

# Discourse Integration and the Acquisition of Aspect in Polish\*

Angeliek van Hout  
University of Groningen

## 1. Introduction

Establishing the temporal reference of events and situations depends not only on the semantics of tense and aspect morphology, but also on discourse effects as defined by interface rules between semantics and discourse. Such aspectual semantic-discourse rules either posit simultaneity of two events or situations as described by 2 sentences, or they create a sequence of events. Perfective aspect typically yields a sequence of two events, whereas imperfective aspect creates temporal overlap of two events. Acquiring aspect thus involves learning the semantics of perfective and imperfective aspect as well as integrating these representations in the semantics-discourse interface where temporal ordering of events and situations is established.

The main question of this article is how learners of Polish understand the perfective-imperfective paradigm in determining the temporal reference of events presented in a story context. The comprehension experiment in section 3 shows that, whereas children behave target-like on perfectives, their imperfectives are imperfect. I argue that children as young as 2;6 have correctly acquired the aspectual semantics of both the perfective and imperfective, but have not yet acquired the interface rules with discourse. The ability of young learners to integrate aspect in a discourse structure is not fully developed. This explanation adds to quickly growing literature that claims that children show a more general lack of integration of syntax and semantics in the interface with discourse (e.g., Avrutin and Coopmans 2000; Krämer 2000).

In section 2 I review the aspect comprehension literature on Polish and Russian. Section 3 presents my Polish comprehension experiment and its results. I argue in section 4 that these results suggest an incomplete mapping of the semantics-discourse interface. Section 5 summarizes the conclusions.

## 2. Review of acquisition of aspect in Russian and Polish

Verbs in the Slavic languages come in pairs of perfective and imperfective verb forms. (1a-b) is an example of such a pair; the perfective in (1b) is formed by prefixing the imperfective form, in this particular case with *z-*.

- (1) a. Mickey budował zamek. [Polish]  
Mickey build.IMPERF.PAST castle  
“Mickey was building a castle.”

---

\* This paper is based on Van Hout (in press). I thank Heike Behrens, Olga Borik, Bart Hollebrandse, Patrycja Jablonska, Krzysztof Migdalski, Alice ter Meulen, Anna Młynarczyk, Bożena Rozwadowska and Maaïke Schoorlemmer for discussions on Slavic aspect and the acquisition work presented here, and the audience at GALA 2003 for their interesting questions. NWO (Netherlands Organization for Scientific Research) supported this research (#300-75-025).

- b. Mickey zbudował zamek.  
Mickey build.PERF.PAST castle  
“Mickey built a castle.”

Children learning a Slavic language produce both perfective and imperfective forms in their spontaneous speech from the earliest instances of inflectional marking on (for Polish, see Weist, Witkowska-Stadnik, Wysocka and Buczkowska 1984; for Russian, see Gagarina 2000; Vinnitskaya and Wexler 2001). Several comprehension studies suggest that young children know the aspectual semantics of the perfective-imperfective paradigm. A study with Polish learners by Weist, Wysocka and Lyytinen (1991) shows that 2;6-year-old subjects distinguish the two aspects target-like in a picture selection task which presented pictures of ongoing versus completed situation. Stoll (1998) found that Russian 3-year-olds behave target-like with perfectives (she did not test imperfectives) in a video-clip selection task where two video-clips were shown on a split-screen, one showing the action in progress, the other showing it up to its culmination moment. Vinnitskaya and Wexler (2001) tested Russian 3-year-olds' comprehension of perfective and imperfective verbs in a picture selection task, and also got adult-like behavior.

However, a recent study by Kazanina and Phillips (2003) casts some doubts; three-year-olds did not do well with imperfective verbs. Kazanina and Phillips acted out stories with props while their subjects watched. The difference between this experiment and the previous ones lies in the situation choices: here subjects saw a completed and an incomplete situation (plus a distractor situation), whereas the other studies contrasted completed versus ongoing situations. With the results of the completed and incomplete situations displayed on the table, children were asked two *where*-questions, one with a perfective verb and one with an imperfective one. Children, like adults, accepted only the completed situation when asked a question with a perfective verb. With imperfective verbs, adults and about half of the children allowed both situations. The other, younger half of the children, however, accepted only the completed situation for imperfectives and rejected the incomplete one. In striking contrast to the previous studies, (half of) these children did *not* always understand aspect, in particular, they did not behave target-like on imperfectives.

