

Supplementary material S1

Classification of half-open questions

Half-open questions are those that can be answered with yes, no, affirmative sound, nod or shaking the head (yes/no-type response), but they can also be answered with other words than this. If it was possible to answer a question with a yes/no type of answer, it was classified as half-open. The subtype was then determined based on the child's response. Subtypes for half-open questions were respectively half-open closed (HO:C) and half-open open (HO:O). A half-open question was classified as HO:C if the child answered it with yes/no-type response, and as HO:O if the child responded it with words other than yes, no (or don't know). Note that the threshold for classifying a question as HO:O was possibly somewhat lower in this study, compared to Hargreaves (1984), where the child had to add more information to a yes/no response for the question to be classified as HO:O.

As it was entirely possible to answer half-open questions in the simplest possible way (yes/no-type response), it was considered that responses with other words than this showed an initiative from the child. For that reason, a half-open question was classified as HO:O if the child chose to answer it with words other than yes/no type.

Table S1.1

Criteria for classification of open-ended questions

Subtype	Examples
Half-open closed (HO:C): All half-open questions to which the child answers yes/no type	A: Can you tell about the picture? C: Mm A: Do you remember what the book is about? C: ((shaking head)) A: Was the grass short? C: Yes
Half-open open (HO:O) All half-open questions where the child responds with words other than yes/no type	A: Do you remember what the book is about? C: Lawnmower A: Was he small? C: Yes, he got smaller because dad cut his hair.

Classification of closed questions

There are seven subtypes of closed questions, namely completion, localization, naming, attribute, questions with answer options, pure recall, or closed decontextualized.

The classification took place by examining whether the question from the adult fit into one of the aforementioned seven categories. If the question could be assigned to one of the mentioned categories, the question was closed.

Table S1.2

Criteria for classification of closed questions

Subtype	Includes	Examples
Completion of sentences/words		
<ul style="list-style-type: none"> The adult pauses for the child to finish the sentence/word (cf. Engvik et al., 2016) 		Yes, she has... Butterfl...
Localization		
<ul style="list-style-type: none"> Involves indicating or describing the location of a person or an object (cf. Engvik et al., 2016) 	Where is/are questions.	Where are they
	Where lives questions.	Where does he live?
Naming		
<ul style="list-style-type: none"> Involves naming something, e.g. a person, an object, parts of an object or a sound. 	Who - questions	Who is Alma talking to?
	What is the name of- questions	What is the name of the grass?
	What is that - questions.	What is the girl pointing at?
Attribute		
<ul style="list-style-type: none"> Focuses on attributes (e.g. size, color), involves noticing something about a person/an object or parts of an object (cf. Engvik et al., 2016) 		What did Gard become after the lawnmower ran him over?
Questions with answer options		
<ul style="list-style-type: none"> The answer options are incorporated into the question 		Is Gard short or long?
Pure recall		
<ul style="list-style-type: none"> The question cannot be directly answered by examining an image/images in the book. Some such questions may concern something that has happened/a change in something, but where it is not possible to see what has happened/the change in a picture/pictures in the book. It is also not possible to reason out the answer based on a picture/pictures, through the wording of the question itself, previous questions or other information. A past tense/past perfect form of the question indicates that this has been talked about previously, and thus reduces the number of possible (and equally valid) responses available to the child. 		What did the worm say when he appeared?
Closed decontextualized		
<ul style="list-style-type: none"> Questions that are not directly linked to the book's content, but where it is clear that there is a correct 		What does the hairdresser use to cut you hair?

response/that the adult is looking for one or a few specific words.

What do you use to cut the grass?

Classification of open-ended questions

There are six subtypes of open-ended questions: summary, descriptions, assessment of feelings, reasoning, open decontextualized and predictions. Also for open-ended questions, the classification took place by examining whether the question from the adult fit into one of the six subcategories mentioned. If the question could be assigned to one of the mentioned subcategories, the question was open.

