Fragebogen

1   General_Instruction

Dear participant,

thank you very much for your participation in this psychological experiment.

We guarantee that your data will be treated anonymously and used exclusively for scientific purposes. If you have any questions or comments, please don't hesitate to contact Simon Stephan (simon.stephan@psych.uni-goettingen.de).

Please note: In this study, we investigate how people think. In particular, we want to find out how people think about a fundamental thing, *causality*. So, we really want you to *think* about the things we will show you and we would like to ask you not to hastily rush through the study.

It is very important for us that you *read all the instructions thoroughly* and that you *fully understand the scenario* that we will introduce on the next screens. The scenario you will see is fictitious and was constructed such that you can intuitively understand the relevant aspects. Please assume that everything is exactly as described in the scenario, irrespective of how plausible it sounds to you.

Again, thank you very much for your help in this research project.

This research is conducted under the scientific direction of:
Dr. Simon Stephan
Department of Cognitive Psychology and Decision Making,
University of Göttingen, Germany.

Before you start, please:

- maximize your browser window;

- switch off phone/e-mail/music & anything else distracting

- and please enter your Prolific ID:

This study works properly only on Desktop PCs and Laptops, and not on Smartphones or Tablets. Please confirm that you take part via Desktop PC or Laptop.

○ I confirm that I take part via Desktop PC or Laptop.

○ I do not confirm that I take part via Desktop PC or Laptop.

2　Attention_confirmation

For the scientific utility of the results, it is very important that you provide complete and careful responses.

How seriously will you take your participation in the study?

○ I confirm that I will take my participation in this study seriously.

○ I confirm that I will not take my participation in this study seriously.

3　Instruction_part1

Please read the following completely fictitious scenario:

Biologists have discovered a new species of small squid living in the Indian ocean. The animals live in groups of three, consisting of two tiny males and one larger female. While the two males of such a triad have eyes only for their beloved female, the female likes to attract other males when she spots them. She then switches from her neutral, utterly unattractive brown color to a flashy purple color. Importantly, female squids can only switch between these two colors. A female can either be brown or it can be purple (there's nothing in between).

The left illustration below shows how female and male squids look like in their neutral brown color. The right illustration shows how a female squid looks like when she has turned on her seductive, shiny purple color.

Female in her
neutral brown
color

Males in their
neutral brown
color

1.0 cm

Female in her
flashy purple
color

---
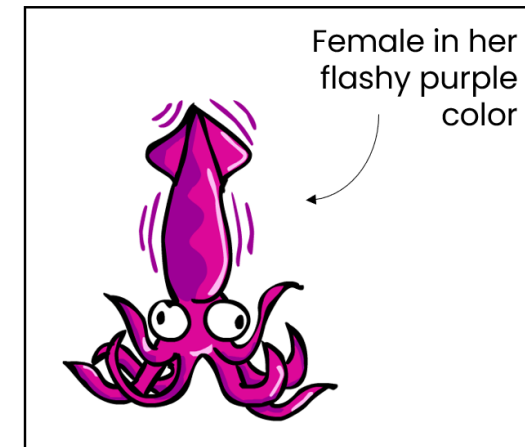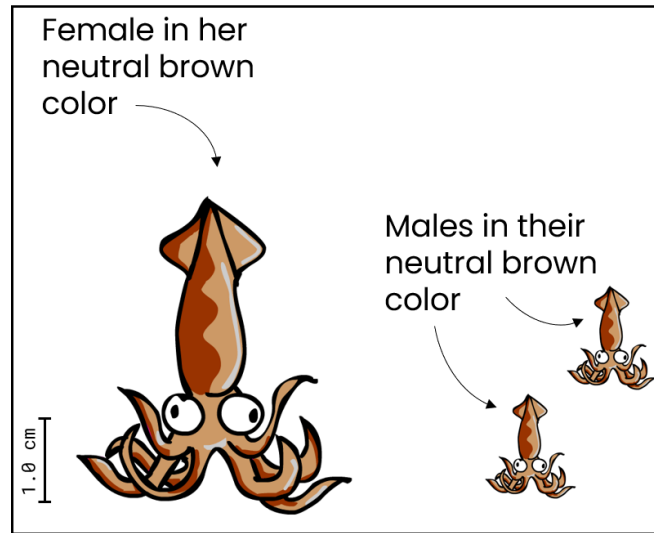
4   Instruction_part2

