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Rebecca G. Schär
Università della Svizzera Italiana

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REBECCA G. SCHÄR

Institute of Argumentation, Linguistics and Semiotics
Università della Svizzera Italiana
Via G. Buffi 13, CH-6904 Lugano
Switzerland
rebecca.schaer@usi.ch

Abstract: Studies focusing on argumentation in less formal contexts (e.g. the family) show that if children are given room to pursue their lines of thought, they often produce sophisticated spontaneous argumentation. In this paper I consider *arguments from definition* introduced by children as a case in point of spontaneous argumentation. To do so, I analyze data, in which small children under the age of six years, discuss with adults and with peers.

Keywords: adult-children interaction, definition, issue, property, small children, spontaneous argumentation

1. Introduction

In the field of argumentation and education there seems to be disagreement on whether small children independent of their stage of development are able to discuss and give arguments for their standpoints (Danish & Enyedy 2015, Stein & Bernas 1999, Pontecorvo & Arcidiacono 2010, Völzing 1982) or whether the ability of resolving a dispute in a reasonable way, thus by using argumentative discourse is something that needs to be taught and only gradually develops from childhood to adulthood (Felton & Kuhn 2001, Kuhn 1991, Kuhn & Udell 2003, Golder 1996). Studies in less formal contexts were able to show that children can produce sophisticated argumentation, if they are given the necessary room to do so. For example, Arcidiacono and Bova (2013) as in their study of family conversations at the dinner table, have found positive cases of children's argumentation. Danish and Enyedy (2015) show a case, where a group of kindergarten and primary school children in "an open solution space" (Danish & Enyedy 2015, p. 17) spontaneously start discussing on representations they have built in a science class, thereby benefiting from the fact that the setting allows for more than one final answer.

In this paper, I have explicitly put the focus on a single case (Jackson 1986, Jacobs 1986). It is a critical case (Flyvbjerg 2001, p. 74) as it shows how children may make use of argumentation from definition. Thus, in the present paper, I am departing from such a case, where small children (under the age of six years) spontaneously argue with peers or with an adult person. By doing so, I not only would like to show that even small children may be good arguers, but by making the children's reasoning explicit, I would like to show the sophistication of the children's reasoning underlying their argumentation.

This paper has been developed within a research project funded by the Swiss National Science Foundation on children's implicit argumentation.[1] This project, which is carried out by the Institute of Psychology and Education of the University of Neuchâtel and the Institute of Argumentation, Linguistics and Semiotics of the Università della Svizzera Italiana in Lugano, aims at studying spontaneous argumentation processes, in which small children are involved. In order to be able to describe and understand the children's arguments, the project focuses on what is left

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implicit in the arguments of the children and the adults discussing with them. The project thereby wants to contribute to a resolution of the above described disagreement on whether small children are able to put forward a standpoint and support it with arguments. In order to do so, the project works with data from three different settings, among them the "revised-Piagetian" discussions that have been recorded in kindergarten and schools for research in psychology (Perret-Clermont 1979).

The case reported here is taken from such a "revised-Piagetian task," that is to say, from a semi-structured setting, where children in a school setting spontaneously start discussions, while they are solving a task given to them by an adult. I will present two excerpts of a longer conversation, in which two children and an adult experimenter are involved. By choosing an example that occurred in a semi-structured setting, such as the "revised-Piagetian discussion" is, I not only want to show that small children are able to support their standpoints with arguments, but that they are able to do so in a context that does not *a priori* give them a lot of room for spontaneous discussion. This is so, since the adult experimenter has an agenda of *issues* to discuss with the children and hence does not explicitly leave room for spontaneous discussions. Nevertheless, the children are able to start their own lines of argument. Within this argumentative discussion, I am focusing in particular on the children's use of the argument from definition. I could identify two different situations, in which the children make use of this locus: on the one hand, the children spontaneously set out the *issue* of the discussion and support their standpoint by arguments from definition. On the other hand, the *issue* of the discussion is given by an adult and the children make use of arguments from definition in order to contest or refute the arguments from the adult discussant.

