On the Semantics of Verbs of Motion in Russian*

Olga Kagan

The Hebrew University of Jerusalem

olgamail@mscc.huji.ac.il

0. Introduction

In this paper, I discuss the aspectual properties of verbs of manner of motion in Russian. These verbs are characterized by special aspectual properties, since in addition to the typical perfective/imperfective opposition, they exhibit a further aspectual distinction, sometimes referred to in the literature as *determinate / indeterminate* contrast. Determinate and indeterminate verbs do not differ in terms of their lexical meaning but do have different aspectual usages.

The determinate/indeterminate contrast is illustrated in (1):

1 a. Maša šla   po parku.
   Masha walked$_{\text{DET IMP}}$ in park
   Masha was walking in the park.
  b. Maša xodila   po parku.
   Masha walked $_{\text{IND IMP}}$ in park
   Masha used to walk in the park. / Masha (has) walked in the park.

(1a) reports a single event of Masha walking in the park in a single direction. In turn, (1b), out of context, can be associated with a wide range of readings. It may encode a single event of Masha walking about in the park, i.e. walking here and there, in various directions. It may also receive a habitual reading, according to which Masha used to walk in the park in the past, as well as a (non-habitual) iterative reading, whereby it means roughly that Masha walked in the park several times. However, (1b) seems to be incompatible with the only meaning that is available for (1a), i.e. it cannot report a single event of Masha walking in a single direction.

The goal of this paper is to provide an analysis of determinate and indeterminate aspect. (Although this aspectual opposition is exhibited by both imperfective and perfective verbs of motion, below, I will focus only on imperfective predicates). I will propose an intensional approach to determinate verbs that is based on the analysis of the English progressive developed by Dowty (1979). Further, I will argue that indeterminate aspect constitutes an identity function and that the aspectual restrictions imposed on sentences which contain indeterminate verbs are pragmatic, rather than semantic, in nature.

The paper is organized as follows. I will begin with a brief introduction into Russian aspectual system in Section 1. Section 2 introduces the determinate/indeterminate contrast on verbs of motion on a descriptive level. Section 3 contains a formal semantic analysis of determinate aspect. Finally, in Section 4 I investigate semantic and pragmatic properties of the especially challenging indeterminate imperfective.

1. The Perfective/Imperfective Distinction in Russian

In Russian, every verb is morphologically marked for aspect – perfective or imperfective. Most (though not all) verb roots are imperfective. A perfective form can then be derived via the attachment of a prefix. As discussed extensively by Filip (1999, 2000), a number of different prefixes can be attached to the same root, and the attachment of a prefix, in addition to making the verb perfective, tends to affect its lexical meaning. This state of affairs is illustrated in Column B of Table 1. In turn, a prefixed form can be made imperfective by the attachment of the imperfectivizing suffix –(y)*va* (Column C).

Table 1

A - Imperfective	B - Perfective	C - Imperfective
čitat' (read)	pro-čitat' (read) do-čitat' (finish reading) pere-čitat' (reread) po-čitat' (read for a while)	pročit-yva-t' (read) dočit-yva-t'(finish reading) perečit-yva-t' (reread) počit-yva-t' (read a little bit once in a while)

With some verbs, different mechanisms of creating perfective and imperfective forms are employed. (For details, see Isačenko (1960), Forsyth (1970), Filip (2000) and references therein.)

Developing a formal analysis of the perfective/imperfective distinction in Russian is beyond the scope of this paper. (For detailed analyses of the semantics of Slavic aspect, see Filip (1999, 2000, in press), Borik (2002), Filip and Rothstein (2006), Kagan (in press) and references therein). Below, I briefly discuss the perfective/imperfective opposition on a relatively descriptive level.

Perfective aspect is normally used to encode a single bounded, completed event. Thus, perfectivity generally entails telicity or boundedness.

2 a. Ivan postroil dom.
    Ivan built$_{PERF}$ house(sg)
    Ivan built / has built a house.
  b. Lena vypila   vino.
    Lena drank$_{PERF}$ wine
    Lena drank the wine.

For instance, (2a) entails that Ivan finished building the house; according to this sentence, the building event has reached its natural endpoint. Analogously, (2b) entails that Lena finished drinking the contextually specified quantity of wine.

In turn, **imperfective aspect** is characterized by a wide range of usages, some of which are introduced below.

One of the typical usages of the imperfective is the progressive, or durative, usage, exemplified in (3):

3. Lena čitala   knigu, kogda vošol   Miša.
   Lena read_{IMP} book   when entered_{PERF} Misha
   Lena was reading a book when Misha came in.