Moreover, although Vinnitskaya and Wexler found target-like behavior on imperfectives in their comprehension task, the same children made mistakes in an elicited production task. Subjects were presented with a picture of an ongoing action, say, a bear eating an apple. The experimenter described the picture in the present tense with imperfective aspect (*The bear is eating an apple now*). The child then had to complete a sentence starting with '*Before ...*' in order to describe a picture of a completed apple-eating situation. Adults gave a perfective in this context, but the children vastly overused imperfectives.

Summarizing, in three comprehension studies researchers concluded that young learners of Polish and Russian know the aspectual semantics of perfective and imperfective aspect, but in two studies, children showed non-target-like behavior. Across these studies children consistently associated perfective aspect with completion (Stoll, Vinnitskaya and Wexler, Weist et al.). They related imperfective aspect to ongoing situations (Weist et al., Vinnitskaya and Wexler) as well as completed ones (Kazanina and Phillips in comprehension, Vinnitskaya and Wexler in production). This

is target behavior. Children did not seem to associate imperfective with incomplete situations, whereas adults do. A tentative conclusion at this point is that children have acquired the aspectual semantics of the perfective-imperfective, but do not always employ it appropriately.

The results from the experiment that I will present in the next section also point to imperfect aspectual knowledge of imperfective aspect. I will argue that children have problems correctly linking event variables in the discourse structure of a narrative. Adults must link a new event variable w.r.t. the last established event time, i.e., they are not free to anchor it anywhere they like in the discourse. Children on the other hand are overly liberal and seem to link event variables to any moment in the discourse structure.

### **3. A comprehension experiment with Polish learners**

The study presented here is more comprehensive than the ones discussed above in several respects. Whereas the previous studies gave children a choice of only two different situations, I presented all three kinds of situations in my experiment: ongoing, completed and incomplete situations. These three kinds of situations exhaust the possible states-of-affairs in the world that an event may be at. Events (at least those that can be described with a telic predicate) are either in progress (ongoing), or have terminated, in which case they may have stopped at an arbitrary moment (incomplete) or progressed to a natural culmination moment (completed). In order to demonstrate full aspectual knowledge, children must not only be able to judge when the two aspects can be used, but also when they are not possible. Some of the previously used methods did not assess children's full aspectual knowledge, but rather obtained children's preferred interpretations. I tested children's comprehension of perfective and imperfective aspect, presenting the aspects in the discourse context of a story in order to find out which situation or situations they accept for which aspect, and also which not.

#### **3.1 Design and method**

Subjects were told a story with accompanying pictures. The beginning of the story showed the start of an event, say, playing in the sand and starting to build a sand castle (picture 1). Then the doors closed (picture 2), so experimenter and child could not see what was happening further. A bird with big eyes was asked to look through the doors and tell the child what he saw there. The bird's utterance was the test sentence. The child's task was to see if the right picture was among two pictures the researcher then presented, and, if so, to put it as the final picture to the story in an empty slot of the story book. The test sentence contained either a perfective or an imperfective verb form. They were transitive sentences with verbs with incremental themes and count noun objects (that is, the test sentences involved telic VPs).

Children made their selection from 2 pictures: in Condition 1 subjects had to choose between a completed and an ongoing situation, in Condition 2 between a completed and an incomplete one and in Condition 3 between an ongoing and an incomplete one. In the introduction it was explicitly mentioned that sometimes neither picture qualified; with a few training items the researcher 'taught' the subjects that 'neither' answers were sometimes necessary. Control items, which were mixed in with

the test items, provided further opportunities for giving ‘neither’ answers. By presenting the situations pair-wise in 3 different combinations I was able to find out which situation(s) a subject accepted for a given aspect. Subjects may prefer one kind of situation for a certain aspect, but might also allow another kind for that same aspect.