2. Theoretical framework

The aim of this paper is to analyze spontaneous argumentation produced by children in a pre-structured setting. In order to do so, I will combine two theoretical approaches. I will make use of the pragma-dialectical approach to argumentation (van Eemeren & Grootendorst 1984, 2004) in order to reconstruct the argumentative discussion. My focus will lie on the *confrontation stage*, where the existence of a difference of opinion becomes evident, that is to say the point in the discussion, when a new *issue* (spontaneously) emerges. I will analyze the types of disputes the children engaged in, adopting the pragma-dialectical differentiation between single (one proposition is put to doubt) and multiple disputes (multiple propositions are discussed); and mixed (discussions on two standpoints) and non-mixed disputes (discussions on one standpoint) (van Eemeren & Grootendorst 1992, p. 17). By using the *analytic overview* (van Eemeren et al. 1992, pp. 93-95), I will be able to represent the standpoints and the arguments supporting them, thus including the premises that are made explicit by the discussants and leaving out non argumentative parts of the discussion. In order to analyze some moves of the *argumentation stage* of a critical discussion, that is, the part, where "arguments in support or against a standpoint are advanced and critically tested" (van Eemeren & Grootendorst 2004, p. 60), I will make use of the Argumentum Model of Topics (henceforth: AMT) (Rigotti & Greco Morasso 2009). The AMT model is a tool for the analysis of the inferential mechanisms that lie at the basis of an argumentative move. It combines two syllogisms: a procedural and a material one. The model allows for insights into the implicit reasoning of an arguer on formal, as well as on cultural premises. By applying this model, we will be able to reconstruct the implicit reasoning of the children, and thereby better understand why a specific argument is given to support the analyzed standpoint. The model will furthermore

enable us to reveal possible misalignments that occur in the discussion caused by the different points of departure of children's and adult's reasoning. The procedural part, on the one hand, allows for the logical reconstruction of an argumentative move. A locus, that is the principle of support (Garssen 2001) between a standpoint and the argument, is connected to a minor premise through an inferential connection that is called maxim. The material part, on the other hand, is made of cultural concepts that are generally shared between the discussants. The reasoning in this component is represented by two premises: an *endoxon* that is a culturally shared concept and the *datum*, i.e. the facts that are present in the discussion. However, the analysis of argumentative moves show that it is often the *endoxon* that the children and adult do not share in the moment of the discussion. The analyses in section 4 will show one case, in which the *endoxon* is not shared between a child and an adult and another case, where the two children do not share the same *datum*, i.e. they interpret the facts of the situation differently (Greco Morasso & Morasso 2014).

The conjoint use of the Pragma-dialectical Model of a critical discussion and the Argumentum Model of Topics has been applied before on other occasions, (see for instance Perret-Clermont et al. 2015, Greco Morasso 2011) and explained in detail in Palmieri 2014.

2.1. Definition in the literature

The argumentative discussions I am focusing on here, make use of the locus from definition. This means that the reasoning of the analyzed argumentation moves, is based on a definition. The locus from definition has already been described by ancient and medieval rhetoricians such as Aristotle, Cicero, Boethius and Peter of Spain and in modern times has been treated among others by Hastings (1963), Macagno (2008) and Walton & Macagno (2009, 2010). In what follows, I will give a short overview on the development and the treatment of the locus of definition in the ancient traditions and briefly mention some of the more recent contributions to this topic. Please note, that this overview is only a snapshot of the work on the locus from definition and does not intend to be complete.

Aristotle was the first scholar who worked on definition. Definition is one of the five predicables, that is, relations between a predicate and a subject. As such, for Aristotle, every definition consists of a genus and a *differentia* that specifies the genus. Thus, a definition should represent the essence of the defined object. The goal of a definition is to make the defined object more known to the addressees. Therefore, the terms and concepts used in the definition itself need to be intelligible to the addressees (Wagner & Rapp 2004, Tredennick & Forster 1960, Ross 1958). In the fourth book of his Topica, Aristotle classifies the things according to their species under a certain genus. Walton and Macagno define the genus-species relation as "stating the semantic features which distinguish an entity from the others within the same class" (Walton & Macagno 2010, p. 41). However Aristotle's classification englobes more than genus and species. The classification includes three levels: the genus, the species and the individual. The genus is the superordinate entity followed by the species and the individual: "For the individuals also partake of the genus and of the species;" (Tredennick & Forster 1960, p. 427). As an example of this three-levelled hierarchy, Aristotle states that an individual person is part of both the species 'human' and the genus 'animated being' (Wagner & Rapp 2004, p. 119). Aristotle furthermore claims that what is said of the genus is automatically true for the species and the individuals. The reverse, however, is not true, since only the species and the individual can be part of a genus, a genus, however, cannot be part of a species or an individual. Thus he states that if a genus is stated in the

category of a thing, this statement comprehends all the characteristics of all the other (sub- or superordinate) levels as well:

> For, if one genus is predicated in the category of essence, all of them, both higher and lower than this one, if they *are* predicated of the species, will be predicated in the category of essence; so that the genus assigned is also predicated in the category of essence. The fact that, if one genus is predicated in the category of essence, all the rest, if they *are* predicated, will be predicated in the category of essence, must be obtained by induction. (Tredennick & Forster 1960, p. 431, emphasis in the original)

