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Text formulations as practices of demonstrating understanding in dialogic reading

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Abstract: This paper examines *text formulations* in the interaction between peers in primary school during dialogic reading, in inquiry learning settings. In this context pupils collaboratively use information from texts to answer their research questions. The data analyzed include 25 excerpts of pupils demonstrating understanding of text. We used Conversation Analysis to analyze how pupils demonstrate their understanding by the use of text formulations, as a specific type of formulations, and how these formulations function as a bridge between the reading action and the discussion of text content. Parallel to the types of conversational formulations (gist and upshot), we found two practices of demonstrating understanding, namely (1) formulating the gist of relevant text to demonstrate literal understanding, and (2) formulating an upshot to demonstrate how the text contributes to the reading goal. Both types are used to establish shared understanding of text, but focus the discussion as well on what participants find relevant information in the text to further talk about. To reach shared understanding and to use it for next steps, both interactants need to have access to the text in some way. This study contributes to our understanding of how pupils collaboratively use text to build their knowledge.

Keywords: conversation analysis; dialogic reading; peer interaction; primary education; text comprehension; text formulations

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1 Introduction

In this study we demonstrate how children collaboratively talk about their understanding of a text fragment, while involved in dialogic reading during inquiry learning settings in Dutch primary schools. During inquiry learning projects, pupils collaboratively work on answering their own research questions (e.g., Littleton and Kerawalla 2012; Pulles et al. 2014). To answer these questions, pupils search for texts in books, magazines and on the Internet, and they discuss whether those texts are useful to their purpose. We speak of dialogic reading when participants are involved in interactions, in which they read, think and talk together (Maine 2015).

To talk about text and to use it for constructing (new) knowledge, participants need to discuss their understanding of the text that has been read thus far and its possible contribution to answering their inquiry question. Conversational work must be done to bridge the ‘gap’ between information that is provided in the text and the interaction between peers who are using this information. An example from our data shows how Ella (grade 6) reads aloud a text about the fastest roller coasters, one of them is pulled up by a chain instead of launched. After the reading-out-loud, she formulates her understanding of the text fragment by rephrasing it: “so, this is the fastest, but then with a chain lift.” Then a short discussion follows about how to use this information for their research on the construction of roller coasters. Our study examines pupils’ practices of formulating understanding of text fragments during dialogic reading. Our research question is as follows: what are the function, characteristics and uptake of *text formulations* in the context of dialogic reading? The findings should contribute to our insight in how children talk about text content and collaboratively construct understanding of the text.

We start in Section 2 with an overview of relevant literature, concerning reading in interaction and formulating understanding in interaction. In Section 3, we introduce our data collection procedure and our research method, followed by the findings in Section 4. Our discussion and conclusion, both from CA and educational perspectives, are presented in Section 5.

2 Literature review

2.1 Reading and interaction

Most of the research on reading involves reading as an individual activity, but in modern educational contexts in the 21st century in which shared knowledge building (Bereiter 2002) and learning in interaction become more significant,

reading is also considered to be a social activity (Barton 2000; Gee 2015; Maine 2013) where pupils learn together. Maybin (2013: 60) states that “constructive, interactive dimensions of children’s reading are fundamental parts of literacy”, and that meaning and understanding of text are shaped in interaction (Maybin and Moss 1993).

The importance of interaction for reading has been acknowledged (e.g., Nystrand 2006; Rojas-Drummond et al. 2012), but these studies are focused on the effects of collaboration on children’s comprehension of text and development of reading skills, and not on the characteristics of the interaction that contribute to text comprehension. A few studies have examined some characteristics of dialogs around texts from a socio-cultural and pedagogical perspective (e.g., Maine 2013; Maybin 2013; Rojas-Drummond et al. 2017), but also these studies lack detailed and sequential analyses of how, for example, shared understanding of text is constructed in the interaction between peers. An analysis informed by the qualitative method of Conversation Analysis (CA) (Sidnell and Stivers 2013) may improve our knowledge about how collaborative understanding of text is accomplished interactively.

Most research examining collaborative reading activities from a CA perspective has examined teacher-pupil interaction, for example focused on pupils’ text comprehension (Van der Westhuizen 2012), classroom interaction during shared reading of picture books in kindergarten (Gosen et al. 2015), the role of the text in the organization of the interaction (Tanner et al. 2017), and whole-class discussions on history and geography texts (Willemsen 2019). A few studies have examined peer interaction during collaborative reading activities, for example regarding peer correction during read-aloud (Johnson 2017) and the changes in pupil’s knowledge during collaborative reading (Melander and Sahlström 2009). However, we do not know yet how understanding of text is constructed in peer interaction. Regarding demonstrating understanding in ongoing interaction, the concept *formulations* is widely used in CA. We will now turn to discuss relevant research on formulations, before we move on to previous research on formulations within classroom interaction, to finally relate this to our focus: understanding of text in peer interaction.

