

The Syntax–Discourse Interface and The Root Infinitives*

In this article I discuss three registers of Russian and English that allow Root Infinitives (RIs). In each of them, in apparent violation of the well-formedness condition, the matrix clause is untensed. In spite of this fact, the sentences are fully interpretable and productive. I argue that the interface conditions between syntax and discourse make it possible, in certain cases, to circumvent the syntactic violations. I first discuss RIs in Russian, and then turn to English ‘Headlinese’ and ‘Mad Magazine Sentences’. Finally, I discuss the Optional Infinitive Stage in child grammar.

1. Root Infinitives in Adult Russian¹

Under normal, unmarked discourse conditions, Russian (like English and other languages) requires that clauses have a syntactic representation of Tense:

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¹ In this article I focus primarily on the Russian Root Infinitives with some references to English. Clearly, RIs are present in other languages, both in adult and child speech. For example, as A. Hulk and M. Verrips, among others, pointed out to me, similar constructions exist in Dutch. Some of the constraints observed in Russian RIs also exist in Dutch (e.g. the ungrammaticality of quantifiers, see below), some don’t (the possibility of a previously mentioned non-culminated event, see below). Due to the space limitations, however, I will not discuss Dutch in this work. For the discussion of Dutch RIs the reader is referred to Haegeman (1995).

- (1) a. Ivan begal/begaet/*begat'
Ivan ran /runs /*to-run
b. Carevna xoxotala/xoxočet/*xoxotat'
princess laughed /laughs /*to-laugh

Infinitival forms of the verb are prohibited by the Case Filter: only tensed Infl assigns Nominative Case to the subject. However, as illustrated in (2), Russian does allow root infinitives but only under some specific, discourse related circumstances.

- (2) a. Carevna xoxotat'
princess to-laugh
'The Princess started to laugh'
(right after something funny happened)
b. Zriteli aplodirovat'
spectators to-applaud
'The spectators started to applaud' (right after something exciting occurred

Descriptively, these constructions are characterized by several properties. First, in apparent violation of the Case Filter, the sentences are fully grammatical and productive, although the verb is in its infinitival form, which means that Infl does not assign Case to the subject. Second, the action described by the verb indicates the beginning of an action that follows immediately some event assumed to be known. Third, these constructions impose a referentiality constraint on the subject. As (3) shows, quantifiers are not allowed in the subject position in these constructions:

- (3) a. *Nikto ne xoxotat'
nobody not to-laugh
'Nobody started to laugh'
b. ?*Každyj zritel' aplodirovat'
every spectator to-applaud
every spectator started to applaud'
c. *kto xoxotat'?'
who to-laugh
'Who started to laugh?'

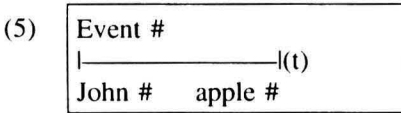
Parallel examples with finite verbs, e.g. (4), are grammatical:

- (4) Nikto ne xoxotal/ne načal xoxotat'
nobody not laughed/not started to-laugh

The following questions arise regarding these constructions: (i) Why are the elements that are interpreted as operators impossible in these constructions? (ii) How are these constructions interpreted temporally in the absence of any tense specification? (iii) Under what discourse conditions are they grammatical? To answer these questions I first outline a theory of the discourse representation of events and then apply it to the Root Infinitive clauses.

1.1 *The Role of Indices in the Representation of NPs, Tenses and Events*

I propose that not only NPs (as in Heim 1982) but also events introduce file cards in the discourse representation of a sentence. Both events and states (or, in terms of Bach 1981, eventualities) have corresponding file cards, to which for simplicity I will refer as Event File Cards. The fact that clauses involve reference to events has been widely assumed in the literature (e.g. Davidson 1967, Higginbotham 1985, Parsons 1990, Piñon 1996, among others). What is new in my proposal, I believe, is that events have a discourse representation on a par with NPs, and, assuming Heim's 1982 model, are represented in the file through Event File Cards (see also Kamp and Reyle 1993 and ter Meulen 1997). Thus, the discourse representation of a sentence 'John ate an apple' will be as in (5).

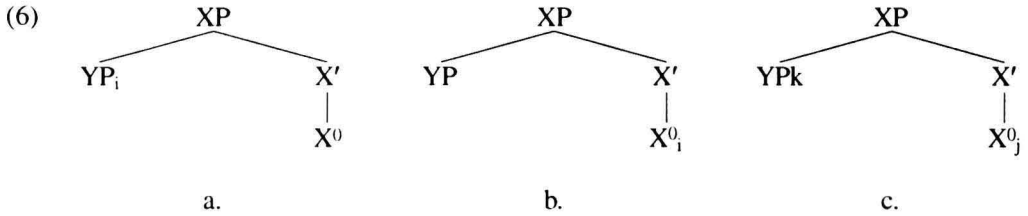


In (5), the Event file card contains a time interval during which the event holds, and two individual file cards representing participants in the event. As discussed at length in Avrutin 1994, the number of these cards are instantiating constants of the variable index on the subject and object NPs. The number of the Event card itself is the instantiating constant of the variable index on the event argument introduced by the predicate. Finally, I hypothesize that in order for a time interval to be specified, T^0 has to have an index, too. More specifically, I propose that T^0 and e must be coindexed at LF in order to derive an interpretation that a certain event holds during some interval of time.² The requirement of their coindexation follows from Guéron and Hoekstra's 1995 theory of Tense Chain, according to which T^0 and e are elements of the same chain (I will return to this below.) As we will see shortly, it might be better to formulate this requirement as a prohibition against conindexing of T^0 and e , where the absence of an index on one element and the presence of an index on the other counts as conindexing.