The experimental design thus had aspect and situation pairs as the two independent variables and the subject’s choice—completed, incomplete, ongoing (or neither) situation—as the dependent variable. Each child was tested on both aspects (3 items of each aspect, yielding 6 items per condition and 18 in total). All perfective items were tested in one session and all imperfectives in another a few days up to a week apart.

### 3.2 Materials

Subjects were shown a picture book and introduced to Blue Bird. A typical story is the following, (2); the accompanying pictures are shown in Figures 1A and 1B.

- (2) Excerpt from Polish protocol with an imperfective past tense:

*Pewnego dnia Mickey był na plaży i bawił się w piasku.  
Postanowił, że zbuduje zamek i zabrał się do pracy. Widzisz?  
Ale drzwi się zamknęły i nie widzimy co było dalej.  
Poprosimy teraz Niebieskiego Ptaka, aby zajrzał za drzwi.  
Ptaku, co tam zobaczyłeś?  
Mickey budował zamek.  
Czy jest tu właściwy obrazek?*

“One day Mickey Mouse was on the beach. He was playing in the sand. He decided to build a sand castle and got to work. See?  
But the doors closed, so we couldn’t see any further what happened.  
Let’s ask Blue Bird to look behind the doors.  
Bird, what did you see there?  
*Mickey was building a sand castle.*  
Is the right picture there?”

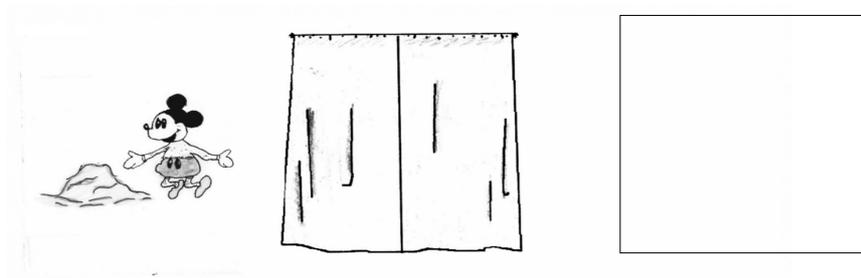


Fig. 1A: Picture book page of castle-building with empty final slot

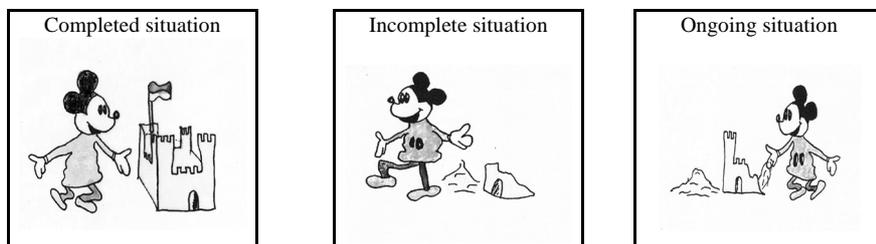


Fig. 1B: Pictures with castle-building story—Choice of situations:  
 Condition 1: Completed/Ongoing  
 Condition 2: Completed/Incomplete  
 Condition 3: Ongoing/Incomplete

In a completed situation, the protagonist was no longer involved in the action, and there was a clear result of the action, e.g., a completely washed dog, a fully-dressed baby, a fully-built castle. In an incomplete situation, the protagonist was no longer involved in the activity; he or she was turned away from the object of action. The goal of the action was only halfway completed, e.g., a half-built castle, a half-drawn flower, a half-eaten ice cream cone on the floor. In an ongoing situation, the protagonist was still involved in the activity, holding or touching the object he or she was manipulating; some effect of his or her activities was visible to show that there had been some progress since the first picture.

The stories were told in the past tense, so that the past-tense test sentences fitted naturally. The doors closed so that some suspense was formed: how would the protagonist continue his action, would he finish or not? The bird's looking behind the doors created a reference moment for the question "Blue Bird, what did you see there?".

### 3.3 Subjects

Fifty six Children in the age range of 2;0 to 4;11 took part in the study: 18 two-year-olds, 17 three-year-olds and 21 four-year-olds, as well as a group of 20 adults. The children were tested individually at their daycare centers in Wrocław, Poland, by native Polish research assistants.<sup>1</sup> The adults were tested in small groups (of about 5).