2.2 Formulations

The construct of *formulations* refers to utterances that “may make explicit their sense of ‘what we are talking about’, or ‘what has just said’: they are means for constructing an explicit sense of the gist of the talk thus far” (Drew 2003: 296). Formulations may be expressed with words such as “so what you were saying is...” or “you mean...”. The term *formulations* was first used by Garfinkel and Sacks

(1970) in a technical sense, referring to meta-communicative and self-reflexive descriptions that participants use to describe the conversation in which they are involved. Formulations are generally used to demonstrate understanding of what has been said or done previously (Deppermann 2011: 117; Garfinkel and Sacks 1970: 351; Heritage and Watson 1979: 124), and are normally done in a *formulation-decision adjacency pair*, with the formulation in the first pair part (FPP) and an agreement or disagreement in the second pair part (SPP) (Heritage and Watson 1979). They give access to how people understand each other in interaction. Formulations are used to summarize, abstract or specify what has been presented earlier in the conversation, and therewith “turn the sense achieved in a conversation into a topic in its own right (...)” (Heritage and Watson 1980: 250). A formulation thus has a function in topic-organization in interaction (Barnes 2007) in the sense that it may shift a topic, as it “picks out certain elements of the prior report” (Heritage 1985: 103) that may be maintained as a topical focus in the subsequent talk.

Heritage and Watson (1979: 130–136) identified two types of formulations: *gists* and *upshots*. With a *gist formulation*, a participant rephrases or summarizes a previous utterance or several utterances, and by doing this, s/he demonstrates to the other how s/he understood the sense of the previous talk. A gist formulation highlights or transforms relevant content presented by the other, who may then agree or disagree with the formulation. *Upshot formulations*, on the other hand, add a new perspective to the gist by articulating what has not been said, for example by drawing a conclusion about what has been presented in the previous stretch of talk.

Formulations have been studied in different institutional contexts, such as news interviews (Heritage 1985), psychotherapy (Antaki et al. 2005; Weiste and Peräkylä 2013), meetings (Barnes 2007) and mediation (Stokoe and Sikveland 2016). Drew (2003) has demonstrated with some cases from different institutional settings that formulations perform different kinds of interactional tasks, depending on the interactional setting in which they are used. For example, he has demonstrated how news interviewers use formulations of interviewees’ previous answers to ask for elaboration on a specific part of that answer, often the most newsworthy part. The functions that formulations perform in each different context are essential interactional moves in these contexts.

In classroom interaction formulations have also been studied, mostly in teacher-pupil(s) interaction (Baraldi 2014; Kapellidi 2015; Solem and Skovholt 2017). Solem and Skovholt (2017: 17) found three types of teacher formulations of pupils’ contributions, namely transforming, challenging and summarizing, that “highlight something adequate, coherent, appropriate, correct, or relevant, something that should be a shared pedagogic focus”. Another perspective on formulating pupils’ contributions is taken by O’Connor and Michaels (1993), who spoke about *revoicing* of a pupil’s contribution to a classroom discussion, as a

teacher's strategy to give more power to this pupil's contribution. O'Connor and Michaels described how teachers used these formulations to make pupils' contributions available to the whole class, to introduce terminology and to steer the discussion.

Taken together, in these studies it is the teacher who, by means of formulations, determines which information is valuable to talk about. Most studies on functions and design of formulations in institutional interaction, including classroom interaction, regard the use of formulations by the 'expert' (teacher, doctor, therapist, etc.) and formulations are then used to address or *revoice* the perspective and participation of the pupil, patient or interlocutor. Less is known about the use and function of formulations in interactions with 'equal' participants, such as collaborative learning settings between peers. If no teacher is involved, peers themselves should determine what information is valuable to talk about for learning.

2.3 Formulating understanding of text

When talking about text to answer inquiry questions, participants need to demonstrate to the other participants their understanding of the particular text and its relation to the inquiry question, for the information to be acknowledged by all participants. We argue that within the context of dialogic reading, a specific type of formulations is used to demonstrate understanding of text fragments, which we will call *text formulations*. The particularity of these type of formulations is that the original of the formulated text content is not always presented in reading-aloud during the ongoing interaction, but can also be based on the silent reading by one participant. So, we will use the term *text formulation* to refer to actions of formulating understanding of text fragments in interaction. Actions that we characterize as *text formulations* are usually paraphrases, summaries or upshots from the original text, but we found also some repetitions of certain elements of the text with the same function, as we will argue.

3 Data and method

The interactions that we analyzed in this study are drawn from a data set that was video recorded during a research project on *Cooperation and Language Proficiency*, conducted in six primary schools in the Dutch province of Fryslân (Berenst 2011). During five inquiry learning projects, collaborative learning was videotaped by researchers or assistants, in grades 2–6 (age 7–12) for at least three times during the

project, each lasting between two and three weeks. Each peer group worked on their own research question within a given theme, for example the question “How do sluices work?” within the theme ‘traffic’. Pupils searched for information themselves in books, magazines and the Internet and discussed what information they could use, and how it would contribute to answering their question. Additionally, we collected data in a sixth grade class at another primary school where a similar inquiry learning project was conducted on the theme of ‘space’ (Van der Weijde 2017). The research was conducted according to the ethical standards of NHL Stenden University of Applied Sciences. Informed consent was obtained from both the school boards and the parents of the children who were videotaped, concerning collection, storage and use of the data.