Table S1.3

Criteria for classification of open-ended questions

Subtype	Includes	Examples
Summary <ul style="list-style-type: none"> Implies that the child must summarize/tell about action/content or what has happened so far in the book (cf. Engvik et al., 2016) 	What is the book about- questions.	
Descriptions <ul style="list-style-type: none"> Involves giving a description of something, based on a picture/pictures in the book. This can e.g. be describing scenes, actions, what someone is doing, something that has happened etc. (cf. Engvik et al., 2016) 	What do you see-questions. What do you see here? What is happening- questions. What has happened - questions. What is he/she/they doing- questions	What is happening here? What has happened?
Assessment of emotions <ul style="list-style-type: none"> Involves drawing an inference about the feelings of a character in the book (cf. Engvik et al., 2016) 	What does somebody feel- questions	What does Alma feel?

Reasoning

- The image (or images) alone does not provide sufficient information to be able to answer the question. The question can be answered by reasoning. The child can e.g. use other information in the question itself, other information from the adult given before the question, information from other pictures or own life experiences

Why-questions

Why was Alma sad?

What do you think-questions

What do you think they are doing?

Note: even if a response requires a certain reasoning, it does not automatically mean that the question is open-ended. If the question calls for a short response (e.g. one word) and there are no other (equally valid) answers, the question may be closed

What is somebody saying/telling/shouting-questions

What is she shouting?

Open decontextualized

- Questions that move slightly beyond the direct content of the narrative or what is directly available in the pictures in the book

What does people/plants/animals need to grow?

Predictions

- Requires the child to make predictions about what will/may happen, or make assumptions about the outcome of an event (cf. Engvik et al., 2016)

What do you think is happening now?

What will he/she/they do?

Supplementary material S2

Introduction to double coding

In this article, video recordings of picture book dialogues between an adult and a child are analyzed. The picture book dialogues take place over 4 days with the same book. On day 1, the child and the adult talk about the content. On days 2 and 3, the book is read (and the adult asks questions). On day 4, the idea is for the child to be the narrator of the story, helped by questions from the adult. There is no reading from the text on day 4. . The purpose of this study is, among other things, to examine the extent to which the different types of questions elicit responses from the quiet children on day 4.

The first step in the process has been to transcribe the video recordings. The video recordings have shown that the adult asks the child many questions and that the adult occasionally asks new questions (or makes other types of statements) shortly after a question, so that the child is not really given enough time to answer. For questions that is not answered, we have set the limit at 3 seconds. This means that an unanswered question that is followed by a new question (or another type of adult utterance) after less than 3 seconds, does not qualify as a question in this study

Regarding classification, it can sometimes be useful to look at the dialogue immediately before or immediately after the relevant question/response.

The task of the double coder is to classify questions included in the data material. The questions are classified as either half-open, closed or open-ended. Half-open questions have only two subtypes, while closed and open-ended questions have several subtypes. We have prepared a separate document that shows the various subtypes, and some characteristics of these (see: supplementary material S1).

Principles of classification:

Type:

- a. All questions are classified as either half-open, closed or open-ended.

Subtype:

- b. Half-open questions are further classified into subtypes as either half-open open (HO:O) or half-open closed (HO:C).
- c. Closed questions are classified into subtypes as either completion, localization, naming, attribute, questions with answer options, pure recall or closed decontextualized.
- d. Open-ended questions are classified into subtypes as either summary, descriptions, assessment of emotions, reasoning, open-ended decontextualized or predictions.

All questions that are not half-open are either closed or open-ended. For the closed and open-ended questions, it may be easiest to find which subcategory the question can fit into first (e.g. localization), and then decide on the main category (which will then be closed). This is thus

the opposite order of the half-open questions, where it is appropriate to go from main category to subcategory.

Some additional points

1. Half-open questions

Half open questions are all questions that can be answered with yes, no, mm (affirmative sound), nod or shaking head.

Ex. 1: Has Gard become short?

Ex. 2: Can you tell about the picture?

Ex. 3: Do you remember what the book is about?

We experience ourselves that an appropriate procedure is to start by examining each and every question to see if it might be half-open. This is easily done by trying to answer it with a "yes". Note that half-open questions can be easy to overlook without actually trying to answer them with a "yes".

Half-open questions are classified further into subtypes based on the child's response. This is in contrast to closed and open-ended questions, where only the question itself is assessed. If the child does not answer a half-open question, write "No response" under subtype. If the child responds with yes, no, mm (affirmative sound), nods or shakes his/her head, the subtype is HO:C. The child treats in other words the question as closed.