### 3.4 Predictions

Since this was an exploratory study, there were no predictions other than the following: if children know perfective-imperfective aspect, they will differentiate their answers to the two forms. We included a group of adult subjects to find out how exactly Polish adults interpret the aspects in this narrative set-up.

<sup>1</sup> Bożena Rozwadowska was a wonderful help during my visits to Wrocław, first when I came to look for research assistants and again on my second visit when I was training and working with them. I am very grateful to my diligent research assistants Katarzyna Adnowska, Jacek Lisowski and especially Marta Trojanowska-Gołka for their hard work and extensive email communications. I thank kindergartens *Złobek nr. 3* and *Przedszkole nr. 104* in Wrocław for their hospitality during the testing.

### 3.5 Results

Figures 2-4 present the results in terms of percentages of situation chosen in each condition (or 'neither' or 'both'), by perfective or imperfective aspect, per age group.

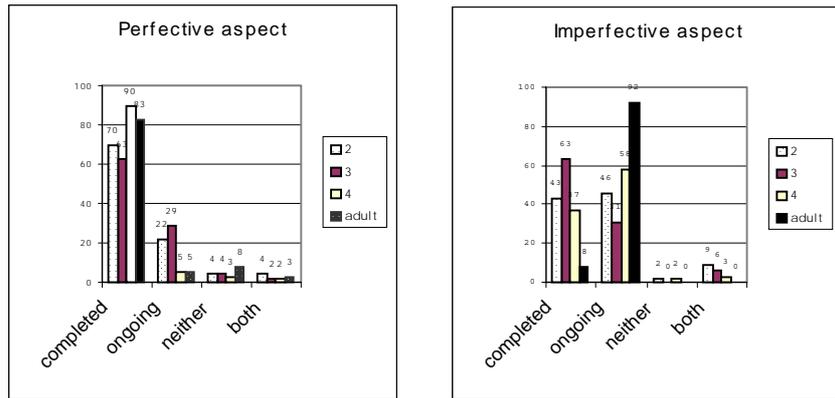


Fig. 2: Results of Condition 1 (Completed vs. Ongoing)

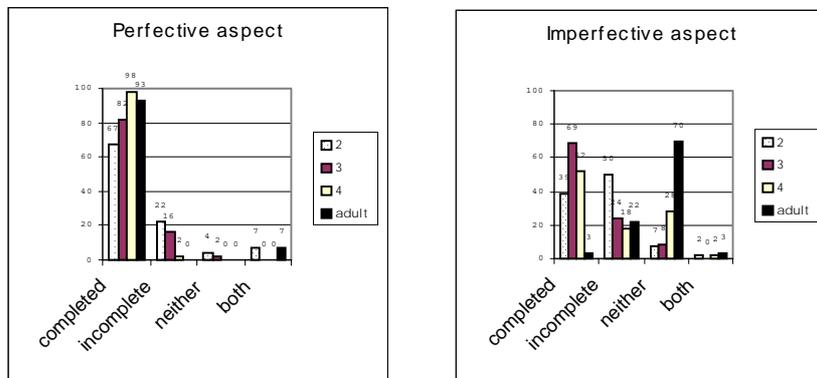


Fig. 3: Results of Condition 2 (Completed vs. Incomplete)

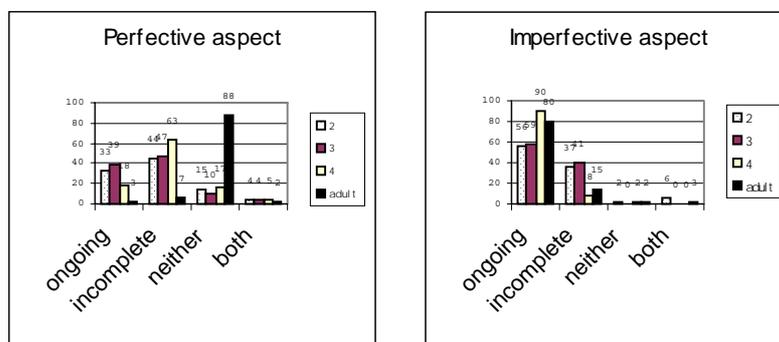


Fig. 4: Results of Condition 3 (Ongoing vs. Incomplete)