From this large database, that consisted of different kinds of activities in the whole process of inquiry learning (orienting to the theme, formulating a research question, searching for information, using information, presenting findings), we made a first selection of 38 dialogic reading interactions (each lasting from 5–30 min), namely those interactions between peers, in which they were reading and talking about text. All dialogic reading interactions occurred during the activities orienting to the theme, searching for information and using information. These videos were transcribed (see Appendix) in the tradition of Jefferson (2004), for the purpose of a detailed analysis informed by (applied) CA (Ten Have 2007). CA provides a method to explore interaction in detail, from participants’ perspectives (Koole 2015) by analyzing the turn by turn sequential ordering of talk (Schegloff 2007). Such an analysis makes it possible to determine how the practices of constructing and demonstrating understanding of text are accomplished by children in their peer interaction.

Because we were interested in how pupils used information from text, we then selected fragments in which the pupils demonstrated some kind of understanding of the text, by highlighting or commenting on information from the text. This resulted in a collection of 25 excerpts in which a pupil demonstrates understanding of text that has been read just before (aloud or silently).

4 Findings

In dialogic reading in the context of inquiry learning, *text formulations* are primarily used to demonstrate comprehension of text. At the same time, by demonstrating his/her understanding of a formulated text fragment, a pupil also proposes this text selection as containing relevant information for answering the research question. A shared understanding of the text needs to be established before pupils can start a discussion about the implications, related to their

research questions. The pupils in this study establish their shared understanding of text in a *formulation-decision adjacency pair* (Heritage and Watson 1979) that functions as a connection between the text and the subsequent interaction about the implications of the text, regarding a pupil's research question.

We found two main practices of demonstrating understanding of text observed in the data: (1) the pupils demonstrate that they understand the *gist* and relevance of a text fragment that has been read, by paraphrasing or by repeating a selection of the text; (2) the pupils demonstrate an implication of the relevant information from the text by formulating an *upshot*, by referring to prior knowledge. Although text formulations are similar to conversational formulations, they have some special characteristics that can be explained by the specific dialogic reading setting, with the presence of a text under discussion. Firstly, text formulations are just like conversational formulations FPP's and may be done by either the reader or the other participant. When the one who is reading aloud does the formulation, we observe a *footing shift* (Goffman 1981) of the speaking participant from an *animator* role, when reading aloud, to an *author* role, when formulating. Moreover, in the SPP the other participant may agree or disagree with the text formulation 'on behalf of' the writer of text, taking a *principal* role. Thus, footing shifts take place in the transition from the reading action to a discussion about the text. Secondly, only when both participants have the same access to the text – in a reading-out-loud situation – the other participant may agree or disagree with the formulation. Also in this context the reader shifts footing to formulate the text fragment after the individual reading action, but the other interactant is not able to assess the formulation, and a SPP is not projected.

In the next sections we will demonstrate how the main types of formulations (*gist* and *upshot*) function in dialogic reading.

4.1 Formulating the gist of relevant text

A reader can provide access to his/her comprehension of a text by formulating the *gist* of a text. When doing this, readers do several things at the same time: they demonstrate their understanding of the text, they indicate the relevance of text components and they propose this relevant information to their peers. A *gist* formulation in this context may be accomplished by paraphrasing part of the text. But also literally repeated text fragments sometimes function as formulations, because the speaker makes a selection of elements of the information from the text, leaving out other elements and so shifting the focus of the text fragment to the selected elements. In our data, the pupil who reads aloud is also the one who does the text formulation. When doing this, the pupil shifts from reading the text as an

animator (Goffman 1981) to an *author* role, often within one turn. The formulation also functions as a transition marker between the reading action and the talk.

4.1.1 Bridging reading and discussion

Text formulations take the position of a FPP after a reading-out-loud action, similar to conversational formulations that take the first position in a formulation-decision pair. Whereas a conversational formulation projects in the SPP an agreement or disagreement with the formulation, in case of text formulations the author of the text is not present and therefore cannot make this decision about the formulation. This role has to be taken by the other participant in the dialogic reading context, who may assess in the SPP whether the text formulation is a proper rendering of the textual information. The assessment then is based on the reading-out-loud of the text. If there is an agreement with the formulation, a shared understanding of the text and its relevance is established. This may also be the starting point of a further discussion about the content, and its relationship with their research questions. This is demonstrated in the following excerpt, where Petra and Bente search for information on the origin of the human kind. They are sitting on the ground with a large book with text and pictures. Note that the reading aloud is marked in bold print in all transcripts:

Excerpt 1. 'apes', grade 2–3

- 27 Bente: **je lichaam lijkt op dat van één aap. dat komt**
your body looks like an ape. that's
- 28 **omdat de mens uit één aap gegroeid is. de w we**
because the human grew from an ape. the w we
- 29 **werden achter de anders we gingen steeds**
became behind the otherwise we walked more and
- 30 **rechterop lopen, omdat eh omdat we h- hele**
more upright, because eh because we have v-
- 31 **goede hersenen hebben kunnen we praten en**
very good brains we can talk and
- 32 **geschreeuwd schap (0,5)<gebruiken>**
<use> intruements (0.5)
- 33 **om dingen te maken.**
to make things,
- 34 *((Bente sits straight up, Petra bends over))*
- 35 Petra: **oké ehm te maken (1) #oké ze zijner neigenlijk**
okay ehm to make (1) #okay they are n actually
- 36 ***#((sits upright))***
- 37 **(0.5) jaa okee**
(0.5) yess okay

- 38 Bente: steeds rechtop lopen
 → *walk more and more upright*
- 39 Petra: ja: maar hoe zijn die ↑a:pen dan ontstaan
ye:s but then where did the ↑a:pes come from
- 40 *((moves hands))*
- 41 uit kleine beestjes bijvoorbeeld,
from little animals for example,
- 42 Bente: *ja: .
 *ye:s.
- 43 **((nodds))*
- 44 Petra: hoe zijn die=
 where did the=
- 45 Bente: =of uit god. (.) alleen ik geloof niet in god.
 =or from god. (.) i just don't believe in god.
- 46 Petra: en hoe zijn de kleine ↑beestjes dan ontstaa:n?
and where did the little ↑animals come fro:m?
- 47 Bente: die komen gewoon uit een plantje, (0.5)
they come from a plant, (0.5)
- 48 dat kan.
that's possible.

Bente is reading aloud (lines 27–33). After she has finished reading – also marked by her embodied action (line 34) – Petra gives a first response to the text (line 35) by saying “okay ehm”, followed by repeating the last words of the reading-out-loud (“to make”) and an utterance in which she starts to appropriate the information (“okay they are n actually”). This marks the transition from the reading action to the discussion. Bente shifts now from animator of the text to another footing, which allows her to demonstrate her understanding by proposing particular information from the text as relevant, namely “walk more and more upright” (line 38). This text formulation (in the transcripts marked with →) may be characterized as a *gist*, because it selects and demonstrates what, according to Bente, is the most relevant information of both the text and the illustration, regarding their inquiry question: “Where did the human being come from?” In this respect, we observe a focus shift from the original inquiry question to the specific question of the transition from ape to human. In line 39 Petra then represents the *principal* role (Goffman 1981) when she agrees with the text formulation (“ye:s”); she takes the role of the creator of the text content. This agreement also functions as an opportunity for a topic shift in the discussion, because the previous topic was finished satisfactorily. Thus, such an adjacency pair for formulation-decision functions as a connection between the reading of the text and a discussion that goes beyond the literal text content.

A discussion may start with a critical comment on the information from the text, such as a question, a remark, a nuance, a contradiction. In Excerpt 1, after agreeing with the formulation, Petra shifts away from representing the text within one turn and brings up a critical question (“but then where did the apes come from?”, line 39), which may have been triggered by the text formulation. Although the critical response follows the formulation, it does not question the text formulation itself in terms of comprehension (she already agreed with it), but it questions the relevance of the information from the text for answering the research question. The follow-up of agreement and question demonstrates that she understands the information, but also that she wants to know more, because apparently the text does not answer the inquiry question sufficiently.

What follows is a short discussion in which Petra and Bente exchange ideas about the origin of the apes. Petra starts with giving a hypothetical answer to her own question (line 41): “from little animals for example”. Bente reacts with “Yes:” to confirm the hypothesis. For Petra this is a sign to ask a new question, which she starts in line 44. But she is interrupted by Bente, who proposes another hypothesis (“or from god”) – maybe stimulated by the “for example” (line 41) – which gives Bente the opportunity to also formulate a hypothesis. But she immediately rejects this possibility with an argument (“I just don’t believe in god”, line 45). Then Petra proposes her follow-up question again (line 46), and Bente answers with a new hypothesis that she considers plausible (“that’s possible”, line 48). Summarizing, the text formulation sequence that established the shared understanding of the information, is the starting point for the children to collaboratively discuss different theories about the origin of the human being and ‘invent’ the evolution theory in a nutshell.