The verb *čitala* (read) is imperfective, and the best way to translate it to English is by using a progressive form. The sentence asserts that Lena was engaged in the process of reading at the temporal interval contributed by the embedded clause. Similarly to its English progressive counterpart, (3) does not entail that Lena finished reading the book. In other words, it does not entail that the event encoded by the imperfective clause reached its natural endpoint.

Another typical usage of the imperfective is exhibited in habitual or iterative sentences.

4 a. Lena myla   posudu každyj den'.
     Lena washed_{IMP} dishes   every day
     Lena used to wash the dishes every day.
  b. Lena zvonila   ves'   den'.
     Lena phoned_{IMP} whole day
     Lena phoned all day.

(4a) is a habitual sentence. Importantly, due to the presence of an imperfective verb, it can receive a habitual interpretation even in the absence of the adjunct *každyj den'* (every day). (4b) does not involve habituality or genericity; however, it does encode a set of repeated events, an interpretation that, again, is associated with imperfectivity.

Thirdly, imperfective verbs appear in sentences that exhibit the so-called Statement of Fact convention of usage, discussed extensively in Forsyth (1970), Comrie (1976), Smith (1991) and Gronn (2003), among others. Under this convention, a sentence with an imperfective verb roughly asserts that an event of a certain type did take place. The focus in this case is not on how many times the event occurred and whether it took place once or repeatedly, but rather on the mere fact that this kind of eventuality has been instantiated. In this sense, Statement of Fact convention resembles Experiential Perfect in English, as pointed out by Gronn (2003). Sentences under discussion typically assert that the subject has some kind of experience – of course, in a very broad sense of the term. For example, (5a) below states that Petja has the experience of crossing the channel. According to (5b), Lena has the experience of taking the medicine in question, and is therefore familiar with the medicine.

5 a. Petja (uže)   peresekal etot kanal.
     Petja already crossed_{IMP} this channel
     Petja has (already) crossed this channel.   (adapted from Borik 2002)
  b. Lena (uže)   prinimala eto lekarstvo.
      Lena already took_{IMP}   this medicine
      Lena has (already) taken this medicine.

Importantly, a single event of the specified type is sufficient to make sentences of this kind true, even if telic event predicates are involved. For instance, (5b) entails that Lena took the medicine *at least once*. This point is supported by the fact that, under

the Statement of Fact interpretation, an imperfective verb is perfectly compatible with such adjuncts as *(tol'ko) odin raz* ((only) once):

6. Lena prinimala eto   lekarstvo tol'ko odin raz.
   Lena took$_{IMP}$ this medicine only one time
   Lena took this medicine only once.

This reveals that imperfectivity does not entail atelicity. Rather, imperfective aspect is compatible with both atelic and telic event predicates (even if a single event is encoded). (For a discussion of this point, see Filip (1999, 2000), Borik (2002) and Kagan (in press), among others.)

In the next section, I turn to a discussion of verbs of motion.

2. Verbs of Motion.
2.1 Determinate and Indeterminate Verbs: Introducing the Distinction.
It has been demonstrated above that imperfective aspect is associated with a number of different usages. However, typically, for a given verb, all these usages involve exactly the same imperfective form. Verbs of manner of motion are special in this respect, since they have two distinct imperfective forms (determinate and indeterminate) which divide their aspectual functions in a certain way.

Table 2 below contains a list of determinate/indeterminate pairs of verbs of motion in Russian. Most verbs on the list are taken from Forsyth (1970).

Table 2

DETERMINATE	INDETERMINATE	TRANSLATION
idti	xodit'	walk
bežat'	begat'	run
jexat'	jezdit'	ride, go (by car, train, etc.)
plyt'	plavat'	swim, sail
letet'	letat'	fly
polzti	polzat'	crawl
lezt'	lazit' / lazat'	climb
vesti	vodit'	drive, lead
vezti	vozit'	transport
nesti	nosit'	carry
nestis'	nosit'sja	run quickly (informal)
taščit'	taskat'	drag
katit'	katat'	roll (transitive)
katit'sja	katat'sja	roll, wallow (intransitive)
gnat'	gonjat'	career about, bay (an animal)

In the remainder of this section, I discuss intuitive interpretational properties that characterize the two classes of verbs.

2.2 The Interpretation of Determinate Imperfectives

As discussed by Forsyth (1970), sentences that contain a determinate imperfective verb denote a single event of motion in a single direction.