The fifth book of Aristotle's Topica is devoted to the property. Aristotle identifies the property *(gr. ἴδιον, lat. proprium)* as one of the five predicables. Although not directly connected to definition in an Aristotelian sense, property might be useful to identify a given thing within a set of things. A property is exclusive and designates a kernel of a thing, therefore going under the main label of 'definition'. It consists of the name of the thing and the description of it. Aristotle presents different kinds of properties: *relative properties*, *properties that inhere to entities as such* and *permanent properties* that are inherent to a thing. In this article, I am mostly interested in the latter. Aristotle gives the following examples for permanent / temporary properties: a permanent property of God is that He is an immortal living being, whereas a temporary property of a man would be to walk in a gymnasium (Wagner & Rapp 2004, p. 145). In order to verify if something is a property, Aristotle proposes to observe the relation between the name and the description of the thing:

> In the constructive argument, the object is to see whether the description (given in the property) also is predicated of that of which the name (of the subject) is predicated and whether the name also is predicated of that of which the description is predicated. (Tredennick & Forster 1960, p. 509)

The sixth book of the *Topica* is devoted to topoi that involve definitions, listing five principle requirements for a definition to be valid (Rigotti & Greco, in preparation). For reasons of space these cannot be treated in detail here.

Boethius has not only translated Aristotle's *Topica* to Latin, but with his work *De topicis differentiis*, he has contributed to the further development of Aristotle's and Cicero's work. So, he has also worked on inferential connections, being in straight connection with the Aristotelian predicables. He gives a list of inferential connections, specifying among others, the relation between the definition and the other predicables (genus, property and accident). Boethius combines the works of Aristotle and Cicero on this matter and further develops them. His classification of loci, unlike Aristotle's is based on the topical differences. He proposes the classes of intrinsic, extrinsic and middle loci and, in accordance with Cicero, he classifies the locus from definition as an intrinsic locus (Boethii 1847, Stump 1978).

Peter of Spain has coined the term of *habitudo*, describing an ontological relation between two poles, where the contrariness between the two poles can give origin to arguments. He interprets the loci as habitudes that generate inferences (Rigotti & Greco, in preparation). Peter of Spain names the loci according to that part of the *habitudo* from which the inference can be drawn and therefore distinguishes between two loci for every concept. In the case of the definition, he

distinguishes between the "locus from definition" and "the locus from the defined". He describes the locus from definition as the relation between the definition and the defined, whereas the locus from the defined would be the relation between the defined and the definition (Bochenski 1947). Together with the locus from description and the locus from interpretation, Peter of Spain classifies the loci from definition under the category of "loci from substance". Within this class, he contrasts the pairs of loci among them. In order to illustrate the comparison between the types of loci from substance one can use the *habitudo* as a metaphor: The loci from definition can be situated on one pole of the category "loci from substance" whereas the loci from description can be situated on the opposing pole of this category. This is so, since the loci from definition take into account the essence of the thing described, whereas the loci from description work with "accidental traits" of the thing (Rigotti & Greco in preparation).

In more modern times Hastings discusses in his typology of argument schemes (Hastings 1963), among others, the argument from definition to characteristics, a reasoning starting from the definition, as well as the argument from criteria to a verbal classification. The aim of the latter is to prove that a description or label is correctly attributed to an aspect of reality (Hastings 1963). In contemporary argumentation science, Macagno (e.g. 2008, 2010) and Walton & Macagno (2010) have worked on definition in argumentation, further developing certain concepts such as Hasting's argument from criteria to verbal classification. In Pragma-Dialectics the locus from definition is not explicitly treated. However, it can be classified as symptomatic argumentation (van Eemeren et al. 2007, p. 154).

As can be inferred from this short overview, scholars have identified many different sub-classes of the locus from definition. For reasons of space, I have limited the discussion to the sub-classes that have been identified in the analysis. The Argumentum Model of Topics (Rigotti & Greco Morasso 2009, Rigotti & Greco 2010) applied in this paper, in order to explicit the implicit premises of the children's arguments is partly based on the contributions of some of the above discussed authors.