4.1.2 Negotiation about a text formulation

Sometimes the other participant does not immediately agree with the text formulation. Then more interactional work needs to be done on establishing a shared understanding, before a discussion on the implications may start. In Excerpt 2, three girls are doing their inquiry about the history of gymnastics, and they are reading a text on the Internet:

Excerpt 2. ‘gymnastics’, grade 3–4

- 47 Elisa: *al meer dan drieduizend jaar geleden, werd er
even more than three thousand years ago, in the*
- 48 *in het oude Egy Egypte en later ook bij de Grieken
old Egy Egypte and later also at the Greeks and*
- 49 *en de Romeinen een soort gymnastiek beoefend.
the Romans a sort of gymnastics was practiced.*

- 50 toen het rom romeinse rijk ver (.) ver dween
 when the Rom Roman empire dis (.) dis apeared
- 51 verdween ook de gymnastiek, () werd het alleen
 disapeared also the gymnastics, () it was
- 52 nog maar (.) door acrobaten beoefend. in het begin
 only practiced by acrobats. in the beginning
- 53 van de negentiende eeuw maakte Fee Jahn en Pee Ling
 of the nineteenth century Fee Jahn and Pee Ling
- 54 het turnen weer bekend. dat dè dedden ze door
 made gymnastics known again. they dy dyd that by
- 55 nieuwe (.) manieren te doen om gymnastiek uit te
 doing new (.) ways to practice gymnastics.
- 56 voeren. deze oefeningen zijn de basis van het
 these excercises are the basis of the
- 57 moderne turnen.
 modern gymnastics.
- 58 (2.0)
- 59 driehonderd jaar geleden (1) °werd het gedaa:n,
 → *three hundred years ago (1) °it was do:ne,*
- 60 Nora: nee drieduizend.
 no three thousand.
- 61 (2.0)
- 62 drieduizend jaar geleden ()
- 63 Merel: *three thousand years ago ()*
- 64 Elisa: zullen we dan drieduizend jaar geleden gaan
 shall we then write down three thousand
- 65 opschrijven?
 years ago?
- 66 Merel: ()
- 67 Nora: () maar (.) wij moeten ook wel weten
 () *but (.) we do need to know*
- 68 hoe het ontstaan is
 how it originated
- 69 (1.5)
- 70 Elisa: door de Egyptenaren
 by the Egyptians
- 71 (1.0)
- 72 Nora: ja maar hoe precies
 yes but how exactly

After the reading-out-loud (lines 47–57) and a pause, Elisa is doing a gist formulation (FPP, line 59) of the text, about the period when gymnastics was already done (see lines 47–49). By doing this, she makes a selection of relevant information, which she partially paraphrases (“it was done”) and partially repeats, but wrongly (“three hundred years ago” instead of three thousand). She does not explicitly mention ‘gymnastics’ in her text formulation, but because all three girls know what they are talking about, she does not have to be explicit about this and an anaphoric reference (“it”) is sufficient.

Then in the SPP (line 60) Nora takes the position of representing the text’s principal and rejects the text formulation (“no”) and corrects the wrong information. This correction is then accepted by Merel when she repeats the correction “three thousand years ago (...)” (line 62). Also Elisa accepts the text formulation by proposing a next action, namely writing this information down. But Nora is not satisfied yet, and a short discussion follows, in which she refers to their inquiry question (“what is the origin of gymnastics?”), lines 67–68). Thus, before the discussion starts, first the formulation is negotiated. When they agree on it, and the shared understanding is established, the pupils can further discuss the implication of the information. In this case, the implication concerns the completeness of the information.

4.1.3 Access to the source text

During dialogic reading there are also situations in which pupils read individually (and silently), but we found formulations after this silent reading by one of the participants too. An important difference with the reading-out-loud situations concerns the *access* to the source of the text formulation, as demonstrated in Excerpt 3. When only one participant (the reader) has access to the text, the other interactant cannot take a *principal* footing while representing the text. Consequently, s/he cannot assess the formulation, and establishing a shared understanding is not obvious then.

In Excerpt 3 Bart is reading on his own a book about farm animals. Ilse is sitting next to him, doing her own writing work. They are working on their inquiry learning project on animals that live on the farm.

Excerpt 3. ‘cows’, grade 3–4

| | | | |
|----|-------|---|--------------------|
| 48 | | <i>((12))</i> <i>((Bart reads silently, Ilse writes, then Bart looks up))</i> | |
| 49 | Bart: | tj er zijn mteer dan (.) | #tee:n eh vijftien |
| | → | tj there are mto:ne eh fifteen | |
| 50 | | | #((looks at Ilse)) |

51 ##miljoen #melkkoeien.
 ##million #dairy cows.

52 ##((looks in book)) #((looks at Ilse))

53 Bart: (.) m↑eer, =
 (.) m↑ore, =

54 Ilse: #n:ou ↑en:.
 #so wh↑at:.

55 #((writes))

56 (9) ((Bart reads en Ilse writes))

57 Bart: een volwassene- een volwassene koe
 → a mature- a mature cow

58 (0.5)

59 Bart: ehm maakt wel #twee:
 ehm makes like #two:

60 #((raises two fingers))

61 ##hele volle emmers van
 ##very full buckets of

62 Ilse ##((looks up to Bart))

63 Bart #zulke eh: maat ongeveer=
 #such eh: size about=

64 #((marks size with hands))