7 a. Lena šla   po ulice (okolo desjati minut).
     Lena walked_{DET IMP} on street near   ten   minutes
     Lena was walking / walked down the street (for about ten minutes).
   b. Katja bežala   v magazin.
     Katja   ran_{DET IMP} to shop
     Katja was running to a shop.

For instance, (7a) encodes a single event of Lena walking in one direction down the street. This sentence is not interpreted habitually. In this sense determinate aspect is similar to the English progressive. English progressive sentences do not typically receive a habitual reading, unless such an interpretation is forced in the presence of an overt iterativity-inducing operator. The case is similar with determinate aspect in Russian.

Properties shared by imperfective determinate and progressive aspect are not limited to typically encoding a single event. For instance, both types of aspect are associated with lack of commitment that the encoded event reaches its inherent endpoint (if it is inherently telic). Whenever a determinate imperfective verb combines with a goal phrase (7b), the resulting sentence does NOT entail that the goal is achieved. Thus, (7b) does not entail that Katja reached the shop. The same holds for the English translation of the sentence.

In addition, both English progressive sentences and sentences that contain determinate imperfective verbs in Russian can received a planned future reading, exemplified in (8). A further discussion of this interpretation is beyond the scope of this paper, however. (See Dowty (1979) and Forsyth (1970) for an investigation of this usage of the English progressive and Russian determinate aspect, respectively.)

8 a. I am going to the theatre tomorrow.
   b. Segodnja večerom Lena jedet   v aeroport.
     today   evening Lena rides_{DET IMP} to airport.
     Lena is going to the airport this evening.

2.3 The Interpretation of Indeterminate Imperfectives

The range of meanings available to indeterminate imperfectives is much wider.
I will now discuss several possible readings that are listed by Forsyth (1970).

2.3.1 Multiple Directions

Firstly, indeterminate imperfective aspect is found under the so-called multiple directions reading. This is a usage whereby a sentence with an indeterminate verb encodes what is conceived of as a single event, which is an event of motion "of one or more subjects in various unspecified directions" (Forsyth 1970:321).

9 a. Lena xodila   po parku.
     Lena walked_{IND IMP} in park
     Lena was walking about in the park.

b. Sejčas rebjonok begaet   po komnate.
   now   child   runs$_{IND\ IMP}$ in room
   The child is now running about in the room.

For instance, (9a) means that Lena was walking about in the park, walking here and there, rather than that she was moving in any particular direction.

2.3.2 Iterativity
Secondly, indeterminate aspect is used in habitual and iterative sentences.

10 a. Lena (často) ezdit   v   derevnju.
    Lena often   rides$_{IND\ IMP}$ to village
    Lena (often) goes to the village.
   b. Dima ezdit   iz   Francii v Germaniju poezdom.
     Dima rides$_{IND\ IMP}$ from France to Germany   train$_{INSTR}$
     Dima goes from France to Germany by train.

For instance, both (10a) and (10b) are habitual sentences. Importantly, even in the absence of the adverbial *často* (often), (10a) receives a habitual reading; it is not interpreted as encoding a single event.

2.3.3 Naming the Type of Motion (Generic Sentences)
In addition, Forsyth notes that indeterminate verbs can be used to "denote the type of motion as a generalized phenomenon without reference to any specific occasion" (1970:321). This usage is exemplified in (11):

11 a. Naš rebjonok uže   xodit.
     our child   already walks$_{IND\ IMP}$
   b. Lena vodit   mašinu.
     Lena drives$_{IND\ IMP}$ car
     Lena drives a car. (=Lena can drive a car)
   c. Pticy letajut.
     birds fly$_{IND\ IMP}$
     Birds (can) fly.

These examples constitute a type of generic sentences. Rather than denoting a given event or set of events taking place in the actual world at a particular temporal interval, they receive a modalized reading. For instance, (11c) encodes a certain non-accidental pattern which is predicted to hold not only in reality but also in alternative possible worlds in which birds behave normally (Asher and Morreau 1995). (11b) reports Lena's ability to drive a car; she may not do so in reality, for instance, because she has no car, but she is predicted to do the driving in potential appropriate situations.

Forsyth claims that, since indeterminate aspect is characterized by a wide range of different usages, it cannot be provided a unified account. Rather, it should be treated as a default aspect which lacks a unified semantics and which is used whenever determinate aspect is inappropriate.
Below, formal accounts of determinate and indeterminate aspect are proposed. In Section 3, I formulate a semantic analysis of determinate verbs which is based on Dowty's intensional approach to the English progressive. In Section 4, I investigate

the interpretation of sentences that contain indeterminate verbs. I will assume, following Forsyth, that the indeterminate is indeed the default aspect, but argue that, despite this fact, it can and should be assigned a unified semantics.

