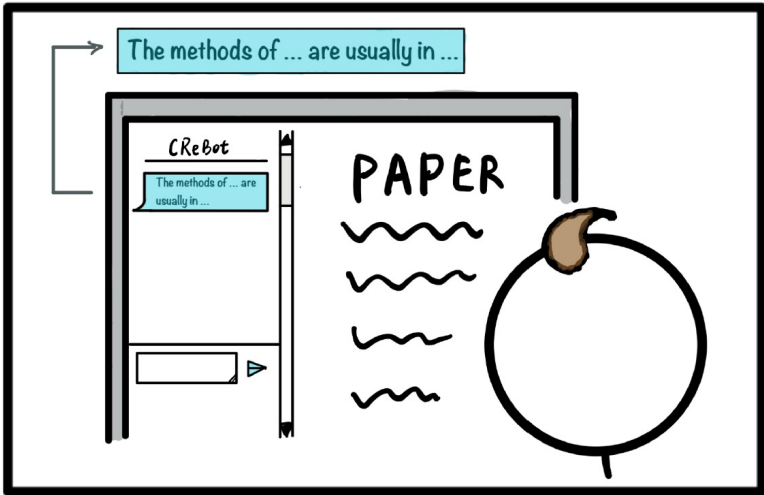
Directing Question: Have you (or someone you know) ever encountered the problem described in this scenario? If so, please describe a specific experience in detail.

S3. Hints on where to find possible answers to comprehension questions

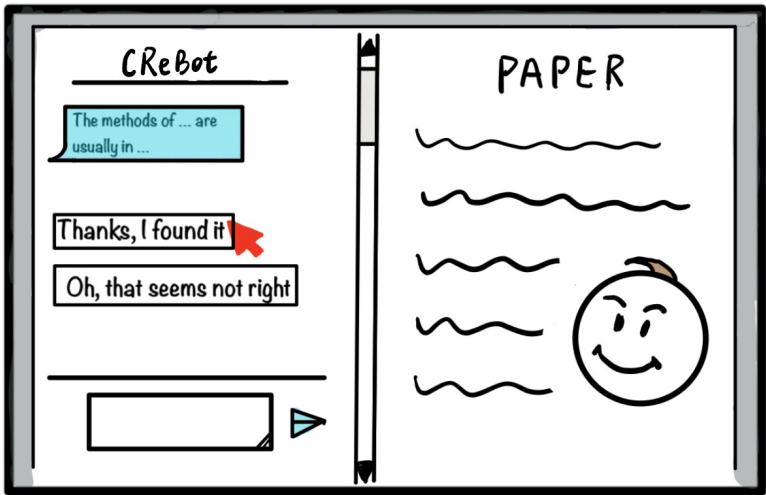


Tommy wants to understand the main methods used in the paper, but he does not know where the relevant information is in the paper.

Name	Tommy
Gender	Male
Age	20
Major	Social Science
Personality	Thoughtful



CReBot prompts a hint about where the information about the main methods would normally be in this type of papers.



Tommy confirms that he really finds the related information following CReBot's hint.

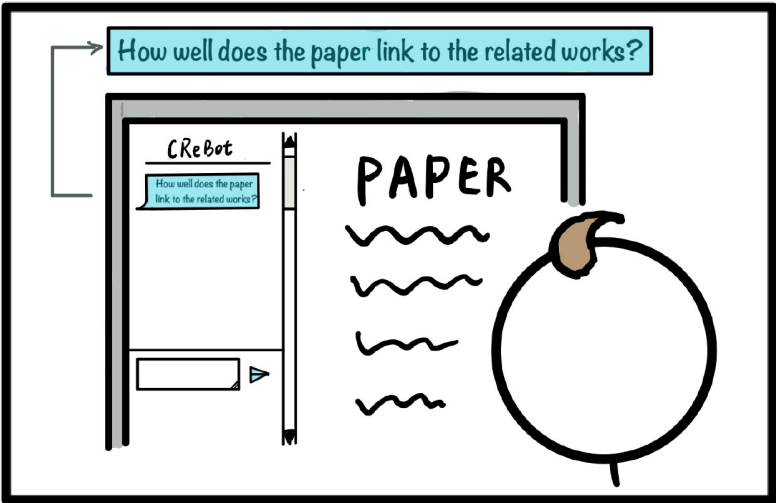
Directing Question: Have you (or someone you know) ever encountered the problem described in this scenario? If so, please describe a specific experience in detail.