65 Ilse: =een volwassen koe?
 =a mature cow?

66 Bart: helemaal vol. (0.5) volwassen koeien. s=-
 completely full. (0.5) mature cows. s=-

67 Ilse: #=één volwassen koe.
 #=one mature cow.

68 #((raises one finger))

69 Bart: ja. (.) twee van deze emmers,
 yes. (.) two such buckets,

70 ##maakt ie helemaal vol
 ##fills it completely

71 ##((bends over book))

72 Ilse: °ja-ehm:
 °yes-ehm:

73 ((Ilse starts writing))

After reading silently, Bart makes two text formulations in this excerpt. Firstly, in lines 49–51 he shares his discovery about the amount of dairy cows, by doing a text

formulation. Ilse ignores this formulation at first, when she continues writing, so Bart repeats a part of his formulation (“more”, line 53). Ilse then questions the relevance of the information that is formulated (“so what”, line 54). Thus she does not assess the formulation itself as a correct rendering of the text, but she assesses the information as being irrelevant. This implies that there is no need to further discuss it, and both continue their previous individual reading and writing activities.

After a while, Bart is doing a new formulation (lines 57–64) to share another interesting fact from the text, namely the amount of milk one mature cow produces a day. For Bart this fact seems to be very interesting: the formulation is constructed with some hand movements and extreme case markers (emphasis, words such as “very full” and “like two”), that indicate the exceptionality of the fact. Again, Ilse does not assess the formulation, but asks for clarification (line 65), maybe because she missed the first part of the formulation when she was still writing. Then a short negotiation about the formulation follows (lines 66–70), in which Bart reformulates parts of his formulation. The doubting agreement “yes ehm” (line 72) from Ilse may indicate that she heard the formulation, but because she has no access to the source text, she cannot shift footing to the text representation to accept the formulation. Thus, in these examples of formulations, there is no talk about implications of the text content. This is due to the context of silent reading, where the participant does not accept the formulation, because she did not read or hear the source text.

The next Excerpt (4) looks at what appears as a deviant case, because only one participant has access to the text. However, the very specific packaging of the text formulation has consequences for how it is treated. Meike reads a magazine article about space travel; her peer Ida is sitting across the table. The magazine is called ‘Kijk’, which is a science magazine for children.

Excerpt 4. ‘people on the moon’, grade 6

- 149 Meike: maar is dit ook w wel goed informatie,
but is this also g good information,
- 150 er staat dat er nog nooit iemand naar
 → *it says that there is no one that ever*
- 151 de maan is gewteest. (.) of dat ze hem ooit
went to the moon (.) or that they had never
- 152 echt vanaf daar hebben bekeken.=
really watched it from there.=
- 153 Ida: =er is nog-
=there is more-
- 154 er zijn al wel mensen naar
there have already been people

- 155 de: maan geweest hoor.
to the: moon.
- 156 Meike: oh, #maar er staat hier: iets anders,
oh, #but here: it says something else,
- 157 *#((bends over article, points in text))*
- 158 Ida: eh ja, maar je weet niet hoe oud de Kijk is
eh yes, but you don't know how old the Kijk is
- 159 (.) en er zijn al best wel veel mensen want=
(.) and there are already quite some people because=
- 160 Meike: =oh van maa:rt tweeduizendzestien
=oh from ma:rch two thousand sixteen
- 161 Ida: ja: alsnog kan [nog
yes: yet can [still
- 162 Meike: [hè: ik begrijp er niks van=
[heh: i don't get it at all=
- 163 Ida: =waarschijnlijk hebben ze het dan over
Ma:rs
=probably they talk about Ma:rs then
- 164 (.) want in negentiennogwat is eh: eh:
(.) because in nineteen something has eh: eh:
- 165 (.) Lance Armstrong al op de maan geland
(.) Lance Armstrong already landed on the moon
- 166 of Neil Armstrong of Armstrong nogwattes
(.)
or Neil Armstrong or Armstrong somethingy (.)
- 167 die is toen al op de maan geland, dus.
he had already landed on the moon, so.
- 168 *((looks at Meike, Meike looks at article))*

The context of the formulation and the assessment is in relevant aspects different from the earlier two examples: Meike's formulation (lines 149–152) is embedded in a critical question (“is this also good information”) about the correctness of the information she reports from the text. By doing this, she creates the opportunity for Ida to assess the formulation, without having direct access to the text. And in her response to the formulation (“there have already been people to the moon”, lines 154–155), Ida questions the formulation by sharing her contrary knowledge about

the presence of people on the moon. Meike then returns to the text and claims that the text makes a contradictory claim (line 156), namely that there never have been people on the moon. Instead of negotiating the formulation, in contrast to Excerpt 3, Meike and Ida discuss the source of the formulation (line 158) and its implications for the information value: if the text is too old, it may be written before there were people on the moon. When they discover that the text is from 2016 (line 160), Ida argues that the text probably talks about Mars instead of the moon using her own knowledge about Neil Armstrong (lines 163–167), and by doing this, she implicitly accepts the formulation, with the modification she just suggested.

