Appendices

Appendix

A   Consent form and instructions

Consent form

Thank you for your participation.

We will be asking for your opinions about some English sentences. The material was designed for preschool-aged children; here, we are collecting adults' judgments for comparison. The task will take you about 15 minutes in total to complete.

Risks, benefits, confidentiality

There are no known risks or benefits associated with your participation in the study. All responses will be saved anonymously. When you are ready to begin, please click on the link below.

→ Click here to continue to the first task.

Figure 1: Consent form preceding each experiment.

Instructions

In this task, you will see English sentences produced by Zap, an alien learning English, that are about animal characters: Rabbit, Lion, Monkey, Bear, Dog, Cat, Giraffe, and Elephant. Your task is to decide how Zap's sentences sound on a scale from 1 to 5, with 1 being completely odd and 5 being completely okay. Check the button and click on the link below to see some examples.

☐ I have read and understood the instructions.

→ Click here to see an example.

Figure 2: Experiment 1: Instructions.

Instructions

In this task, you will see a series of short stories, each accompanied by two cartoon images. After each story, a puppet named Raffie will produce a sentence about what happened at the end of the story. Your task is to decide which of the two pictures matches Raffie's description. Sometimes Raffie's sentence will apply to only one of the pictures, and sometimes it will apply to both pictures. Note that Picture 1 will always refer to the picture on the left, and Picture 2 will always refer to the picture on the right. Check the button and click on the link below to see some examples.

☐ I have read and understood the instructions.

→ Click here to see an example.

Figure 3: Experiments 2 and 5: Picture Selection Task instructions.

First part - Instructions

There will be two parts. In this first part, you will see a series of short stories, each accompanied by two images. One of them will be visible; the other is hidden by a black box so you cannot see it. At the end of each story, a puppet named Raffie will produce a sentence about what happened in the story. Your task is to decide which picture matches Raffie's description. If you think Raffie's sentence can apply to the visible image, click on it. Otherwise, assume that a better picture is hidden by the black box, and click on that one. Check the button and click on the link below to see some examples.

☐ I have read and understood the instructions.

→ Click here to see an example.

Figure 4: Experiment 3: Covered Picture Task instructions.

First part - Instructions

There will be two parts. In this first part, you will see a series of short stories illustrated with cartoon images. At the end of each story, a puppet named Raffie will produce a sentence about what happened in the story. Your task is to decide whether Raffie is right or not. Check the button and click on the link below to see some examples.

☐ I have read and understood the instructions.

→ Click here to see an example.

Figure 5: Experiment 4: Implicature training TVJT instructions.

Second part - Instructions

You have now completed the first part.

In the second part, you will see English sentences containing the word 'any', produced by Zap, an alien learning English. Your task is to decide how the word 'any' sounds in Zap's sentences, on a scale from 1 to 5, with 1 being completely odd and 5 being completely okay. Check the button and click on the link below to see some examples.

☐ I have read and understood the instructions.

→ Click here to see an example.

Figure 6: Experiments 2, 3, and 4: Acceptability Judgment Task instructions.

B Stimuli

B.1 Experiment 1

(1) **Example items:** Monkey poured the elephants some juice. Monkey is eating soup yet.

(2) [**+NPI**] **non-target items:** Cat didn't give the giraffes any coffee. ; Dog didn't give the bears any soup. ; Elephant didn't give the lions any honey. ; Rabbit didn't give the monkeys any water. ; Every giraffe who didn't have coffee drank any tea. ; Every rabbit who didn't have tea drank any water. ; Every bear who didn't have ice cream ate any chocolate. ; Every cat who didn't have chocolate ate any pie. ; Exactly two giraffes had any ice cream. ; Exactly two cats had any cheese. ; Exactly two lions drank any coffee. ; Exactly two elephants ate any cake. ; Giraffe had any ice cream. ; Cat had any cheese. ; Lion drank any coffee. ; Elephant ate any cake. ; Every giraffe who was hungry ate any chocolate. ; Every rabbit who was hungry ate any pie. ; Every bear who was thirsty drank any water. ; Every cat who was thirsty drank any juice.