3. Imperfective Determinate Verbs: The Analysis

It has been revealed in Section 2.2 that numerous properties are shared by the determinate aspect in Russian and the progressive viewpoint in English. Different analyses have been proposed for the English progressive, and, in principle, any of them could be adapted to capture the semantics of the determinate imperfective. For the purposes of this paper, I will focus on the intensional account of the progressive proposed by Dowty (1979).

It is a well-known fact that with telic event predicates, a past progressive sentence does not entail its past simple counterpart. This fact is often referred to as The Imperfective Paradox. For instance, (12a) below does not entail (12b).

12 a. John was building a house.
   b. John built a house.

The truth of (12a) does not guarantee the truth of (12b), since the former but not the latter sentence entails that the reported event reached its natural endpoint. At the same time, we have an intuition that if (12a) is true and if the event in question develops normally, naturally, without interference, then (12b) will eventually become true as well.

To capture this intuition, Dowty introduces the notion of *inertia worlds*, which is formally defined in (13). The intuitive idea is that an inertia world is a world in which the relevant events reach their normal completion.

13. For any interval i and worlds w and w',
    w' is an inertia world with respect to <i,w> iff everything which is going
    on in w during i reaches its normal completion in w'.

(Portner 1994:508)

The analysis of progressive aspect which is based on the notion of inertia worlds is provided in (14):

14. [PROG φ] is true at <i, w> iff for some interval i' such that $i \subset i'$ and i is
    not a final subinterval for i', and for all w' such that w' $\in$ Inr(<i, w>), φ is
    true at <i', w'>.

(Dowty 1979:149)

A progressive sentence entails that the event reaches its normal completion in inertia worlds, although it may but need not reach one in the actual world.

This analysis under the current formulation cannot be adopted to account for determinate aspect in Russian since determinate aspect differs from the English progressive in one important respect. As is revealed in (14), the rule for the progressive involves a condition that i not be the final subinterval of i'. Namely, the event encoded by a progressive sentence cannot include its natural endpoint, even

though this endpoint may be eventually reached in the actual world. In contrast, a sentence with a determinate verb may encode an event that includes the endpoint, even though this is not obligatory. Thus, (15) is compatible with a situation whereby it took Dima exactly ten minutes to reach school.

15. Dima šol   v školu   desjat' minut.
    Dima walked$_{\text{DET IMP}}$ to school ten   minutes
    Dima walked to school for ten minutes.

However, it is also compatible with a situation in which Dima did not come to school by the end of the ten-minute interval.

I therefore propose the following analysis of the semantics of determinate aspect:

16. A sentence S that contains a determinate imperfective verb is true at $\langle i,w \rangle$ iff
    For some interval i' such that $i \subseteq i'$, and for all w' such that $w' \in \text{Inr}(\langle i, w \rangle)$, φ is true at $\langle i', w' \rangle$.

    where φ is the propositional content of S

The restriction in (16) is essentially the same as the one provided in (14), except for the fact that it allows for i to be identical to i'[1]. If i=i', then the reported event reaches its natural endpoint in the actual world. The proposed analysis therefore captures both the parallel between the determinate and the progressive aspect and the contrast between the two viewpoints that has been referred to above.

4. Indeterminate Aspect
4.1. Indeterminate Aspect and Single Events of Motion in a Single Direction
If we assume, contrary to Forsyth, that indeterminate aspect can be assigned a unified semantics, then the first candidate for the unifying property would be iterativity, or event plurality. It is clearly involved in iterative and habitual sentences, in which indeterminate verbs are used. In addition, we would not be surprised if an iterativity encoding form were used in generic sentences, discussed in Section 2.3.3. Finally, the multiple directions reading available to indeterminate verbs can also be conceived of as involving event plurality. The overall event of motion in multiple directions can be conceived of as consisting of a plurality of subevents, each of which constitutes an event of motion in a single direction. Once the direction is changed, one such subevent ends and another begins. Thus, the notion of event plurality seems to unify all the usages of indeterminate verbs.