Summarizing, in the process of reading, understanding and using text in dialogic reading, text formulation-decision pairs are used to establish shared understanding of the gist of text, before the pupils start discussing the information in relation to their reading goal (i.e., answering research questions). To reach shared understanding, a footing shift is accomplished, because the author of the text may be represented by one of the participants. Shared understanding seems necessary for further discussion about implications of the information and its relevance: if there is no immediate agreement about the formulation it must be negotiated and if the text is read individually shared understanding is not obvious.

4.2 Formulating upshots of a text fragment

Sometimes the pupils demonstrate that they understand a relevant part of the text by immediately formulating an *upshot* in relationship to the text fragment. By doing this they instantly go beyond the literal meaning of the piece of text and start a discussion about implications, conclusions and usability of the information.

Consider Excerpt 5, in which Bas and Fien are doing their research on how sluices work. At this moment they are reading a book about different kinds of sluices. Immediately prior to this, they were reading about how opening and closing sluice doors controls the water level.

Excerpt 5. ‘sluice heads’, grade 2–3

- 178 Bas: **maar er zijn ook sluizen die niets (.)**
but there are also sluices that have nothing (.)
- 179 Fien: **met schepen te (.) ma[ken hebben**
*with ships to (.) d[**o***
- 180 Bas: **[maken hebben**
[to do
- 181 (.)
- 182 Fien: **het kijk! een voorbeeld van oude sluishoofden**
hey↑ look! an example of old sluice heads

- 183 (.) oh! en dat is dus zo'n eh: sluis ((wijst))
 → (.) oh! and so that is such a: sluice ((points))
 184 (0.6)
 185 Bas: ja. dat is zo'n #blokding
 yes. that is such a #block thing
 #((points at picture))
 186 #((points at picture))
 187 (.)
 188 Fien: heut een blokding
 heut a block thing
 189 (.)
 190 Bas: maar er zijn verschillende soorten (.)
 but there are different kinds (.)
 191 #ik weet er ook een
 #*I also know one*
 192 #((closes book, points at cover picture))
 193 zo'n soort (.) deze is met zo'n deur
 such a kind (.) this one is with such a door
 194 #((points at cover picture))
 195 (0.4)
 196 Fien: oh dat is met zo'n #omhoog en omlaag
 oh that is with such a #up and down
 197 #((hands up and down))

In lines 183–185, we observe a formulation-decision pair, again in the position between reading action and discussion of text. This text formulation is an *upshot*, because it is a conclusion on the type of sluice, which is drawn by connecting information from the text and the picture with Fien's previous knowledge. It is 'creating additional significance' (Heritage and Watson 1979) to the information from the book, because she makes a comparison between the book and what she already knows about a specific type of sluice.

This excerpt also demonstrates an interesting characteristic of text formulations, namely that a formulation may concern a combination of text and an image. This reflects an aspect of the reading process in which a reader uses other sources, such as images or prior knowledge, to comprehend and interpret text. In the SPP, this is first confirmed by Bas ("yes", line 185) and then he immediately elaborates on the subject when he is referring to "such a block thing", which is an upshot as well. Thus, it is not the shared understanding of the text itself that is established in the formulation-decision pair, but an implication of it, namely that the sluice on the picture is a certain type of sluice that is mentioned before. The use of "such" (lines 183, 185) is interesting, which indicates a comparative reference to prior

knowledge: what they see in the picture looks like a sluice they just read about, therefore they can refer with ‘such’. Thus, the formulation sequence functions as a starting point for a discussion (lines 190–197) between the peers again, in which they elaborate subsequently on the characteristics of the sluice, probably using their prior knowledge about different types of sluices.

In the next Excerpt (6) an explicit connection is made between the text, a picture and prior knowledge from the readers, by referring to a person (Hilde) who both participants are supposed to know. Moreover, this excerpt demonstrates that not only the reader of the text can do a formulation, but the other participant as well, if the read-out-loud text is available to both participants. In this case the reader assesses the formulation in the SPP. Here we observe Fien and Bas again, a few days after the dialog in Excerpt 5. They are still working on their research on sluices and now they read a chapter titled ‘The sluice keeper’.¹

Excerpt 6. ‘sluice keeper’, grade 2–3

- 3 Bas: hij wie (.) de (.) sluis in mag of wie nog
he who (.) may (.) enter the sluice or who has
 4 *even moet wachten.*
to wait a while.
 5 Fien: nou (.) nou Hilde is dus eigenlijk ook
 → *well (.) well Hilde is actually also*
 6 *een sluiswachter hè?*
a sluice keeper huh?
 7 Bas: ja
yes
 8 Fien: hij zij uh die uh die bestuurt ook met
he she uh they uh control also with
 9 *#die*
#that
 10 *#((points*
at picture))
 11 *met zulke naja niet zulke computers*
with such wellyeah not such computers
 12 Bas: *andere moderne*
others more modern



¹ Picture retrieved from Van der Maten and Nobel (2000).