### 3.6 Analyses

For each condition we ran ANOVA's to get an indication of the effects of aspect and age on situation choice. The analyses were run for the number of 'completion' choices in Conditions 1 and 2 and 'ongoing' choices in Condition 3. In all three conditions there was a main effect of aspect and an interaction effect of aspect by age. Age was also a main effect in Conditions 1 and 2, but not in 3. Looking in more detail at how age and aspect contribute to subjects' behavior, we ran chi-square analyses to see if there were aspect effects within each of the ages and age effects within each of the aspects. There were effects of aspect for all age groups, except for the 3-year-olds in Conditions 1 and 2, who did not differentiate perfective and imperfective aspect, preferring the completed situation for both aspects. The development from 2 to 3 to 4-years-old thus suggests a U-shape curve: the youngest and oldest child subjects differentiated perfective and imperfective aspect, but the 3-year-olds did not. The analyses across the child groups revealed that behavior on perfective aspect improved with age in Conditions 1 (Completed-Ongoing) and 2 (Completed-Incomplete). The perfective in Condition 3 (Ongoing-Incomplete) remained a factor of confusion for all child subjects alike, probably because they were not able to say that 'neither' situation qualified. Behavior on imperfective aspect developed over age in Conditions 2 (Completed-Incomplete) and 3 (Ongoing-Incomplete), but not in Condition 1 (Completed-Ongoing). I refer to Van Hout (in press) for details on the statistics.

### 3.7 Interpretation

The target interpretation pattern of the two aspects is clear: in this experiment adults accepted only completed situations for perfective verbs and only ongoing situations for imperfective verbs. In principle imperfective aspect can be used to refer to any type of situation, but the narrative context here limits the interpretation to only ongoing situations, that is, ongoing at the moment when the bird watched. Adults did not allow interpretations with the event being completed or incomplete at the moment of the bird's watching. Their interpretation of perfective test sentences, in contrast, entailed completion at the moment of the bird's watching. Such effects of aspectual relations in discourse are well-known, and are commonly represented in DRT frameworks (see section 4 for further analysis).

What does the children's behavior reveal about their aspectual knowledge? For one thing, aspect matters in children's interpretations; their behavior differs on perfective versus imperfective aspect, except for the 3-year-olds, who basically preferred the completed situation for both perfective and imperfective aspect in Conditions 1 and 2. Given a perfective all subjects, from the 2-year-olds on, behaved like adults. When the completed situation was an option, as in Conditions 1 (Completed/Ongoing) and 2 (Completed/Incomplete), they clearly preferred it. When they were confronted with a choice without a completed situation, as in Condition 3 (Ongoing/Incomplete), they seemed at a loss and chose the 2 available options equally often.

In contrast, given imperfective aspect children, very much unlike adults, accepted all three kinds of situations: in all 3 conditions, they selected the completed, incomplete or ongoing situations without a clear preference for one over the other. In fact, the 3-year-olds showed a slight preference for the completed situation in Conditions 1 and 2. Interestingly, the 4-year-olds were basically able to choose the correct—ongoing—situation in Condition 3 with a choice of Ongoing/Incomplete, but did not consistently choose the ongoing situation when given a choice between Completed/Ongoing in Condition 1.

So, some knowledge of aspect is established, at a very early age; yet children's behavior is not fully adult-like. Target knowledge of perfective aspect is in place, but some property of imperfective aspect is still missing. What do these children take the aspects to mean exactly? I will argue in the next section that subjects' non-target-like choices for imperfectives can be explained if we assume that children are not yet able to properly anchor the test sentence in the discourse.