However, an analysis of this aspect in terms of event plurality faces an important problem: indeterminate aspect is, in fact, compatible with the "single event of motion in a single direction" interpretation. Below, I provide evidence the single event interpretation is possible for sentences with indeterminate verbs and, thus, that

---

[1] Krifka (1992) treats progressive sentences as involving a part (rather than proper part) relation. Similarly, Filip (1999, 2000) argues that imperfective aspect in Slavic encodes a partitivity (rather than proper part) condition. The modification introduced in (16) is therefore in the spirit of Krifka's and Filip's approach to imperfectivity.

indeterminate aspect does not entail iterativity. Then, in Section 4.2, I propose an alternative unified analysis of this aspect.

4.1.1 Negation
Firstly, the fact that sentences with indeterminate verbs do not entail event plurality is revealed under negation. Negative sentences that contain an indeterminate verb do not only deny the fact that an event took place repeatedly, or more than once. They assert that the event in question did not take place *even once*.

17. Lena (eščo) ne   ezdila   v derevnju.
    Lena yet   NEG rode$_{\text{IND IMP}}$ to village
    Lena didn't go to the village / has never gone to the village yet.

Thus, (17) entails that Lena did not go to the village even once. A single event is sufficient to make the sentence false, which, in turn, means that a single event is sufficient to make its affirmative counterpart true.

4.1.2 Interrogatives
The same conclusion can be drawn if interrogative clauses with indeterminate verbs are considered. For instance, consider the polar interrogative in (18):

18. Ty xodil   v etot teatr?
    you walked$_{\text{IND IMP}}$ to this theatre
    Have you been in this theatre?

A single event of the addressee going to the theatre is sufficient in order for the answer to (18) to be positive. This suggests that the proposition with which this question is associated is made true by a single event of motion in a single direction.

4.1.3 Statement of Fact Interpretation
The compatibility of indeterminate aspect with a single event interpretation is revealed not only in downward-entailing environments. It can also be seen in sentences that exhibit the Statement of Fact convention. Statement of Fact sentences with verbs of motion typically involve indeterminate aspect. An example is provided in (19):

19. Lena uže   letala   vo Franciju.
    Lena already flew$_{\text{IND IMP}}$ to France
    ≈ Lena went to France by plane.

As discussed in Section 1, a single event of the specified type is sufficient to make a Statement of Fact sentence true. Indeed, (19) entails that Lena went to France *at least once*. It does not entail iterativity; a single event of moving in the specified direction is sufficient to make it true. The sentence basically means that Lena has the experience of going to France by plane. Moreover, (19) is compatible with the adjunct *odin raz* (once), which makes it especially clear that the indeterminate verb is compatible with a single event interpretation.

20. Odin raz   Lena uže   letala   vo Franciju.
    one   time Lena already flew$_{\text{IND IMP}}$ to France
    ≈ Lena went to France by plane once.

A number of additional examples of the same kind, found in the internet, are provided in (21):

21 a. Ja…tol'ko odin raz ezdil   v gorod.
      I   only   one time rode$_{\text{IND IMP}}$ to city
      I went to the city only once.
   b. Ja odin raz   xodil   na katok.
      I one time walked$_{\text{IND IMP}}$ on skating-rink
      I went to the skating-rink once.
   c. Poka   ja tol'ko odin raz   plaval   za   granicu.
      meanwhile I   only   one   time swam$_{\text{IND IMP}}$ behind border
      Meanwhile I sailed abroad only once.

(19)-(21) reveal that event plurality is not obligatory in the presence of an indeterminate verb.

It is sometimes claimed that such sentences as (19)-(21) do, in fact, encode two subevents. For instance, it seems to follow from (20) that Lena is no longer in France at the time of speech, but rather that she flew to France and back. And it has been claimed that such sentences, indeed, encode the "there and back" motion, which means that we deal not strictly with iterativity, but still with some kind of event plurality. The discussion of the "there and back" reading can be found in Forsyth (1970), among others.

I believe, however, that the claim that the sentences in question *entail* motion in two directions is incorrect. Semantically, such sentences as (19) and (20) encode only the "there" motion event, and they are made true by one event of motion in one direction. The "back" event is merely an implicature. For reasons of space, I will be able to relate to this issue only briefly. First, (20) is true even if Lena went to France by plane but went back by train. Namely, it is true if the "back" motion is not of the manner specified by the verb. Thus, the "back" event may be of a different manner; in addition, its goal is certainly not the goal specified in the sentence. This suggests that this event cannot be encoded by the VP.

Secondly, the fact that the "back" motion is not entailed is especially clear in sentences that lack a goal phrase. Thus, (22) is clearly made true by a single event of the speaker driving in one direction. It can easily be followed by (23).