Both subject and object NPs introduce discourse referents and are interpretable because they are represented by file cards with corresponding numbers, which are contained in the card representing the event. Suppose now that an index on an NP and an index on T^0 are formal expressions of the presence of D feature (Chomsky 1995). The meaning of this feature is that the element bearing it has what I call "Referential Potential." Thus, presence of an index on T^0 means that T^0 has a referential potential and can denote (in principle) a time interval (cf. Dowty 1979). The presence of an index on an NP means that this NP can (in principle) introduce a discourse referent in the form of an individual file card (i.e. a card representing an individual). According to Chomsky 1995, this feature must be checked off; in other words an NP bearing this feature must be in Spec — Head relation with a head that has a checking capacity (i.e. the relevant featural

² The time interval can be either open, or closed, that is the event can have either left, or right boundaries. It can also have either both boundaries (topologically closed event), or none (open). I will return to this point later.

content). In terms of indexation, this amounts to saying that both NP in Spec, TP and T^0 must bear indices. Thus, in (6), only (c) is a possible representation, which corresponds to a normal Tensed clause in (7).³



(7) John_k T_j ate(e_j) an apple_m

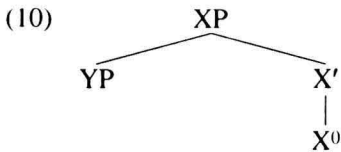
The following analyses will crucially rely on adopting Hyams' (1996) proposal that T^0 of an infinitival clause has no index. Intuitively, this claim seems to be correct because infinitival tenses do not denote any time intervals. Thus, I will assume it without further argument.

(8) T^0 of an infinitival clause has no index.

(6a) correctly represents the ungrammatical (9), traditionally ruled out as a violation of the Case Filter:

(9) *John to eat an apple.

Represented as in (6a), RIs are ungrammatical (in a normal register).⁴ Notice, however, that, formally speaking, one possible pattern of indexation is not shown in (6); the one that does not violate the constraint on "asymmetrical" indexation of Spec and Head. This is the case when neither Head, nor NP in the Specifier position has any index:



Strictly speaking, (10) does not represent a case of the violation of the indexation requirement; but the corresponding sentences would, of course, be uninterpretable: as T^0 has no index, the event cannot be anchored (in terms of Enç 1987), nor can an NP be interpreted (recall the index on an NP is required to have a number of the corresponding file card.) The event variable in this case will also have to be unindexed since T^0 is unindexed. Thus, (11), either with or without *to* is, formally speaking, allowed, but the structure is uninterpretable:

³ The index on the object NP means that the object has a referential potential; thus assuming that at LF the object moves to the Spec of AgrO, AgrO will be required to have an index, too. Here, I will focus only on the relation between subject NP and T^0 .

⁴ I have nothing to say about (6b) in this article, although my intuition is that this representation may be related to the use of subject expletives. I leave this question open, though.

(11) John T⁰ (to) leave(e).

My claim is that (10) is, in fact, the representation of RIs in certain registers. I will argue that these, normally uninterpretable structures, are interpreted by a very specific, discourse — related mechanism, to which I turn now.

1.2 *Discourse Representation of Russian Root Infinitives*

Since *e* has no index (because T⁰ is unindexed), its index cannot be instantiated with a number of an Event file card, representing *e* in the discourse. Nor can the subject NP have a discourse representation as it lacks an index as well. Thus, apparently, the structure should be uninterpretable.

Suppose, however, that an Event file card (with its components, such as individual cards and the time interval) can be introduced in the discourse by some other means, not through the instantiation of the index of *e*. In what follows, I will show that there are such ways, which correspond to different instances of Root Infinitives.

I propose that the first way of introducing an Event file card by non-syntactic, discourse — based means is related to the notion of a Resultant (Consequent) State, as discussed in Parsons 1990. Parsons distinguishes between In-Progress Events and Culminated Events (events that are going on at the relevant moment and events that are completed, or culminated.) According to Parsons, only Culminated events (e.g. perfective predicates) introduce in the semantic representation a Resultant State. The logical form of ‘John has eaten an apple’ is given in (12), where CS is a partial function from eventualities to eventualities which assigns each event its consequent (Resultant) state:

(12) $\exists e \exists x (\text{eat}(e) \wedge \text{Agent}(e, \text{John}) \wedge \text{Theme}(e, x) \wedge \text{apple}(x)) \wedge \text{hold}(\text{CS}(e), S))$

The sentence therefore contains in its semantic representation an In-Progress event of John eating an apple, its culmination and a resultant state — a situation where the apple is eaten by John. Suppose now that in terms of the discourse representation, the difference between the In-Progress and Culminated events is the following. In-Progress events introduce one Event file card (with a number instantiating the variable index on *e*), while Culminated events introduce two: one corresponding to the event itself (e.g. ‘John has eaten an apple’), and the other corresponding to the Resultant state. Let us say that the card representing the culminated event projects a new card (with some new number). In other words, a new file card which is necessary for the interpretation, can be introduced in the discourse as a result of a projection by another card, representing a culminated event. Let me show now that this is precisely what happens in the case of Russian root infinitives: I will argue that these clauses are represented by the projected event cards.