The male squids have a powerful strategy to prevent their female from attracting rival males with her seductive purple color spectacle. The males will swim directly in front of one of the female's big eyes and then turn on a flashy green color. This green color of the males has an immediate hypnotic effect on the female that forces her to shine in her neutral, utterly unattractive shade of brown. Like the females, the males can only switch between two colors: they can either be in their natural brown color or they can be in their hypnotizing green color (there's nothing in between).

Below you see three situations. In the first, only the left male is hypnotizing the female. In the second, only the right male is hypnotizing the female. In the third, both males are hypnotizing the female. As you can see, the female shines in her brown color in all three cases, which means that one male is already powerful enough to prevent the female from shining in her seductive purple color.

The left male hypnotizes the female	The right male hypnotizes the female	Both males hypnotize the female
(1)	(2)	(3)
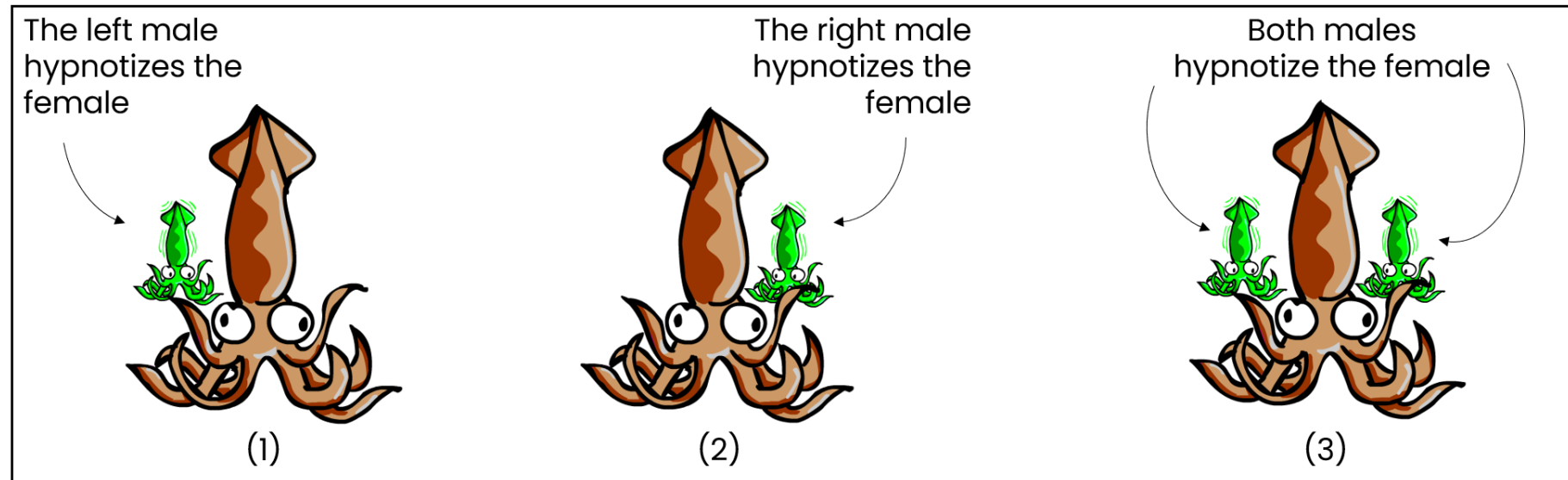
Below, you see an animation in which you can learn what it looks like when a female has spotted a rival male and tries to flirt with him. The rival male will come from above and head toward the female. In this animation, the female's two "regular" males are prevented from intervening by keeping them in a net. You will see that they spot the rival, because they turn on their green color. However, they are too far away from the female to have an influence on her. This allows you to learn how the female reacts towards a rival male if her two males can't prevent her from attracting a rival male.