3. Corpus

The data considered in this paper stems from a very large corpus that has been collected over the last 30 years at the Institute of Psychology and Education at the University of Neuchâtel in Switzerland.[2] The corpus consists of situations, in which an adult experimenter (psychologist) aims at testing the developmental level on certain cognitive concepts, such as the conservation of quantities of liquids (i.e. whether the children realize that the amount of liquid remains unchanged even if it looks more in a long and thin container and less in a bowl like container). These kind of tasks, originally used to study the children's conceptual reasoning (Piaget 1926/2003) have a long tradition in psychological research (Perret-Clermont 1979). The research group at the University of Neuchâtel has adapted the Piagetian task, in order to allow for peer-to-peer interactions since this "under certain circumstances can favor reasoning and argumentation, in particular when partners experience 'socio-cognitive conflicts' i.e. the confrontation *hic et nunc* of different conflicting points of view that they feel the need to overcome." (Perret-Clermont et al. 2015, p. 138, emphasis in the original). At the same time, the altered task is supposed to lead the focus away from the asymmetrical adult-child relation. The adult experimenter who is pursuing his goal

to assess the developmental level of a cognitive concept, asks the children to perform a certain task and comment on it. Thus, within this activity, the adult experimenter has in mind a precise agenda of *issues* to discuss with the children. Nevertheless, while performing the task and discussing their opinions with the adult experimenter and peers, it occurs that children spontaneously set up *sub-issues*. These may be more or less directly related to the *issues* proposed by the adult.

The discussion chosen for this paper, takes place in an angle of the children's school. The data has been collected in an English school and both the children were five years old at the time of the data collection in October 2009. In order to participate in the task, they are separated from their fellows and brought to a table, where the tasks are set to take place. Thus the context of the interaction is very particular. There are many components that make the situation differ from 'usual' school situation in the eyes of the children: The children are not familiar to the adult experimenter person, the less so they are aware or do understand the goal of the task. This leads to unexpected subjects of discussion from an adult experimenter's perspective. That is to say, the context has an influence on the behavior and actions of the children (Perret-Clermont 2006, Rigotti & Rocci 2006) and at the same time, the actions and argumentation of the children may alter the context in the sense that they change the expected course of a discussion (Perret-Clermont 2001, p. 71). This might happen to a greater or lesser extent, depending on how much space the adult gives to the children's spontaneous *issues* and arguments. The activity type (Levinson 1979, Rigotti & Rocci 2006, van Eemeren 2010) that I can detect in these situations is shaped by the perception of the participants. On the one hand, from the perspective of the adult experimenter, the activity type arises from a research-oriented goal, i.e. the observation of cognitive concepts in small children. Thus in the present situation, the activity type could be labelled as 'discussion on the concept of conservation of the quantities of liquid.' On the other hand, from the perspective of the children, I can imagine the activity type to be very vague. As described above, the children do not know about the goal of the adult experimenter. They may perceive it as a game, where they are guided by an adult person or as a kind of 'test.' In the present situation, the children behave in a way that gives rise to the impression that they do not know how to classify this activity. Whenever the adult experimenter takes another object, they start discussing on it, in order to explore the use of the object and the whole situation.

4. Analysis

4.1. Example 1: the giraffe

In what follows, I will analyze two situations, in which the children make use of the locus from definition. In the first situation, the children spontaneously go over the *issue* proposed by the adult and initiate a sub discussion on an *issue* they proposed themselves. This discussion precedes the test of the conservation of liquids. The adult experimenter introduces the task to the children, with the help of a soft toy giraffe. The children are told a story that involves the giraffe and her soft toy friends. By doing so, the asymmetrical relation between the children and the adult experimenter is reduced. The children get room to freely express their standpoint and support it, by answering to the soft toy or to the adult experimenter (Greco Morasso et al. 2015).

At the moment the analyzed extract takes place, the conversation between the two children Andrew[3] (5:10 years) and Ben[2] (5:7 years) and the adult experimenter has been going on for nine minutes. The adult experimenter is now introducing the soft toy giraffe to the children (see above).

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[3] The children's names have been changed for reasons of privacy.

Please note, that the children are seated on an edge of a hexagonal table, while the adult experimenter is seated in front of Andrew and to the right hand side of Ben. This is an important fact, since it means that the perspective the children have on all the objects used for the task differ. The transcription was based on a slightly modified version of Traverso (1999). A legend describing the used transcriptions signs can be found in the Appendix.

Table 1. Excerpt 1: Participants: Andrew (5:7 years), Ben (5:10 years), adult experimenter

Turn	Speaker	Transcript
1	Exp.	[…] we put the monkey there and then this is↑
2	Ben	[a giraffe
3	Andrew	[a giraffe
4	Exp.	a giraffe yah
5	Ben	((raising both hands)) it's got a long neck
6	Exp.	yah alright
7	Andrew	that hasn't actually a long neck it's a little neck
8	Exp.	you're right is not the longest neck [t t the longest neck
9	Andrew	[((shakes his head))
10	Exp.	for a giraffe [I've ever seen is it no
11	Andrew	[((shakes his head))
12	Exp.	you're absolutely right ahm I think it could be a bit longer
13	Andrew	((nods his head))
14	Exp.	[but it's still a giraffe
15	Andrew	[((nods his head))
16	Exp.	just maybe it is a junior giraffe
17	Andrew	((nods his head))