#### **4. Explaining children's imperfect imperfectives**

Comparing my results to those found with Polish and Russian learners reviewed in section 2, we are confronted with a mystery. The previous studies show that children have acquired the basic semantics of the perfective-imperfective paradigm; they correctly matched perfective to completed and imperfective to ongoing situations. We must conclude with the authors that subjects display knowledge of the aspectual semantics of the perfective-imperfective paradigm in these set-ups which basically correspond to my Condition 1 (Completed/Ongoing). Why, then, can't they apply this knowledge in the present study? Moreover, in the present set-up no children, including the oldest ones (4-year-olds), behaved adult-like on the imperfective, while even the youngest children (2-year-olds) did well on the perfective. What is the difference?

I want to argue that children do not know the further limitations on discourse linking that are associated with the aspects, even though they know the basic aspectual semantics for sentences in isolation. Discourse rules restrict the possible interpretations of perfective and imperfective aspect. Children have incomplete knowledge of these rules and therefore cannot establish proper temporal relations in a discourse.

In a narrative, a sequence of sentences describes various events and situations. Tense as well as lexical and grammatical aspect determine the temporal relations among them, establishing overlap and sequential ordering of events and situations. In English, when sentence (3) is followed by a sentence with either a past progressive (4a) or simple past (4b), the interpretation of the temporal ordering of the two events differs, yielding simultaneity for (4a)—whistling was going on while he did the dishes—and an ordered sequence for (4b)—after he did the dishes, he whistled a tune.

(3) John did the dishes. ...

- (4) a. He was whistling a tune.  
b. He whistled a tune.

Both sentences in (4) have past tenses and are thus anchored before speech time. Moreover, lexical aspect is constant in (4)—telic. The different interpretations arise because of the different grammatical aspects carried by the two tenses. In a dynamic construction of the discourse structure the event variables introduced by *do-the-dishes* (e1) and *was-whistling* or *whistled* (e2) are anaphorically linked as follows. Imperfective aspect given by the past progressive in (4a) adds e2 into the discourse as a situation going on simultaneously with e1: the events of whistling and doing-the-dishes overlap. Perfective aspect given by the simple past in (4b), on the other hand, moves the reference time of the story line forward, so that e2 is ordered after e1: first doing the dishes, then whistling (cf. Borik 2002; Hinrichs 1986; Kamp and Reyle 1993; De Swart 1998).

In the stories used in the experiment, the test sentence comes after descriptions of previous events which all follow one another. The event variable it introduces is linked to the previous events in the story in a specific way and depends on its aspect. The very nature of the question—*Bird, what did you see there?*—moves the narrative time back to the time at which the bird was looking behind the doors. The event referred to in the test sentence must be linked to that time. When described with an imperfective, (1a), the castle-building event must overlap with the event of the bird's watching. A situation where building is going on simultaneously with watching qualifies as a valid state of affairs for this discourse, so only the picture of the ongoing situation is correct. Neither the situation where building the castle was completed, nor the situation in which castle-building was terminated are possible candidates for this temporal overlap. A perfective test sentence in the same discourse, on the other hand, gives a different effect. The perfective in (1b) requires the castle-building event to be completed at the time of the bird's watching, so only the picture of a completed castle-building situation qualifies.

The Polish adults in the experiment answered according to these aspectual discourse rules. The children did so too for the perfective, but for the imperfective they allowed ongoing, completed and incomplete situations at equal rates, and some (the 3-year-olds) even preferred the completed picture over the others. What can explain children's overly liberal behavior with imperfectives? What made them select a completed situation or an incomplete situation, rather than exclusively the ongoing one?

Assuming that children have acquired the proper form/meaning associations of the two aspects as suggested by the studies discussed in section 2, one may argue that they are still lacking the proper rules of the semantics/discourse interface. There are three variants of this explanation. First, children do not anaphorically link events on the time axis on the basis of linguistic information; that is, they do not apply any discourse rules in the semantics-discourse interface, possibly lacking this interface altogether. Instead, they order events in a non-linguistic manner, and place them on the time axis according to what seems plausible, given the nature of the events and given what typically happens in a story world. Under this scenario, since by hypothesis children know the entailment of completion of the perfective, they will choose the completed situation, independent of where they place the event on the time axis. Assuming that they know that the imperfective lacks a completion entailment, and given that they could not see what *actually* happened behind the curtains, anything goes: Mickey may still be building, he may have interrupted his building, or he may have completed it. Thus, all three situations qualify. This covers the pattern in the results.