S4. Criticism questions

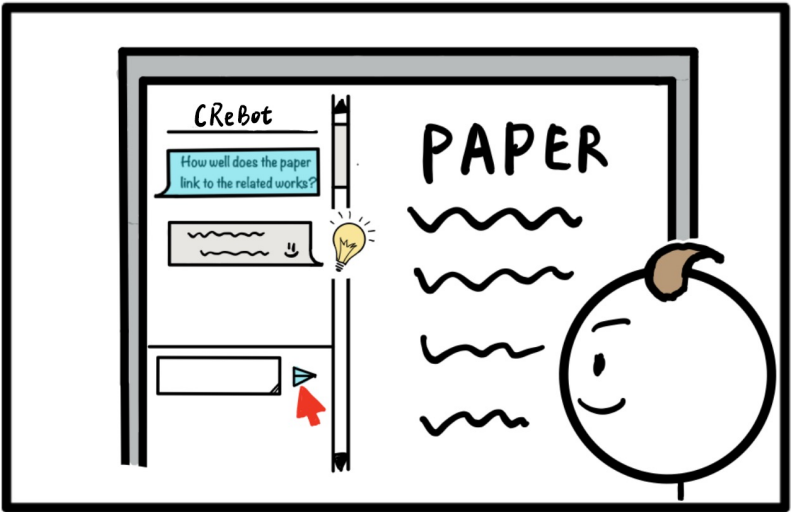


Peter would like to judge the quality and value of the paper, but does not know what criticism questions to think about in the paper.

Name	Peter
Gender	Male
Age	21
Major	Computer Science
Personality	Creative



CReBot asks Peter a criticism question, e.g., how well does the paper link to the related works, when he is reading the Related Work section.



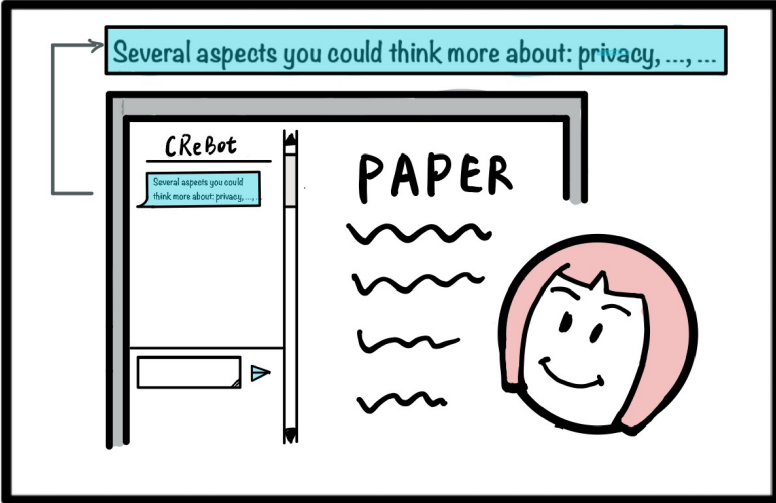
Peter sends his thought about the criticism question to the chat window.

Directing Question: Have you (or someone you know) ever encountered the problem described in this scenario? If so, please describe a specific experience in detail.

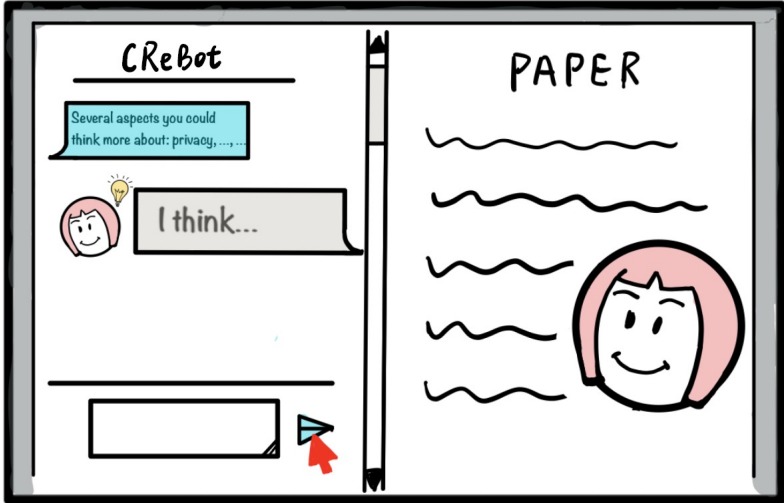
S5. Hints on how to think about the criticism questions.



Mary is thinking about a criticism question, e.g., how well the collected data is, and would like to know if she missed any important aspect.



CReBot prompts several keywords that readers should usually pay attention to this criticism question and encourages Mary to think about them.



Mary elaborates on her thought about the criticism question in the chat window after checking CReBot's keywords.

Name	Mary
Gender	Female
Age	20
Major	Math
Personality	Hardworking

Directing Question: Have you (or someone you know) ever encountered the problem described in this scenario? If so, please describe a specific experience in detail.