First of all, notice that the projection is possible only in the case of a culminated event because only such an event is associated with a resultant state. Thus, it is predicted that Russian RIs should be possible only if, in the discourse, they follow some other, necessarily culminated event. This is, indeed, the case:

(13) a. Korol' rasskazal anekdot. Carevna xoxotat'
King (has) told a joke. Princess to-laugh.

- b. Korol' rasskazyval anekdot. *Carevna xoxotat'.
King was telling a joke. Princess to-laugh.
- (14) a. Fokusnik pokazal fokus. Zriteli applodirovat'
Magician (has) performed a trick. Spectators to-applaud.
- b. Fokusnik pokazyval fokus. *Zriteli applodirovat'
Magician was performing a trick. Spectators to-applaud.

Corresponding tensed clauses are grammatical both after In-Progress and Culminated events (e.g. in (13b), it is possible to say *carevna xoxotala* 'Princess was laughing', or *carevna načala xoxotat* 'Princess started to laugh').

The second prediction is that the Russian RIs must be interpreted as a result of some other event, assumed to be known to other participants in the conversation (that is, by an event already represented in the file). This is so because the card representing a RI is the Resultant Event card, and has to be interpreted as such. In fact, this is exactly the intuition of how these clauses are understood: as a result, a consequence of some other event. This can be seen clearly from the way the discourse can be paraphrased:

- (15) a. Carevna načala xoxotat' potomu čto korol' rasskazal anekdot.
Princess started to laugh because the King has told a joke.
- b. Zriteli načali applodirovat' tak kak fokusnik pokazal fokus.
Spectators started to applaud as the magician has performed a trick.

Any other, "independent", non-resultative interpretation is impossible. In fact, these clauses are impossible without a very specific context that supplies the "projecting" event, that is an event whose culmination resulted in the event described by the RI.

The third characteristic of RIs is that they have an inceptive reading. That is the interpretation of the second clause in (13a) is that the event of laughing just started; moreover, it started as soon as the first event (king telling a joke) culminated. Incidentally, this is why for some speakers RIs sound better with a temporal deictic marker *tut* which can be translated as 'here', 'then', 'at this moment of narration' (e.g. *tut carevna xoxotat* 'here Princess to-laugh'). This is also predicted by the proposed theory. Recall that the first ("projecting") event must be culminated and that the RI's event takes up the projected Event card. Now, according to Pianesi and Varzi 1996 and Giorgi and Pianesi 1997, culminated events are topologically closed, which means that their left and right boundaries are specified. Moreover, as Giorgi and Pianesi show, the left boundary of Parsons' Resultant eventuality is the right boundary of the culminated event. In terms of the proposed theory, it means that the projected event card has a left boundary temporal specification, that is that it represents an event that initiates at a particular time *t* (which is the time of the culmination of the first event.) Hence, the inceptive interpretation of the sentence.

1.3 Further Constraints on Russian RIs

The absence of an index on T^0 in these constructions explains two other facts about the distribution of RIs. First, as mentioned above, quantified subjects are not allowed:

- (16) a. *Nikto ne xoxotat'
 nobody not to-laugh
 'Nobody started to laugh'
 b. ?*každyj zritel' aplodirovat'
 every spectator to-applaud
 'every spectator started to applaud'
 c. *kto xoxotat'?'
 who to-laugh
 'Who started to laugh?'

As T^0 has no index, the subject NP cannot have an index, either. But this is not an option for quantifiers: these elements undergo QR and therefore must bear an index to enter an operator-variable relation. Thus, the “indexless” representation of (16) is uninterpretable and is ruled out. Notice also that if D-linked QPs do not undergo QR (as in Pesetsky 1987), they should be allowed in RIs. This is indeed the case: (17) is significantly better than (16).⁵

- (17) a. ??Tut každyj zritel' v zale aplodirovat'
 here every spectator in the theatre to-applaud
 'every spectator in this theatre started to applaud'
 b. ??kto iz nix xoxotat'?'
 which of them to-laugh
 'Which of them started to laugh?'

Another constraint imposed on RIs is that they are impossible in embedded clauses:

- (18) a. *Ivan dumal čto carevna xoxotat'.
 Ivan thought that princess to-laugh
 b. *Artisty xoteli čtoby zriteli aplodirovat'.
 actors wanted that[SUBJ] spectators to-applaud
 c. *Ja nadejalsja čto gosti kričat' ot radosti
 I hoped that guests to-cry loud out of joy

Neither Indicative (a,c), nor Subjunctive (b) embedded clauses allow infinitives. To explain this ungrammaticality, I will assume Guéron and Hoekstra's (1995) Tense Chain theory. According to these authors, e , T^0 and Comp form a chain, and therefore must be coindexed. Since e and T^0 in these constructions are indexless, they cannot form a chain

⁵ As in any other example with D-linked *wh*-phrases (including Pesetsky's own examples in English), the judgments become somewhat vague. This is perhaps due to the less rigid nature of discourse-related operations. For example, the variability in judgements may be due to how willing informants are to interpret a particular *wh*-phrase as D-linked. This phenomenon should be viewed as experimental noise. What is crucial, therefore, is whether there is a contrast between D-linked and non-D-linked *wh*-questions.

with Comp; thus, the sentences are ruled out.⁶

Let me turn now to another case of root infinitive clauses, this time in English.