Another explanation would be to say that children apply interface rules, but have not yet acquired the proper ones. That is, children know that semantics-discourse rules define the order of events in a narrative discourse, but they do not have the adult mappings between the morphosyntactic forms with their semantics and their effects in a discourse. Specifically, they do not know that imperfective aspect triggers overlap of events, and perfective aspect a sequence of events. As in the previous scenario, they will choose the correct picture with perfective aspect on the basis of knowing its completion entailment. With imperfective aspect, on the other hand, their semantics-discourse interface rules do not provide a basis for relating the ongoingness of castle-building to the watching-event. Given their acceptance of all three situations, it seems that the linking of clauses with imperfective aspect is free in their discourse grammar, or underdetermined.

A third option is that children cannot shift the narrative reference time back properly. When the bird is asked to tell us what he saw behind the curtains, adults move back to the time of watching. Children, in contrast, interpret the test sentence at the time of the bird's speaking. Again, assuming knowledge of the completion entailment of perfective aspect, this will yield the correct picture for perfective aspect: the castle is completed at. With imperfective aspect, on the other hand, they may choose the ongoing situation, taking the building event to happen simultaneously with the bird's speaking. Alternatively, they may choose the completed situation, thinking that all events that started before must surely be finished by now. Or they may think that castle-building was interrupted by the closing curtains, and opt for the incomplete situation. Under this scenario, children may know (some variant of) the semantics-discourse interface, but are tricked by the complicated story line that requires them to move back to the time of, applying instead the discourse rules to the wrong time.

These three explanations are based on the idea that children know that an imperfective presents an ongoing aspect, but do not know, or do not apply, the proper discourse rules for ordering events on the time axis, in particular, that imperfective aspect creates overlap in a discourse. Assuming that they know the completion semantics of perfective aspect, children will only accept the completed situation for perfectives, independent of when that event is anchored in the story's time line. But when an imperfective test sentence event is not properly anchored in the time line of the story's events, all situations—completed, incomplete and ongoing—qualify as potential situations for the final story slot. The present experiment does not allow to choose among these three alternative interpretations.<sup>2</sup>

If children indeed have trouble anchoring event variables properly in a discourse, is this an isolated phenomenon, or can we relate it to other developmental facts? Polish learners are not the only ones who have trouble interpreting imperfectives. Converging evidence comes from Italian learners who were tested on their interpretation of two tenses: the *Passato prossimo* (the present perfect) and the *Imperfetto* (the imperfective simple past). Hollebrandse and van Hout (2001) found that Italian 5-year-olds did not show full, discourse-appropriate understanding of the *Imperfetto*, whereas younger children behaved adult-like on the *Passato prossimo*.

The Polish and Italian aspect studies add to a recent and growing literature that shows that, while advanced learners have the syntax and semantics of a large part of their grammar under control, they do not properly integrate sentences in discourse. Studying the nominal domain, Avrutin and Coopmans (2000) tested definite NPs functioning as nominal anaphors in so-called "bridging" contexts and found that 5-

---

<sup>2</sup> See Van Hout (in press) for discussion whether this approach carries over to the non-adult-like behavior with imperfectives in the previous studies.

year-old children did not establish an anaphoric connection between the first and second sentence of a discourse. Krämer (2000) tested Dutch children's interpretation of indefinite NPs in a narrative context. Whereas adult discourse rules require anaphoric linking between an indefinite and an antecedent in the previous sentence, Krämer's subjects, aged 6 and 7, did not establish such links. Krämer attributes this result to a lack of discourse integration.

This raises the question why not-so-young children cannot establish appropriate temporal and nominal anaphoric links with the preceding discourse. Length limitations prevent me from discussing this question here. I refer to the above studies who posit lack of processing resources (Avrutin and Coopmans) or lack of linguistic knowledge (Krämer).