In turn 5 Ben, by giving an argument in favor of his standpoint *"(this is) a giraffe"* (turn 2), spontaneously introduces the implicit *issue "is this a giraffe?"*. This *issue* is further pursued by Andrew, who in turn 7 shows his disagreement by giving a counterargument *"that hasn't actually a long neck it's a little neck"*. The adult experimenter in turns 8, 10, 12, 14 and 16 reframes the discussion, when she tries to mediate between the two opposing standpoints of the children. On the one hand, she admits that she has seen giraffes with longer necks and on the other hand, she suggests that the soft toy giraffe may be a junior member of the species. Knowing about the design and the goal of the task, I am able to suggest that the aim of her move is to reconcile the children in order to proceed with the original task on the conservation of liquids. With the help of a slightly modified version of the *analytic overview*, this single mixed-dispute (van Eemeren 1992) can be represented as follows:

Table 2. Analytic overview of excerpt 1

Issue (introduced by the children): *Is this a giraffe?*

Standpoint 1   **Standpoint 2**
Ben   1 Yes   Andrew   2 (No)[4]

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[4]Whether this is an example of a mixed or a non-mixed dispute could be discussed. However, since the adult experimenter in turn 8 accepts Andrew's standpoint, we consider it as a mixed- dispute.

Argument			**Argument**		
Ben	1.1 it's got a long neck		Andrew	2.1 it hasn't actually a long neck it's a little
T. 5			T. 7	neck	

The representation of the argument structure makes it evident that the discussion is taking place between the two children. Each of the children gives a single argument (Snoeck Henkemans 1997) to support its standpoint. Note that Andrew's standpoint remains implicit in the discussion. The moves the adult experimenter makes in turns 8, 10, 12, 14 and 16 are not part of the difference of opinion on the *issue "Is this a giraffe?"*. Even though one could suggest, considering each of the turns of the adult experimenter (see above) in an isolated way that she is giving an argument in favor of each of the two opposing standpoints. Such a consideration, however, would lead to the conclusion that the adult experimenter has no clear opinion on the *issue*, as the two arguments she puts forward are opposing each other. Therefore, I interpret the adult experimenter's moves as having a mediating factor between the two opposing standpoints of the children.

In order to understand the reasoning of the children I can analyze this difference of opinion by means of the so called y- structure of the AMT:
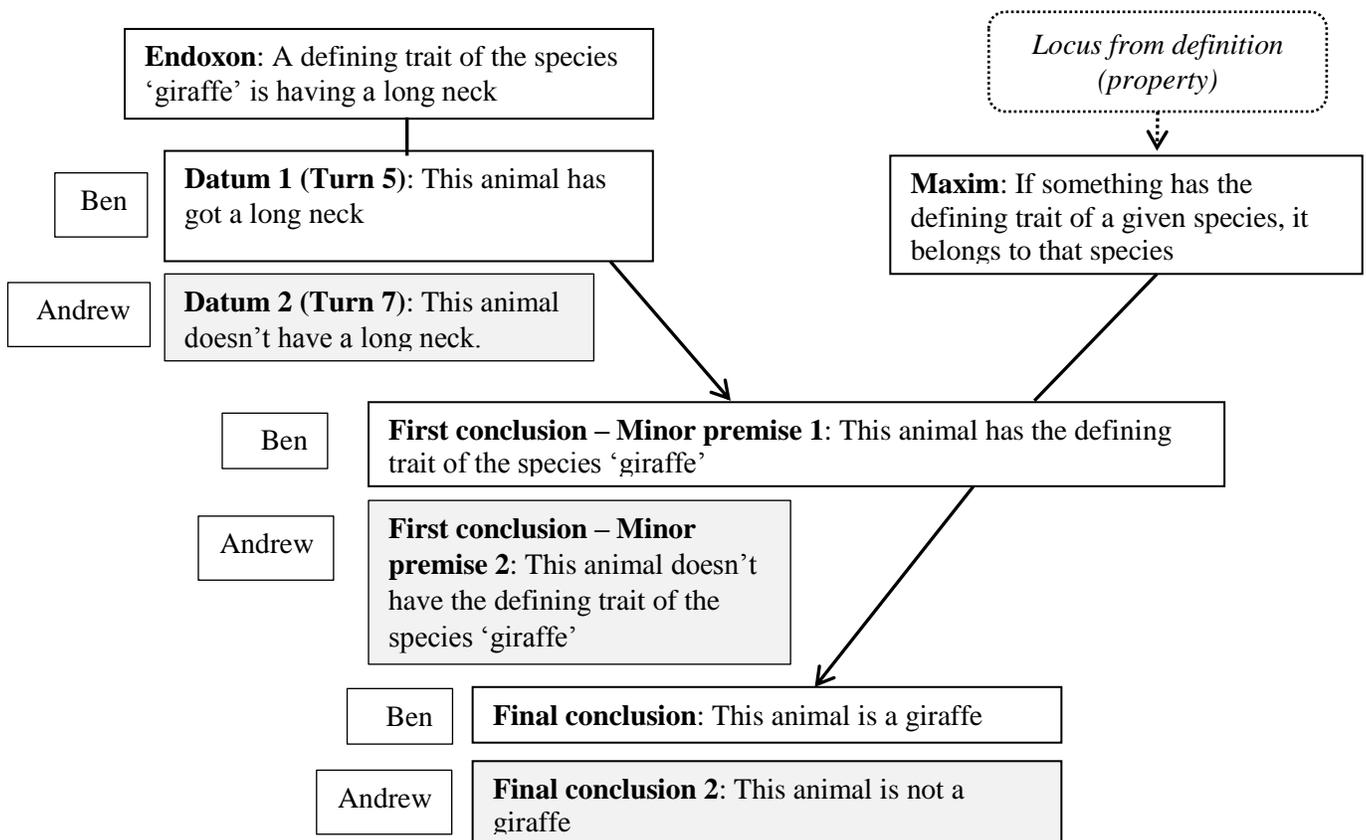