2. The Headline Register

In this Section, I provide discourse-based analyses of so-called Headlines (Stowell 1996, Schutze 1997, Avrutin to appear), exemplified in (37).

- (19) a. PRESIDENT TO VISIT RUSSIA
- b. UNIONS TO GO ON STRIKE
- c. McDONALD'S TO SERVE BEER.

An intuitive view on this type of constructions is that in order to save the headline space, editors simply drop “irrelevant” material such as modal *be*. For example, (19a) should read as ‘President is to visit Russia’, with *is* dropped. There are various reasons to question this simplified view on headlines. First of all, the “space limitation” argument characterizes conditions when a certain register is used, but does not provide a linguistic analysis of this construction. Moreover, it is not clear why *to* cannot be dropped as well, after all, the headline will still be interpretable and even more space will be saved. More importantly, there are linguistic constraints that cannot be explained by simply saying that something is dropped to save space. Stowell 1996, for example, shows that the distribution of definite and indefinite NPs in Headlines is subject to specific linguistic constraints, an issue that I will not address here.

Let me turn now to the analyses of Headlines, which, as will be seen shortly, are similar to the Russian RIs. Let us assume that the infinitival particle *to* occupies the head of the Tense projection (T^0). Clearly, *to* does not denote any time interval, thus, as in Russian RIs, English T^0 has no index. Following the discussion above, the event variable *e* contributed by the predicate, and the subject NP are indexless, too:

- (20) PRESIDENT T^0 TO VISIT(*e*) RUSSIA

This sentence is syntactically well-formed but uninterpretable. As in the case of Russian RIs, the only way to obtain an interpretable representation is to introduce an Event(uality) file card representing the event of the headline by some discourse — based, non-syntactic way. Notice that (at least intuitively) this event also describes an eventuality that takes place as a result of some state of affairs discussed in the text under the headline. For example, (21) is an appropriate headline for a text discussing some event that resulted in the unions going on strike.

⁶ Another possible explanation may be related to the relationship between the matrix and embedded events. Suppose that the matrix verb denotes the anchoring event (Enç 1987, Giorgi and Pianesi 1996), that is that the embedded event must be interpreted (temporally) relative to the matrix event. This, however, contradicts the requirement that the event of the infinitival clause be represented through a projected file card representing a Resultant eventuality of some culminated event. I will not pursue this line of reasoning, however.

(21) UNIONS TO GO ON STRIKE

The relevant text may cover the deadlocked negotiations between the administration and the unions, or some other state of affairs that resulted in the strike. In other words, as in the case with Russian RIs, the event denoted by the headline is interpreted as a consequence of some other event specified in the discourse.⁷

There are several differences between Russian RIs and Headlines, of course. One of them is the temporal interpretation: unlike Russian sentences, headlines do not speak of an event that initiates immediately after the culmination of the other event. Rather, the interpretation is that this event will take place some time in the future. I propose that the difference between the two types of root infinitives is due to the presence of *to* in Headlines. Specifically, suppose that *to* contributes a semantic feature [+irrealis], which is interpreted in the temporal domain as [-past] (see Guéron and Hoekstra 1995).⁸ In the discourse, the headline event is represented by a new Event card, which is projected as a Resultant Event file card. But due to the presence of *to*, it is interpreted as temporally “disjoint” from the culminated event, that is as an event whose left boundary is not identical to the right boundary of the culminated event. Therefore, headlines do not have an inceptive reading characteristic of the Russian RIs.⁹

Notice that some properties of the Russian RIs are predicted to hold of headlines as well. For example, since T^0 has no index, it cannot be part of a T^0 chain formed with Comp. Headlines thus should not be possible in embedded contexts, which is a correct prediction:

- (22) a. *STATE DEPARTMENT ANNOUNCES THAT CLINTON TO VISIT RUSSIA
b. *WORKERS HOPE THAT UNIONS TO GO ON STRIKE

As in Russian, quantified subject NPs are judged at best as marginal (although I found some variation among speakers in this case):

- (23) a. PRESIDENT TO VISIT RUSSIA. *BUT NOBODY TO MEET WITH YELTSIN.
b. REPUBLICANS TO LOWER TAXES. *WHO TO PAY THE BILL?

Since quantifiers require an index at LF to enter an operator — variable relation, both T^0 and NP must have indices. Thus, (23) is ruled out, although, as in Russian, D-linked quantifiers are more acceptable:

- (24) a. ??WHICH OF THE TWO PARTIES TO PAY THE BILL?
b. ??NONE OF THE US SENATORS TO VISIT RUSSIA THIS YEAR

⁷ Another possibility (suggested to me by Maaïke Verrips) is that the Event File Card is introduced simply by the fact that the sentence is a headline, i.e. by its layout and position in the newspaper. This by itself may be sufficient as headlines are used to convey news, which means, in the unmarked case, events.