## 5. Conclusions

A comprehensive study of Polish learners' comprehension of the aspects shows that children's imperfectives are imperfect, while their interpretation of perfectives is (or seems) perfect. The novelty of this study is that it tested aspectual interpretation in a discourse context, whereas previous studies looked at sentences in isolation, for which they found adult-like behavior on both perfective and imperfective aspect. Another extension of the present study is that it examined three kinds of situations—ongoing, completed and incomplete ones—whereas previous studies were limited to only two situations. In this way I was able to assess children's full set of possible interpretations of the aspects, rather than just their preferred interpretations.

I have argued that children know the semantics of the aspectual paradigm given their correct behavior with the aspects in isolated sentences (i.e., their form/meaning mappings are adult-like), but that the problem lies at the semantics-discourse interface: Polish children do not apply (proper) anaphoric restrictions when linking sentences in a discourse. Thus, children cannot properly link the event of the test sentence to the relevant one in a discourse. With perfective aspect this did not create a problem, because knowledge of the completion entailment of perfectives leads them to choose the completed situation. With imperfective aspect, on the other hand, they allow an event to refer to any moment in the past, instead of letting it overlap with the previous event, as discourse linking rules require. Converging evidence that imperfectives are not properly discourse-linked comes from Italian learners (Hollebrandse and van Hout, 2001).

While the semantics of Polish aspectual morphology seems to be in place at an early age, knowledge of how to integrate aspect in the discourse structure is not fully developed. This is not an isolated phenomenon. Several recent studies looking at acquisition in the nominal domain show similar problems with discourse integration. The question remains whether this problem is a processing issue (lack of sufficient resources) or a knowledge issue (lack of target discourse linking rules).

## References

- Avrutin, S., and Coopmans, P. (2000) 'Children who build bridges', in: C. Howell et al. (Eds.), *BUCLD 24 Proceedings*. Somerville: Cascadilla Press, 80-91.
- Borik, O. (2002) *Aspect and reference time*. Unpublished doctoral dissertation, Utrecht University.
- Gagarina, N. (2000) 'The acquisition of aspectuality by Russian children: the early stages'. *ZAS Papers in Linguistics*, 232-246. Berlin: Zentrum für Allgemeine Sprachwissenschaft.

- Hinrichs, E. (1986) 'Temporal anaphora in discourses of English'. *Linguistics and Philosophy* 9, 62-82.
- Hollebrandse, B. and van Hout, A. (2001) 'On the acquisition of the aspects in Italian', in J.-Y. Kim and A. Werle (Eds.), *The proceedings of SULA: The semantics of underrepresented languages in the Americas*. University of Massachusetts Occasional Papers 25. Amherst: GLSA, 111-120.
- van Hout, A. (in press) 'Imperfect imperfectives: On the acquisition of aspect in Polish', in: P. Kempchinsky and R. Slabakova (eds.) *Aspectual inquiries*. Dordrecht: Kluwer.
- Kamp, H. and Reyle, U. (1993) *From discourse to logic*. Dordrecht: Kluwer.
- Kazanina, N. and Phillips, C. (2003) 'Russian children's knowledge of aspectual distinctions', in: B. Beachley, A. Brown and F. Conlin (Eds.), *BUCLD 27 Proceedings*. Somerville: Cascadilla Press, 390-401.
- Krämer, I. (2000) *Interpreting indefinites: An experimental study of children's language comprehension*. Unpublished doctoral dissertation, Max Planck Institute for Psycholinguistics and University of Utrecht.
- Stoll, S. (1998) 'Acquisition of Russian aspect'. *First Language* 18, 351-377.
- de Swart, H. (1998) 'Aspect shift and coercion'. *Natural Language and Linguistic Theory* 16, 347-385.
- Vinnitskaya, I. and Wexler, K. (2001) "The role of pragmatics in the development of Russian aspect". *First Language* 21, 143-186.
- Weist, R., Witkowska-Stadnik, K., Wysocka H. and Buczkowska, K. (1984) 'The defective tense hypothesis: On the emergence of tense and aspect in child Polish'. *Journal of Child Language* 11, 347-374.
- Weist, R., Wysocka, H. and Lytinen, P. (1991) 'A cross-linguistic perspective on the development of temporal systems'. *Journal of Child Language* 18, 67-92.