Figure 1: AMT representation Argument 1.1 of Situation 1

In this y- structure (Figure 1), I combined the argument of Ben and of Andrew in order to show what aspects they have in common and where they differ. Two of the components of the AMT y-structure can be directly linked to statements made in the discussion: The *final conclusion*

given by Ben, corresponds to Ben's standpoint in turn 2 of the transcript. The *datum*, is based on the facts present in the situation of the discussion and coincides with the argument Ben gives in turn 5 of the transcript in order to support this standpoint. The syllogism on the left hand side of the y-structure represents the material premises. The *endoxon* is a culturally shared premise that is substantiated by the facts (*datum*). The outcome of this reasoning is the first conclusion. On the right hand side of the y-structure, in the logical syllogism, one finds the *locus* – in this case a *locus from definition* – that designates the ontological relation between the argument and the standpoint. The *maxim* is the inferential connection between the *locus* and the *final conclusion*. By combining these two syllogisms, one is able to get insights into the reasoning process of the arguer. Ben pursues the reasoning that the soft toy animal shown by the adult experimenter is a giraffe. He therefore starts his reasoning from a maxim that takes the defining trait of a species into account. Arguably, according to what children in the western world are taught, when they get to know various animals, the defining trait of a giraffe is a long neck, thus the *endoxon*, of Ben's reasoning is this culturally shared premise. Since in Ben's eyes the soft toy animal introduced by the adult experimenter has in fact a long neck, he concludes that it is a giraffe. This reasoning is only partially shared by Andrew. In his reasoning, Andrew starts from the same *maxim* ("if something has the defining trait of a given species, it belongs to that species") and acknowledges the same *endoxon* as Ben ("a defining trait of the species 'giraffe' is having a long neck"). To him, however, the soft toy animal introduced by the adult experimenter, does not possess this defining trait of a giraffe. He thus uses an opposite *datum* and therefore arrives to the final conclusion that the soft toy animal introduced by the adult experimenter is not a giraffe. Thanks to the reconstruction of the children's reasoning by means of the y-structure, I can conclude that the difference of opinion (van Eemeren 1992), in this excerpt of the discussion stems from the different interpretation of the facts (*data*).

The locus from definition introduced here by Ben can be more precisely identified as a *property*. In the present case the children use the property *'long neck'* (description) in order to name the soft toy animal *'giraffe'*. The long neck is inherent to a giraffe, therefore it can be regarded as a permanent property of the species '*giraffe'*. In order to verify if this inference is correct, according to Aristotle, one can observe the relation between the name and the description of the thing, as I have explicated above. Thus, the description 'animal with a long neck' is predicated of the same living being as the name 'giraffe' and reversely, the name 'giraffe' is predicated of the same living being as the description 'animal with a long neck' is predicated. Since both directions of reading are correct, a long neck can be designated the property of a giraffe (Tredennick & Forster 1960, Rigotti & Greco in preparation).

By means of the analysis of this simple discussion on the neck of a soft toy giraffe, it was shown that the reasoning underlying the children's arguments is more sophisticated than it may appear at first sight. Indeed, Andrew does not perceive the soft toy animal as a giraffe, because, for him, it does not have the property of a giraffe, even though many other characteristics of it, such as the shape of the body in general and the color may coincide with that of a giraffe.