To start the animation, you have to click the blue "Start" button.

---

5 Instruction_part4

We will later show you an animation in which you will observe what happened in one group of squids on a particular occasion. Your task will be to thoroughly observe what happens, because we will then ask you about what you think happened in this situation.

Before we can show you this animation, we need to ensure that you fully understood the scenario. We will therefore ask you some comprehension check questions first. Please note that you will automatically be redirected to the scenario description if you answer any of the comprehension check wrong. Please click "Continue" to proceed to the check questions.

Please click "Continue" to proceed to the comprehension test.

5.1 ct1

What is true about the social life of the newly discovered species of squid?

○ The squids live in triads, consisting of a small female and two large males.

○ The squids live in triads, consisting of a large male and two small females.

○ The squids live in triads, consisting of a large female and two small males.

○ The squids live in triads, consisting of a small male and two large females.

5.2 ct2

What do female squids of this species like to do?

○ While the males have eyes only for their beloved female, the females like to attract other males when they spot them.

○ While the males have eyes also for other females, the females prefer to stay with their two males.

5.3 ct3

How do the female squids try to attract a rival male when they spot one?

○ They turn brown.

○ They turn purple.

○ They turn green.

5.4 ct4

How do the female's males prevent their female from trying to attract a rival male?

○ They swim in front of one of the female's giant eyes and turn green. The green color of the males prompts the female to shine in her natural, unattractive brown color.

○ They swim in front of one of the female's giant eyes and turn purple. The green color of the males prompts the female to shine in her natural, unattractive brown color.

5.5 ct3

Do both of the female's males need to be green and in front of her eyes to prevent her from shining in her purple color?

○   It only works if both males do that because each male squid alone is not powerful enough, so yes.

○   It is already enough if one of her males does it as each of the males is powerful enough, so no.

5.6   incorrect

You did not answer all the comprehension check questions correctly. We will therefore show you the scenario description again. Please click "Continue" to return to the scenario description.

5.7   correct

You answered all comprehension check questions correctly.

On the next screens, we will show you an animation about what happened on one particular occasion. Please click "Continue" to proceed to the animation.

6.1   Animation_and_Queries

Below you see the animation window. To start the animation, you have to click the blue "Start" button. The animation will last approximately 30 seconds. After these 30 seconds, the "Start" button will appear again. You can watch the animation as often as you like. Please observe thoroughly what happened on the occasion shown in the animation.

If you have observed carefully what happened in the situation, please answer the following question.
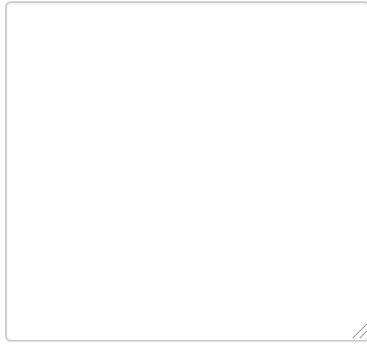
Please select the option that best describes what happened in the situation shown in animation.

○   The left male's shining in his green color hindered the female from shining in her purple color to attract the rival male.

○   The right male's shining in his green color hindered the female from shining in her purple color to attract the rival male.

○   Both males' shining in their green color hindered the female from shining in her purple color to attract the rival male.

6.1.1   Justification

We'd like to know a little bit more about the rating you just gave. Please give a short explanation for your judgment.

7.1   Animation_and_Queries

Below you see the animation window. To start the animation, you have to click the blue "Start" button. The animation will last approximately 30 seconds. After these 30 seconds, the "Start" button will appear again. You can watch the animation as often as you like. Please observe thoroughly what happened on the occasion shown in the animation.

If you have observed carefully what happened in the situation, please answer the following question.