⁸ I assume that Past and Present tenses are [+past].

⁹ In the absence of syntactic representation of tense, the only way to express futurity is semantic, that is by using an element marked as [+irrealis]. That is why *to* is obligatory in Headlines.

3. Mad Magazine Register

This register that also allows tenseless verbs in main clauses has been extensively discussed in Akmajan (1984) and Schutze (1997). Examples in (25) are from Hyams (1996):

- (25) a. John dance. Never in a million years!
b. My brother marry Mary. Over my dead body!
c. Herman eat bean sprouts. Why?

Following the analysis offered in previous sections, these infinitival clauses are also represented in the discourse by Event(uality) cards. This is so because T^0 is unindexed, and so is the subject NP. Thus, the only possible interpretation of the NP is as a participant in the event described by the predicate. As predicted, these clauses cannot be embedded, exactly as in the case of Russian RIs and Headlines:

- (26) a. *Mary says that John dance. Never in a million years!
b. *My mother hopes that my brother marry Mary. Never!
c. *I suspect that Herman eat bean sprouts. But why?!

Only clauses with a T^0 bearing an index can be embedded, as T^0 and C^0 are parts of the Tense chain. Quantifiers seem to be marginal, too, and judgments improve with D-linked quantifiers. Compare (27) and (28).

- (27) a. *What?? No one dance? Impossible!!
b. *Who marry Mary? And why??!!
c. *Everyone run a mile every morning??? Incredible!
(28) a. ??What?? None of you dance? Impossible!!
b. ??Which of them marry Mary? And why??!!
c. ??Everyone of them run a mile every morning??? Incredible!

Thus, because of the indexless character of T^0 in the Mad Magazine sentences, the two constraints discussed above for the Russian RIs and Headlines also hold for this register.

A clear difference lies in the way these clauses are interpreted. First of all, they do not denote either inceptive, or closed events. Rather, a certain attitude is expressed towards an assertion that some event takes, or might take place. In other words, I suggest that in order for, say, (25a) to be interpretable, the event of John dancing has to be presupposed. Then, some attitude can be expressed towards this presupposition, e.g. strange, impossible, etc., or it can even be denied as a contradiction to the previously existing knowledge (*Never!!!*).

Let me hypothesize that a presupposed event introduces a new Event file card in the discourse that can represent the event of the Mad Magazine clause. Thus, as in the case of Russian RIs and Headlines, the subject NP is interpreted indirectly, as a participant in a certain event. In the case of Mad Magazine clauses, however, the Event file card is not projected (i.e. it does not correspond to a Resultant state), but is introduced in the discourse through a presupposition.

4. Achievement Predicates, Perfective Constructions, and Pronouns in Tenseless Clauses

In this section I discuss some other similarities and differences between the three types of Root Infinitival constructions: Russian RIs, Headlines, and the Mad Magazine register. I will demonstrate that these constructions pattern together with respect to the distribution of perfective clauses, while differ from each other with respect to the distribution of achievement predicates and pronouns.

4.1 Achievement Predicates

Achievement predicates, such as *reach the top*, *win the race*, *sign the bill*, pattern differently across the three constructions.

Russian RIs:

- (29) a. *Tut al'pinist dostigat' veršinu.
here (the) mountain climber to reach (the) top
b. *Tut bokser pobeždat' nokautom
here (the) boxer to win (by) knock-out
c. *Tut Jeltsin podpisat' bill
here Jeltsin to sign (the) bill

Headlines:

- (30) a. MARY SMITH TO REACH THE TOP IN TWO DAYS
b. TYSON TO WIN THE FIGHT
c. CLINTON TO SIGN THE CRIME BILL

Mad Magazine:

- (31) a. What??? Mary reach the top in two days? You are kidding!!!
b. Tyson win the fight??!! Never!
c. Clinton sign the bill??!! Impossible...

Thus, achievement predicates are allowed in Headlines and Mad Magazine, but disallowed in the Russian RIs. To explain these facts, I adopt the generalization in Giorgi and Pianesi 1996, who, in turn, follow Klein 1992, which is given in (32):

- (32) A consequent state cannot be definite.

A consequent state is definite whenever both its boundaries are definite. In our terms, an Event File card representing a Resultant state cannot be interpreted as having specific left and right temporal boundaries. Let me show now how this constraint explains the above differences between the three types of infinitival clauses.

First of all, since (32) applies only to consequent (resultant) states, it has nothing to say about the Event file cards that were introduced by some other way (not as a result of projection). Thus, it has nothing to say about the Mad Magazine clauses, whatever predicates they contain. As we see (31) is, indeed, grammatical.

Second, notice that achievement predicates necessarily denote events with a specific right boundary ('topologically closed events', as in Giorgi and Pianesi 1996.) Moreover, Russian RIs are represented by projected Event cards whose left boundary is determined by the right boundary of the culminated event. In other words, their left boundary is always specified. If the predicate in the RI is an achievement predicate, both its left and right boundaries are specified, which means that the event is definite. But this contradicts the constraint in (32), hence the ungrammaticality of the Russian RIs with achievement predicates in (32).