4.2. Example 2: the sweets

The second situation I chose to analyze is taken from the same discussion between Andrew (5:7 years), Ben (5:10 years) and the adult experimenter. However, it differs from the first in that it occurs in a rather 'mute' moment, where the children seem to explore what the next task is about. This time the adult experimenter gives the *issue* by means of her action: the task on the

conservation of liquids has been finished and the adult experimenter is preparing the next task, which is on the conservation of numbers. To this purpose, she prepares sweets of different shapes. Ben initiates a discussion, asking what the sweets are, as he seems not to know or to recognize them. As an answer, he gets among others the statement of Andrew that these 'things' are mints and that he has already eaten some of them. Continuing on the question whether the mints are eatable, Ben states his unwillingness to eat them. This is where the adult experimenter drops into the discussion stating turn 1 (see below) and thereby introducing implicitly the *issue "Can we eat the sweets?"*. What follows in excerpt 2 is the rest of the discussion on this *issue*, mainly taking place between Ben and the adult experimenter. At this moment the overall discussion has been going on for more than 12 minutes.

Table 3. Excerpt 2: Participants: Andrew (5:7 years), Ben (5:10 years), adult experimenter

Turn	Speaker	Transcript
1	Exp.	[…] ((shakes her head)) no one has to eat anything (1.0) actually ((uses a pen to bring a mint out of the box)) if they xxx to
2	Ben	if they i if Andrew wants [to eat them
3	Exp.	[this one is stuck
4	Ben	this one is stuck
5	Exp.	stuck (3.0)
6	Ben	maybe we can eat them=
7	Andrew	three=
8	Ben	you can't eat them because they're for adults

In this short excerpt, Ben and the adult experimenter talk about two different subjects that overlap each other. I will focus on the above specified *issue "Can we eat the sweets?"*. The first standpoint on this *issue* is put forward by the adult experimenter in turn 1. Ben then bases his reasoning on this standpoint and concludes with his standpoint *"you can't eat them"* that he supports with the argument *"because they're for adults"* in turn 8. This discussion can be visualized by means of the analytic overview as follows:

Table 4. Analytic overview of excerpt 2

Issue (introduced by adult experimenter): *Can we eat the sweets?*

Standpoint 1		**Standpoint 2**	
Ben	1 You can't eat them	Unspecified antagonist	2 (we can eat them)
Argument		**Argument**	
Adult experimenter T. 1	1.1 no one has to eat anything	---	
Ben T. 8	1.2 they're for adults		

The difference of opinion analyzed here has no specified antagonist. Both Ben and the adult experimenter are supporting the standpoint that the sweets do not have to be eaten. By taking the whole discussion into account, however, we can find a possible trigger of Ben's reasoning by Andrew's statement that declares mints to be something eatable. As is shown by the following AMT representation, Ben does not include Andrew's statement that he has already eaten some mints in his reasoning.
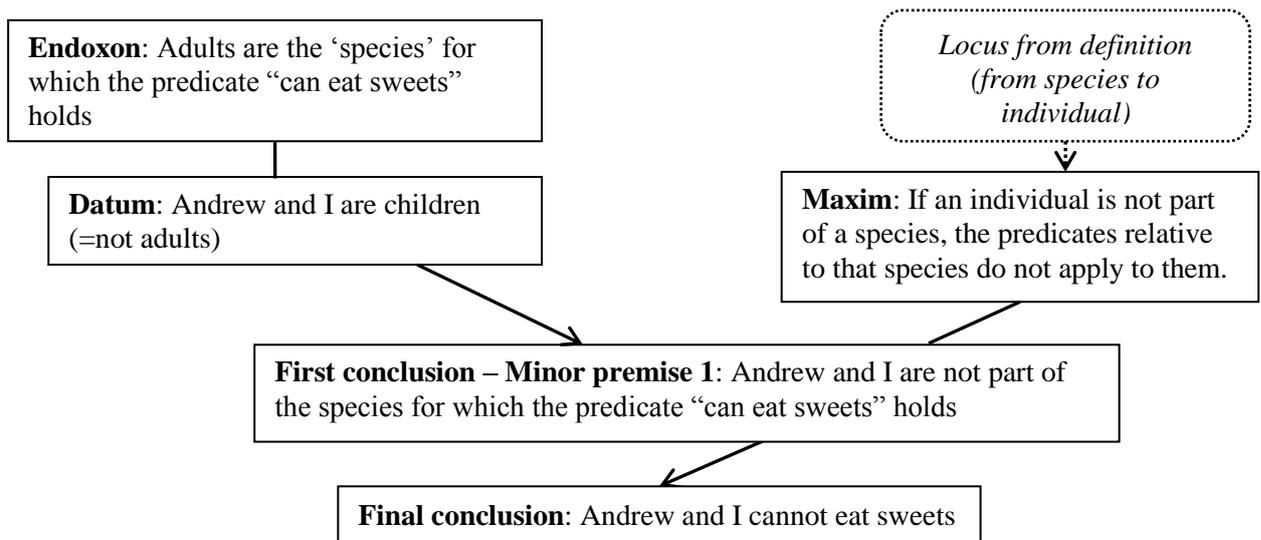
By visualizing the relation between Ben's argument and his standpoint "Andrew and I cannot eat the sweets," one can see that, based on the argument put forward by the adult experimenter, Ben creates an *endoxon* that is particular to the situation. Indeed, by departing from the fact that adults can eat sweets, he implicitly refuses the adult experimenter's argument "no one has to eat anything." One may hypothecate that Ben's reasoning may turn around the fact, that sweets are produced for a certain reason, that is for being eaten and therefore the adult experimenter's argument in turn 1 cannot be sound and hence must be refuted. Although the *endoxon* Ben uses in order to make sense of the conversation and the actions taking place may convince an adult reader only to a limited extent, it can still be regarded as being part of a valid reasoning. Children may have different ontologies than adults, which is reflected in the present case in the reconstructed *endoxon*.