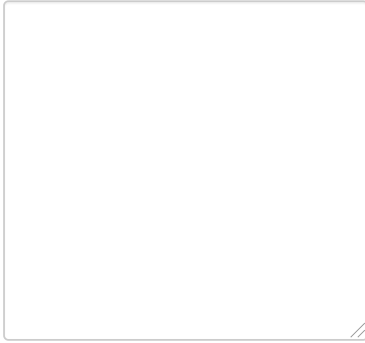**Please select the option that best describes what happened in the situation shown in animation.**

○   The left male's shining in his green color hindered the female from shining in her purple color to attract the rival male.

○   The right male's shining in his green color hindered the female from shining in her purple color to attract the rival male.

○   Both males' shining in their green color hindered the female from shining in her purple color to attract the rival male.

7.1.1   Justification

We'd like to know a little bit more about the rating you just gave. Please give a short explanation for your judgment.

8.1   Animation_and_Queries

Below you see the animation window. To start the animation, you have to click the blue "Start" button. The animation will last approximately 30 seconds. After these 30 seconds, the "Start" button will appear again. You can watch the animation as often as you like. Please observe thoroughly what happened on the occasion shown in the animation.

If you have observed carefully what happened in the situation, please answer the following question.

Please select the option that best describes what happened in the situation shown in animation.

○   The left male's shining in his green color stopped the female's shining in her purple color to attract the rival male.

○   The right male's shining in his green color stopped the female's shining in her purple color to attract the rival male.

○   Both males' shining in their green color stopped the female's shining in her purple color to attract the rival male.
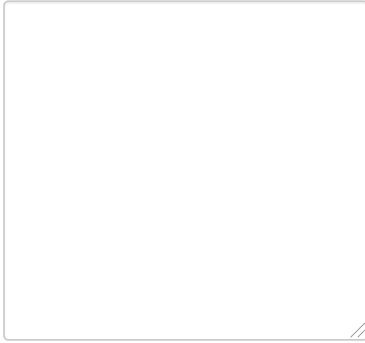
8.1.1   Justification

We'd like to know a little bit more about the rating you just gave. Please give a short explanation for your judgment.

9.1   Animation_and_Queries

Below you see the animation window. To start the animation, you have to click the blue "Start" button. The animation will last approximately 30 seconds. After these 30 seconds, the "Start" button will appear again. You can watch the animation as often as you like. Please observe thoroughly what happened on the occasion shown in the animation.

If you have observed carefully what happened in the situation, please answer the following question.

Please select the option that best describes what happened in the situation shown in animation.

○   The left male's shining in his green color stopped the female's shining in her purple color to attract the rival male.

○   The right male's shining in his green color stopped the female's shining in her purple color to attract the rival male.

○   Both males' shining in their green color stopped the female's shining in her purple color to attract the rival male.

9.1.1   Justification

We'd like to know a little bit more about the rating you just gave. Please give a short explanation for your judgment.
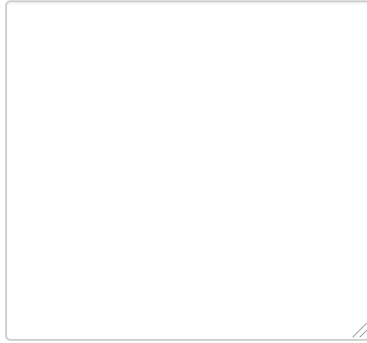
10 Demographie

Thank you very much for your effort, you are almost done with the survey. Please provide the following additional information:

Please indicate which gender you feel you belong to.

○ male

○ female

○ other

○ prefer not to say

How old are you?

If any technical issues occured in the course of the study, please give a short description.

11 Endseite

Thank you for taking part in this study!

The aim of this experiment is to find out more about how people reason about preventive causality. If you are interested in further details or if you have any questions or comments concerning the experiment, feel free to contact me (Simon Stephan) under sstepha1@uni-goettingen.de

To ensure you receive your reward, please click on the following link to return to the Prolific website:

Link to Prolific