- 13 Fien: ja
 yes
 14 (0.5)
 15 Bas: maar uh (.) ik denk dit is ook een groter hokkie
 but uh (.) i think this is also a bigger office

After the reading-out-loud by Bas (lines 3–4), Fien concludes in a FPP of a formulation-decision pair that “Hilde is also actually a sluice keeper” (lines 5–6). In this upshot text formulation she combines the information from the text (“he [decides?] who may enter the sluice and who has to wait”) and the topic of the chapter with her own knowledge from a previous visit to a sluice, where they met Hilde, who told them about her work at the sluice.

Interestingly, Bas’s confirmation of the upshot formulation in the SPP (line 7) does not confirm whether it correctly represents the information from the text, but it confirms whether it is a valuable implication. Thus Bas not only represents the text, but also his own perspective on this *upshot* text formulation. Once the implication is agreed on by both pupils, Fien starts a discussion by elaborating on the subject, and she compares the information from the text and the picture with their experience at the sluice of Hilde. Bas confirms her observation about the type of computers by specifying the characteristics of the computers (“others more modern”, line 12). After Fien’s confirmation (line 13), Bas introduces another comparison, about the size of the office. The upshot formulation in which a similarity with their own experience is expressed, makes the information from the text a relevant topic to talk about. Thus, upshot text formulations are not only used to demonstrate understanding of text and its implication, they also indicate a direction for further discussion.

5 Discussion and conclusions

This paper has introduced the concept of *text formulations* as a specific type of formulations, in the sense that they are used to formulate the gist or upshot of text that has been read during interaction. In dialogic reading during inquiry learning, text formulation-decision adjacency pairs (Heritage and Watson 1979) perform the function of connecting text and discussion about implications of the text for answering the pupils’ research questions. More specifically, they are used to establish shared understanding of text and focus the discussion on what the participants find relevant information to further talk about. Thus they have a topic-organizational function in the interaction (Barnes 2007), as was also observed by Heritage (1985) for conversational formulations in the context of news interviews. By use of formulations, the pupils make

selections (Pulles et al. 2020) of what they consider to be relevant in the text fragments and are demonstrating in that practice their understanding of these text fragments.

In our study, two practices of demonstrating understanding of text are found, namely (1) demonstrating literal comprehension of a text fragment by formulating the gist of the text, and (2) demonstrating how the text contributes to the reading goal, by formulating an implication of the text. These different types of demonstrating understanding parallel the two types of conversational formulations, *gist* and *upshot*, that were discerned by Heritage and Watson (1979). In both types, there must be a shared agreement on the formulation before further discussion is done, but what the agreement entails depends on the text formulation type. In the case of a gist formulation, the agreement concerns whether the text formulation sufficiently represents the text fragment and in the case of an upshot formulation, the agreement concerns the implication.

Shared understanding of a text fragment may be accomplished when both participants have *access* to the source text, as we demonstrated in this paper. Enfield (2011) states that referring to the access to a source is a way of demonstrating how the knowledge is obtained and therefore reliable, because having access to a source is a valid ground for the knowledge and therefore for demonstrating it. To accomplish shared understanding, both participants need access to the text.

Finally, when we view our results from an educational perspective, our findings enhance our understanding of how the pupils in the primary school setting collaboratively use text to build new knowledge and, in this process, how meaning and understanding of text is shaped in interaction (Maybin and Moss 1993). Generally, the use of text formulations during shared text processing may contribute to pupils' reading development, because it seems to facilitate the step of questioning the text and taking a more *critical stance* (McLaughlin and DeVogd 2004) towards the information. Reading with a critical stance means that readers use their prior knowledge "to understand relationships between their ideas and the ideas presented by the author of a text" (p. 53). It is likely that the possibility to shift footing may facilitate this, because when one represents the text instead of one's own perspective, it may be easier to be critical to the other. Modern curricula, for example in the Netherlands, emphasize the need for pupils to become critical readers and take this critical stance while reading. We showed how, in dialogic reading settings, demonstrations of text comprehension and their uptake contribute to a more critical stance towards a text. In a follow-up study on dialogic reading, we will address the question of how this critical stance may also contribute to the process of knowledge building.

Appendix Transcription key, based on Jefferson (2004)

| | |
|-------------|--|
| text | printed text that is read aloud |
| [text | overlapping speech |
| # / ## | overlapping embodied action with an ongoing silence or utterance |
| = | break and subsequent continuation of contiguous utterances |
| (0.4) | pause (seconds) |
| (.) | micro pause (< 0.2 s) |
| . | falling intonation |
| , | continuing intonation |
| ? | rising intonation |
| ! | animated tone |
| ↑ | marked rising shift in intonation |
| ° | softer than surrounding talk |
| <u>text</u> | emphasis |
| : | extension of the sound (0.2 s for every colon) |
| <text> | slower than surrounding talk |
| () | inaudible talk |
| ((text)) | description of non-verbal actions |

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