The situation is different with Headlines, though. Recall that these events, although represented by projected cards, are disjoint from the corresponding culminated events. This means that, unlike Russian RIs, their left boundary is not specified. Then, even if the predicate in the headline is an achievement predicate, that is if the right boundary of the event is specified, it does not result in the event being definite: only its right, but not its left boundary is specified. As the event is not definite, the sentences are grammatical, as shown in (30). Thus, the proposed theory correctly predicts the differences between the Russian RIs, on the one hand, and Headlines and Mad Magazine sentences, on the other.

4.2 *Perfective Constructions*

Perfective constructions, on the other hand, are uniformly unacceptable across the three types of the tenseless clauses:

- (33) *Tut Boris narubit' drova (o.k.: ... *rubit'* ... 'to-chip')
 here Boris to-have-chipped firewood
 'Boris has chipped firewood'
- (34) *CLINTON TO HAVE VISITED RUSSIA BY MAY.
- (35) *John/*him/*he have danced? Never!

With regard to the Russian RIs in (33), it will suffice to note that perfective constructions denote events with a definite right boundary. As discussed in the previous section, the left boundary of these events are defined as the right boundary of the culminated event. This means that (33) will denote a definite event, which contradicts the requirement in (32). Thus, in the case of Russian, the explanation is identical to the one with achievement predicates.

The situation is different with (34) and (35), however, since the left boundary of the events in this case is not definite. Even if the right boundary is specified, as in the case of perfective constructions, the sentences still should be acceptable, which is not the case. Notice, however, that English perfective constructions require an auxiliary verb. According to the Tense Chain theory (Guéron and Hoekstra 1995), adopted in this work, auxiliaries must always be part of the T-chain. It follows that the C^0 , AUX, T^0 and e must all be coindexed (thus providing a temporal interpretation of a culminated event), which is not the case in Headlines or Mad Magazine clauses where T^0 and e are indexless. Since the Tense Chain condition is violated, (34) and (35) are ruled out.

4.3 Pronouns in Root Infinitives

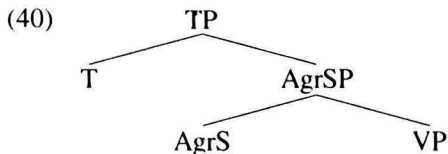
The distribution of pronouns shows another difference between the three types of infinitival clauses. In this case, Russian RIs pattern together with the Mad Magazine sentences in that both of them, but not Headline, allow subject pronouns:

- (36) Carevne rasskazali anekdot. Ona xoxotat'.
Princess was told a joke. She to laugh.
- (37) John????!! Him dance??? Impossible
- (38) a. ATTENTION READER! YOU ARE TO WIN \$1,000,000!
b. ATTENTION READER! *YOU TO WIN \$1,000,000!
c. YELTSIN APPOINTS HIS DAUGHTER. SHE IS TO BUILD MARKET ECONOMY
d. YELTSIN APPOINTS HIS DAUGHTER. *SHE/*HER TO BUILD MARKET ECONOMY
e. TYSON CLAIMS: "I AM TO WIN!"
f. TYSON CLAIMS: "*I/*ME TO WIN!"

The explanation I propose is based on the theory of phrase structure developed in Giorgi and Pianesi (1996). According to these authors, languages may differ in the featural composition of various projections. In English, for example, agreement and tense features belong to the same bundle and therefore project a single category AGR/T:



In Italian, and I argue in Russian as well, agreement and tense features belong to different feature bundles and project separate projections AgrSP and TP, as in (40).



Moreover, I hypothesize that for a pronoun to be identifiable, it needs to be supported by the presence of agreement features in a corresponding functional projection. Pronouns, in some sense, are referentially deficient (compared to R-expressions) in that they have to be interpreted with the help of some other elements: operators (when pronouns are interpreted as bound variables), R-expressions (when pronouns are referring), or as deictic elements. Thus, I assume that pronouns (at least subject pronouns, which are relevant for the current discussion) can be fully interpretable (identifiable) only if the

clause contains a projection with agreement features.¹⁰

Notice now that only Headlines requires an infinitival particle *to*. Suppose that this particle can appear in AGR/T position only under the condition that this projection is completely “empty”, that is it contains no features whatsoever. Crucially, it must have no agreement features. The particle *to* in this sense is an overt marker of the featureless nature of a functional head. It follows then that pronouns cannot appear in a Headlines RIs, which is shown to be true in (38).

In Russian, on the other hand, agreement features project their own projection. I assume that these features in Russian are always present (notice that there is no infinitival particle comparable with *to* in English). In this case, pronouns should be acceptable in Russian RIs, as demonstrated in (36).

Regarding Mad Magazine sentences, I will simply assume that they are similar to small clauses in that they contain agreement features (though no tense features). It may be the case that the features are scattered (as in Giorgi and Pianesi’s proposal), with agreement features heading their own projection. Or, there is only one projection AGR/T-P, which contains only agreement features. The choice between the two options is not crucial for my purposes. Importantly, the relevant position is not completely empty, therefore *to* is not allowed:

(41) *John to dance??? Never!!!