(3) [**+NPI**] **target items:** Rabbit didn't give every monkey any soup. ; Dog didn't give every cat any water. ; Giraffe didn't give every elephant any coffee. ; Lion didn't give every bear any honey. ; Bear didn't give every giraffe any ice cream. ; Cat didn't give every rabbit any tea. ; Dog didn't give every lion any pie. ; Monkey didn't give every

elephant any juice. ; Monkey didn't give every rabbit any juice. ; Cat didn't give every dog any pie. ; Elephant didn't give every giraffe any tea. ; Bear didn't give every lion any ice cream. ; Giraffe didn't give every bear any honey. ; Rabbit didn't give every cat any coffee. ; Lion didn't give every dog any water. ; Elephant didn't give every monkey any soup.

(4)   [**-NPI**] **items:** Cat didn't give the giraffes coffee. ; Dog didn't give the bears soup. ; Elephant didn't give the lions honey. ; Rabbit didn't give the monkeys water. ; Elephant didn't give every giraffe tea. ; Bear didn't give every lion ice cream. ; Giraffe didn't give every bear honey. ; Rabbit didn't give every cat coffee. ; Every bear who didn't have ice cream ate chocolate. ; Exactly two giraffes had ice cream. ; Giraffe had ice cream. ; Every cat who was thirsty drank juice.

B.2   *Experiments 2 and 5: Picture Selection Task*[1]

(5)   **Example items:** Lion colored the circle. ; Monkey opened the window. ; Monkey colored the squares blue.

(6)   **Target items:** Monkey didn't give every rabbit juice. ; Cat didn't give every dog pie. ; Elephant didn't give every giraffe tea. ; Bear didn't give every lion ice cream. ; Giraffe didn't give every bear honey. ; Rabbit didn't give every cat coffee. ; Lion didn't give every dog water. ; Elephant didn't give every monkey soup.

(7)   **Controls:** Rabbit didn't give every cat milk. ; Dog didn't give every elephant cheese. ; Monkey didn't give every rabbit ice cream. ; Bear didn't give every monkey cake. ; Lion gave every bear honey. ; Dog gave every elephant cheese. ; Elephant gave every dog cake. ; Elephant gave every giraffe juice. ; Cat didn't give Dog every apple. ; Giraffe didn't give Lion every strawberry. ; Elephant didn't give Giraffe every flower. ; Rabbit didn't give Cat every cupcake. ; Elephant didn't give Giraffe juice. ; Rabbit didn't give Cat tea. ; Lion didn't give Bear honey. ; Dog didn't give Elephant ice cream. ; Giraffe got every flower. ; Rabbit got every strawberry. ; Bear got juice. ; Elephant got tea.

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[1] The stimuli in Experiment 5 included a modification to the target items administered to the intervention group, as explained in the relevant sections.

B.3   Experiments 2, 3, and 4: Acceptability Judgment Task

(8)   **Example items:** Every monkey who picked any fruit had a basket. ; Every cat who had a basket picked any fruit. ; Exactly two cats picked any fruit.

(9)   **Target items:** Monkey didn't give every rabbit any juice. ; Cat didn't give every dog any pie. ; Elephant didn't give every giraffe any tea. ; Bear didn't give every lion any ice cream. ; Giraffe didn't give every bear any honey. ; Rabbit didn't give every cat any coffee. ; Lion didn't give every dog any water. ; Elephant didn't give every monkey any soup.

(10)   **Controls:** Giraffe had any ice cream. ; Cat had any cheese. ; Lion drank any coffee. ; Elephant ate any cake. ; Pig didn't have any honey. ; Monkey didn't pick any fruit. ; Rabbit didn't drink any tea. ; Dog didn't eat any pie.

B.4   Experiments 3 and 4: Covered Picture Task and Implicature Task

The example and target items were the same as in Experiment 2; the only difference was in the presence/absence of certain control items. Below are all the control items from the Covered Picture Task of Experiment 3 and the implicature task of Experiment 4.