If the child answers with words other than yes, no, mm (affirmative sound), nods or shaking the head, the subtype is HO:O. The child treats in other words the question as open.

2. Several questions in one and the same sentence

All new utterances (questions included) are initially given their own line number in the transcription, regardless of the length of the subsequent pause. In some cases, it cannot be ruled out that the content of the previous questions affects the child's response. In such cases, the questions are combined on one line number in the transcription. The response from the child can give an indication of which part of the now combined questions that has been the focus of the child.

Example

A: Is he happy or sad, is he angry or happy, what does he feel?

C: Sad

The first part of the question can be classified as closed (main type) and question with answer options (subtype). The last part of the question can be classified as open (main type) and assessment of feelings (subtype). The child's response indicates that one of the options presented by the adult, has been chosen. The question is thus classified as closed (main type) and question with answer options (subtype).

If the child does not answer, the last question should be classified.

Example

A: What do you think, what is she doing?

C: No response

The first part of the question (what do you think) is possibly open (main type) and reasoning (subtype), the second part of the question (what is she doing) is open (main type) and description (subtype). In this case, the last part should be classified. The question can thus be classified as open (main type) and descriptions (subtype).

3. Questions that do not make sense on their own

Certain questions do not make sense when they stand alone (e.g. what?), and must be seen in connection with previous questions. In such cases, the preceding questions are placed in brackets together with the applicable line number in the transcription, before the question to be classified.

Example:

(49, did something get on the grass) what?

In this case, one can see that the question is about naming something on the grass and the question can thus be classified as closed (main type) and naming (subtype)

4. Subtype completion

Closed questions of the subtype completion are identified by the adding of three periods after a word, or part of a word uttered by the adult (e.g. yes, a ladyb... or Gard has got a...). With such questions, the adult wants the child to produce specific words.

Sometimes, the adult asks an incomplete question, without this being classified as completion.

Example

A: What is Alma doing?

A: What is, what is?

Here, the adult is not looking for the child to complete the sentence (which in this case would have been Alma doing). Three periods have therefore not been added.

The incomplete question in the example above does not make sense when it stands alone. In line with point 4 above, the preceding question is set in brackets in the transcription with a line number in front of the incomplete question as follows:

(52, What is Alma doing) what is, what is

The incomplete question (what is, what is) can now be classified as open-ended (main type) and reasoning (subtype).

5. Pure recall

On some occasions, the adult asks a question that can only be answered by recalling information from previous readings. Note here that the transcriptions are from day 4 (where it is not read from the text). We are here not referring the type of recall that is necessary for e.g. naming (that is, remembering the names of things).

In cases of pure recall, it is not possible to look at the pictures, or to reason, to arrive at an answer. To be able to identify these questions requires a good insight into what is happening on the various pages of the book, and thus what is possible to read out of a picture, and what is not. Here it may also be relevant to look at the transcription itself, if information is given immediately before the question that gives a hint to an answer.

One characteristic may also be that the question is asked in the past tense or past perfect tense (e.g. what did he say/what had he said) in combination with the pictures/other information providing no hints for an answer. The requirement for recall indicates that the adult is looking for a specific answer. This places limitations for the range of possible responses. We consider this type of questions to be closed. The classification is thus closed (main type) and pure recall (subtype).

6. Reasoning

Certain questions cannot be answered just by looking at the pictures. If they can be answered by reasoning, the question is classified as open-ended (main type) and reasoning (subtype). Examples of this are why-questions and what do you think-questions.

In other cases, it is less clear that the information cannot be read from a picture, but that the question can be answered by reasoning. The child is in other words not dependent on recall from previous readings. Here, the pictures/information from the transcription can give hints about the extent to which it is possible to reason out a response.

Even if a question presupposes a certain reasoning, it is not automatically open-ended. If the question calls for a short answer (e.g. with one word), or there are not several equally valid responses, the question may be closed.

7. Slurred speech

Indistinct speech is marked with (xxx) in the transcript. If the question from the adult or the response from the child is difficult to understand due to indistinct speech, the relevant question is excluded from the data material and is not classified.