But due to the presence of agreement features, pronouns are allowed, as demonstrated in (37).¹¹

5. The Optional Infinitive Stage

5.1 *Presuppositional Introduction of an Event File Card*

It is well known that children acquiring non-pro-drop languages pass through the stage when they optionally allow untensed matrix clauses (the Optional Infinitive stage, Wexler 1995). Some examples are given below:

- (41) a. Michelle dormir. (French: Pierce 1989)
Michelle sleep
b. Pappa schoenen wassen (Dutch: Weverink 1989)
daddy shoes wash

¹⁰ In Avrutin (1994a), I show that pronouns interpreted as bound variables in Russian undergo LF raising to adjoin to a functional head. This head can be AgrS, which would be consistent with the theory developed here.

¹¹ In Avrutin (to appear) I argue that the subject NP appears in its default case in RIs, which is Nominative in Russian and Accusative in English. The exact mechanism of case assignment in RIs remains to be determined, but, crucially, it is not a structural case assigned by finite T⁰.

- c. Thorstn das haben (German: Wexler 1995)
Thorsten that have
- d. Mommy eat cookie (English: Radford 1990)

As we have seen above, Root Infinitives are also allowed in some adult registers, provided that certain discourse conditions are satisfied. In what follows, I will argue that children's RIs do not violate any syntactic conditions on well-formedness, but rather represent an abnormal introduction of an Event File Card into discourse.

I propose that young children allow a non-syntactic, presuppositional introduction of an Event card. In this sense, the discourse representation of a RI in child speech is similar to the Mad Magazine register, although the range of pragmatic circumstances in which this representation is possible is larger than in adult speech. Children can be said to describe a certain situation in terms of events, rather than in terms of individuals involved in some action. The meaning of the sentence, its truth condition, remains the same; what differs is the way how this proposition is represented in the discourse. When expressing a proposition "Mummy is eating a cookie", children represent it in the discourse by presupposing an Event card (a situation) rather than introducing this card by translating the index of an event variable (and indices on subject and object NPs as numbers of the individual file cards inside of the Event card.)¹²

(42)

EVENT eating <hr style="width: 50%; margin: 0;"/> (t) Mommy cookie AGENT THEME

As in the case with adult RIs, T^0 and subject NP have no indices, and the subject NP is interpreted indirectly, as a participant in the event. Unlike the Mad Magazine clauses, however, children allow these sentences without any specific contextual circumstances. On the other hand, RIs in child English are different from Headlines. Recall that in English AgrS and T^0 project one functional category AGR/T-P. My claim is that AGR/T-P has no index as it lacks the necessary features contributed (usually) by finite T^0 . I further argued that in Headlines agreement features are also missing which made, on the one hand, the insertion of *to* possible, and, on the other, the subject pronoun impossible. Suppose now that in children's RIs, agreement features are present.¹³ The non-finite AGR/T-P still has no index but since *to* is possible only in the absence of any

¹² The notion of event presupposition is intended here to do the same job as the presupposition of a discourse referent does in the case of definite NPs. It is well known that children sometimes produce definite NPs (e.g. the cat) without there being any discourse referent *known to other participant in the conversation*. Similar errors are made with pronouns. In Avrutin 1994, I argue that these errors are related to the difficulties of integrating syntactic and discourse knowledge. In the same vein, children may incorrectly introduce the discourse event referent, and then use it as a legitimate entity in their discourse representation.

¹³ See, for example, Wexler (1995) and references cited there who argues for the presence of Agreement in early grammar.

features, this particle should not occur in children's RIs. Indeed, sentences like 'Mommy to eat cookie' are not observed in child speech. Furthermore, since the agreement features are present, the subject pronoun in children's RIs, unlike Headlines, should be allowed. This is indeed the case: pronouns are often observed as subjects of RIs in English speaking children.¹⁴

Let us see now how this proposal accounts for the empirical data observed in child speech. First of all, assuming that children do not violate any syntactic constraints it is predicted that in those constructions where T^0 must bear an index because of some syntactic constraints, RIs should be impossible. Indeed, there is evidence that this prediction is borne out. As discussed above, (following Guéron and Hoekstra 1995) auxiliaries must be part of the Tense chain. Therefore, they must bear an index because all members of the chain must be coindexed. If so, auxiliaries are predicted to be always tensed. In fact, this is precisely what is observed in child speech: Crisma 1992 (among others) shows that children do not allow untensed auxiliaries even at the stage when main verbs appear in their infinitival forms.

Furthermore, the proposed analysis predicts that in those cases where T^0 undergoes overt movement, Root Infinitives should be impossible. This is so because the moved T^0 must bind its trace; binding requires coindexation, which means that T^0 must bear an index. The relevant evidence comes from languages that exhibit I^0 to C^0 movement. As shown in Phillips 1995, there are no Root Infinitives in *wh*-questions in languages with I^0 to C^0 movement, although RIs in *wh*-questions in other languages (e.g. English) are observed (see Roeper and Rohrbacher 1994, Bromberger and Wexler 1995).