(11)   **Controls:** Bear didn't give every monkey honey. ; Giraffe didn't give every lion chocolate. ; Rabbit didn't give every cat milk. ; Dog didn't give every elephant cheese. ; Monkey didn't give every rabbit ice cream. ; Bear didn't give every monkey cake. ; Lion gave every bear honey. ; Dog gave every elephant cheese. ; Elephant gave every dog cake. ; Elephant gave every giraffe juice. ; Cat didn't give Dog every apple. ; Giraffe didn't give Lion every strawberry. ; Elephant didn't give Giraffe every flower. ; Rabbit didn't give Cat every cupcake. ; Elephant didn't give Giraffe juice. ; Rabbit didn't give Cat tea. ; Lion didn't give Bear honey. ; Dog didn't give Elephant ice cream.

B.5   Experiment 5: Intervention group questionnaire
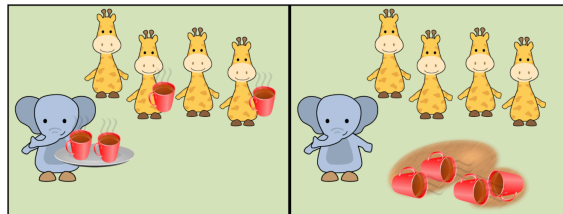
B.5.1   Questionnaire

In this task you saw sentences like:

Elephant didn't give every giraffe any tea.

Question 1: How acceptable did you find the word 'any' in the sentence, with 1 being completely odd, and 5 being completely acceptable?
Completely odd ◯1 ◯2 ◯3 ◯4 ◯5 *Completely acceptable*

Question 2: This sentence was paired with the following pictures:

| Picture 1 | Both pictures | Picture 2 |

Which answer did you select?
◯Picture 1 ◯Picture 2 ◯Both pictures

Question 3: Please explain how you decided on your answer. For example, if you chose Picture 1, tell us why you chose Picture 1.

→ Click here to continue

Figure 7: Final questionnaire in the repair strategy experiment.

B.5.2   Questionnaire Q3: Justifications for picture choices

'Picture 1' selections

i.   "if elephant didn't give 'every' giraffe tea then he gave 'some' of the giraffes tea"
ii. "I chose it because he wanted to give some but didn't give it to everyone."
iii. "I believe I selected Picture 1. I thought that it possibly meant not every giraffe got tea, so that meant some may have."
iv. "Implicit with every is that some did get tea, I think."
v.   "Because it means he gave some tea but not every one of them."
vi. "I thought the use of every implied that some got tea."
vii. "because its some without tea"
viii. "Because it said he didn't give every giraffe tea , it seemed that he did give it to at least one."

ix. "Because the sentence leads you to believe he gave some tea but not all"

'Both pictures' selections

i. "In both pictures not every giraffe has tea, so both are correct."
ii. "Not all giraffes received tea in both pictures."
iii. "Chose both pictures because not every giraffe has tea in both pictures."
iv. "I chose both pictures because in both pictures either no giraffes got tea or just half of them got tea."
v. "Neither picture showed all giraffes with tea"
vi. "The sentence is a bit ambiguous and could either mean that the elephant didn't give any tea to thegiraffes, or that he didn't give tea to all the giraffes."
vii. "I chose both because in both pictures, not every giraffe has tea"
viii. "In both pictures not every giraffe has tea"
ix. "to me it was that some of them or none of them got tea just not all of them"
x. "None of the giraffes have tea."

'Picture 2' selections

i. "No giraffe had any tea at all, while in Picture 1 SOME giraffes did have some tea"
ii. "not every giraffe got tea"
iii. "Not every giraffe had tea."
iv. "not all the giraffes have tea in both pictures"
v. "I chose picture 2 because every giraffe didn't get any tea. I would have chose Picture 1 if they used some instead of every giraffe."
vi. "I just went with my gut, which in this case was telling me picture 2 (if I remember correctly)"
vii. "It say it didn't give EVERY giraffe any tea."