Ben's standpoint can be seen as of a subtype of the locus from definition, namely as a 'definition from species to individual.' In his standpoint, Ben's reasoning includes two of the three levels of Aristotle's classification: species and individual. He classifies Andrew and himself – two individuals – as not being part of the species that can eat sweets. As mentioned in section 2, Aristotle claims a dependency in the hierarchy of things. Species being more extended than the individual, one can say that, if something is true for a species, it is true as well for all the individuals belonging to that species (Wagner & Rapp 2004, Rigotti & Greco in preparation). Thus taking Ben's reasoning: If the predicate "can eat sweets" holds for the species 'adults,' it holds for every single adult. In this case, however, Ben makes use of a negative version of this reasoning. He associates the predicate "can eat sweets" to the species 'adults,' and excludes Andrew and himself from it in order to arrive at the conclusion that he and Andrew cannot eat the sweets.

By analyzing the implicit in Ben's reasoning about the edibility of sweets, it was possible to make Ben's thoughts more understandable and retraceable. Whereas a simple reading of Ben's argument on his standpoint that the sweets cannot be eaten by Andrew and him does not seem 'correct,' the understanding of the underlying implicit reasoning, makes his position more clear. Even though Ben's reasoning may nevertheless be regarded as 'fallacious' or non-completely 'correct,' an adult interlocutor acting according to the principle of charity (Anderson et al. 1997) is more likely prone to accept Ben's argument, once he is aware of his reasoning.

5. Conclusion and openings for future research

In this paper, I have analyzed a case where small children under the age of six years in a semi-structured setting spontaneously engaged in discussions. I have shown that the children are able to express their standpoints on an *issue* and support them with arguments in two different types of situations: In the discussion on the giraffe, the children spontaneously raised an *issue* that was not thought to need discussion by the adult experimenter. In the situation of the sweets, the children discussed on a *sub-issue* that was given by an adult, whereas the main *issue* was raised by the children. I have reconstructed the general framework of the discussion in a slightly modified version of the pragma-dialectical analytic overview, in order to visualize which arguments support a certain standpoint and which discussant(s) assume(s) the role of the antagonist or protagonist. – Something that is not always evident in children's discussions. By using the AMT model for the reconstruction of the implicit premises, I was able to show that there is a sophisticated reasoning underlying small children's arguments. The reconstruction of the implicit premises is furthermore a helpful means in order to show that the children's reasoning is sometimes based on an ontology that differs from the adult's, a fact that could make the children's reasoning appear fallacious in the eyes of an adult.

I have furthermore chosen to focus on the locus from definition, a locus that emerged in several cases during the first phase of an exploratory research on small children's spontaneous argumentation conducted from July to November 2015. In this paper, I could identify the use of two different sub-loci of the locus from definition. The children's use of them shows the sophistication of their reasoning.

The present paper was an attempt to show the argumentative skills of small children, it therefore can be understood as a starting point for further research in many regards: First of all, it will be necessary, to amplify the research on the implicit in children's argumentation, including less structured settings and smaller children. In addition to that, it needs to be investigated, whether a pattern of frequency can be found in what regards the choice of the locus by the children and what possible reasons for such a pattern may be. Furthermore, it also needs to be explored whether the use of certain loci is favored by certain settings.

Appendix

sign	description
↑	raising intonation
(( ))	nonverbal component
(1.0)	pause of 1 second
xxx	non understandable utterance
[	overlapping segments
=	immediately following turn

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