The second prediction is that quantifiers should not appear as subjects of RIs in child speech because, as discussed above, these elements always require an index at LF, which means that T^0 must also bear an index. Unfortunately, this prediction is not testable because at the age when children allow root infinitives, they hardly use any quantifiers at all, either in tensed, or untensed clauses.¹⁵

The next prediction has to do with the availability of untensed clauses in embedded constructions. As mentioned above, infinitives are disallowed in embedded clauses in all three constructions discussed above. We predict then that they should not be found in embedded clauses in children's speech. This prediction again is not testable because by the time children use embedded sentences, they are usually beyond the Optional

¹⁴ Unlike the Mad Magazine clauses, however, that also allow pronouns, children's RIs allow both Nominative and Accusative subject pronouns (Schutze and Wexler 1996). But according to the proposed theory, the structural (i.e. Nominative) case should be disallowed. I will assume that those children who at this age allow both cases have not yet figured out the default case in English. Alternatively, we may assume that these children relate the structural case to the agreement features on AGR/T-P, not to the finiteness of Tense.

¹⁵ See, however, Phillips 1995 who shows that there are some subject WHO-questions in child speech. At the moment, I have no better explanation for this finding than to assume that WHO-questions in early child speech are D-linked, an assumption that does not appear to be too far-fetched. If so, the subject does not raise at LF, does not require an index, and the unindexed AGR/T-P is allowed.

Infinitive stage. However, indirectly, this prediction is borne out.¹⁶ Hyams (1996) relates the availability of root infinitives to the availability of null subjects in the speech of children acquiring non-pro-drop languages, such as English. According to her analysis, the subject of these constructions for children is PRO. PRO is allowed precisely because Tense is unindexed which makes PRO ungoverned. Moreover, Valian (1991) noticed that English speaking children do not allow null subjects in embedded clauses. Thus, the fact that PRO is not allowed for English speaking children in embedded clauses can be used as indirect evidence for the fact that Tense must bear an index (to be part of the Tense chain with Comp), exactly as in the case of embedded clauses in adult grammar discussed in previous sections.¹⁷

Interestingly, RIs do not appear with all kinds of verbs at the Optional Infinitive stage. For example, Wijnen 1997, in an experimental study demonstrated that Dutch speaking children use both finite and non-finite forms with activity verbs (e.g. *bouwen* 'to build'), but only finite forms with non-eventive verbs (e.g. *heeft* 'possesses'). Moreover, sentences with the verb *to be* (e.g. as in (43)) are unattested in child speech, and, as reported in Ingram and Thompson 1996, among others, and discussed above (Crisma 1992), modals are always tensed.

(43) Mummy be hungry.

With regard to (43) and modals, I will simply follow Wexler (1995) and Hyams (1996) who argue that (probably because of its featural composition) *be* must always bear an index, or, in other words, be tensed. In their analyses, this requirement comes from the constraints on the interpretability. The same conclusion follows from Guéron and Hoekstra's theory because *be* and modals must always be part of the tense chain and, therefore, must bear indices.

To explain why children produce significantly more untensed clauses with activity verbs, we need to recall how the subject NP is interpreted in this case. Given that the subject does not bear an index, the corresponding file card does not have a number, and is interpreted indirectly, as a participant in the event represented by the presupposed file card. Interestingly, Russian RIs are more acceptable with agentive, animate subject NPs.

(44) a. Rebenok prygat' ot radosti.
child to jump of joy

¹⁶ For an alternative view see Roberts 1996 who argues that children do produce infinitives in embedded clauses. My impression, however, is that the data are very limited and not entirely clear to interpret them in any conclusive way.

¹⁷ This discussion brings up an important and actively discussed question of whether children have full or truncated clausal structure. From the theory proposed here it follows that CP level is absent in RIs. This is so because T must always be coindexed with Comp (otherwise there will be a violation of the Tense chain condition.) This of course does not mean that the child grammar is unable to generate a full clause: As I argued above, adults who, of course, are competent speakers, also produce, under some specific circumstances, clauses with missing CP level.

- d. ?²Tut tuča rasti.
here cloud to grow

Suppose the more agentive an NP is, the better accessible it is in the discourse (for the discussion of accessibility see Ariel 1990). As these NPs are not interpreted directly, it is reasonable to suppose that better accessible NPs will be better subjects of RIs. I hypothesize that the same holds for the children's RIs. The subject of an activity verb is usually a more prominent entity (i.e. an animate agent) than the subject of stative verb (e.g. a theme, animate, or inanimate). Thus, subjects of activity predicates are better accessible, and, therefore, are found more often in the RIs produced by Dutch children.¹⁸

Conclusions

Root Infinitive clauses are productive and interpretable in a variety of registers found in adult languages. I proposed to explain their grammaticality in terms of a syntax — discourse interface theory that argues that a unit of discourse representation can be an entity larger than an individual, specifically, an event. In the absence of indices on NPs in syntax, these NPs can only be interpreted indirectly, as participants in events. The Event File Cards can be introduced in discourse either through projection, or through presupposition. The proposed theory accounts in a uniform way for the constraints on the possible RIs in adult grammar and provides an explanation for the existence of the Optional Infinitive stage in language acquisition. Two important questions that I have not addressed in this article are the following. First, children acquiring null subject languages (e.g. Italian) rarely produce root infinitives. The question is how to account for this fact in terms of the proposed theory. Second, how do children “get out” of the Optional Infinitive stage? What triggers the end of this stage? Both of these questions are addressed in Avrutin (to appear).

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¹⁸ Notice that the same explanation will account for the absence of RIs with *be* and modals since the subject NPs in these cases are clearly non-agentive.

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