22. Segodnja ja vodila   mašinu.
    today   I drove$_{\text{IND IMP}}$ car
    I drove a car today.
23. Dima dal mne projexat' ot doma do magazina. Obratno ja vernulas' peškom.
    Dima let me drive (his car) from my/his home to the shop. I walked back.

Finally, negation facts prove that sentences like (19) are made true by a single event. Namely, if we negate such sentences, as exemplified in (24), the resulting sentence

entails that the "there" journey did not take place. Thus, (24) entails that the speaker did not go to Paris by plane. However, had the corresponding affirmative sentence encoded two events (motion there and back), the non-realization of one of them would be sufficient for this sentence to be negated. Namely, we would expect the negative sentence to be true if the motion "there" did take place and the motion "back" did not. This does hold for (25), which explicitly asserts that motion in two directions took place. This sentence can be felicitously followed by (26). But (24) cannot be followed by (26), nor even by a sentence meaning "I only came to Paris". This results from the fact that if the speaker came to Paris by plane, that is sufficient for (24) to be false, whatever the state of affairs with the back journey is.

24. Ja ne   letala   v Pariž.
    I NEG flew$_{\text{IND IMP}}$ to Paris
    I didn't go to Paris by plane.
25. Ja ne   letala   v Pariž i   obratno.
    I NEG flew$_{\text{IND IMP}}$ to Paris and back
    I didn't go to Paris and back by plane.
26. Ja priletela tuda, a obratno ujexala poezdom.
    I came there by plane and went back by train

To sum up, Statement of Fact convention examples reveal that a sentence with an indeterminate verb is made true by a single event of motion in a single direction.

4.1.4 Preliminary Conclusions

On the basis of the facts discussed above we can conclude that a sentence with a determinate verb entails its counterpart with an indeterminate verb.

determinate $\Rightarrow$ indeterminate
bežal (ran$_{\text{DET IMP}}$) $\Rightarrow$ *begal*(ran$_{\text{IND IMP}}$)

$\neg$ indeterminate $\Rightarrow \neg$ determinate
$\neg$ *begal* $\Rightarrow \neg$ *bežal*

For instance, the truth of (27a) guarantees the truth of (27b).

27 a. Lena bežala   v storonu   supermarketa.
      Lena ran$_{\text{DET IMP}}$ in direction supermarket$_{\text{GEN}}$
      Lena ran / was running in the direction of the supermarket.
   b. Lena begala   v storonu   supermarketa.
      Lena ran$_{\text{IND IMP}}$ in direction supermarket$_{\text{GEN}}$
      Lena ran in the direction of the supermarket.

(27a) entails that a single event of Lena running in the direction of the supermarket took place, and, according to the discussion above, this is sufficient to make (27b), a sentence that contains an indeterminate imperfective verb, true. Thus, if (27a) is true, (28a) below, a Statement of Fact sentence, is true and appropriate as well. In addition, the truth of (27a) guarantees the correctness of a positive answer to (28b) and the falsity of the negative sentence in (28c), both of which contain an indeterminate verb.

28 a. Lena uže   begala   v storonu supermarketa.
      Lena already ran$_{\text{IND IMP}}$ in direction supermarket$_{\text{GEN}}$
      Lena has already run in the direction of the supermarket.
   b. Lena begala   v storonu supermarketa?
      Lena ran$_{\text{IND IMP}}$ in direction supermarket$_{\text{GEN}}$
      Has Lena run in the direction of the supermarket?
   c. Lena ne   begala   v storonu supermarketa.
      Lena NEG ran$_{\text{IND IMP}}$ in direction supermarket$_{\text{GEN}}$
      Lena didn't / hasn't run in the direction of the supermarket.

These observations demonstrate that (27a) above entails (27b). However, they also reveal a puzzling fact regarding sentences with indeterminate verbs, such as (27b). On the one hand, a single event of motion in a single direction is sufficient to make such sentences true. On the other hand, uttering such sentences to report a single event is often inappropriate. Thus, (27b) is made true by one event of running in the direction of the supermarket. At the same time, at least out of context, it seems inappropriate to utter this sentence to report a particular single running event. I will propose an explanation for this puzzle in the next section, after formulating an analysis of indeterminate aspect.

4.2 Indeterminate Aspect: The Analysis

The discussion in Section 4.1 above reveals that indeterminate aspect does not encode event plurality. I propose that rather, the denotation of an indeterminate verb is only lexically restricted. Its semantics is not restricted aspectually. Essentially, a sentence with an indeterminate verb means that a motion event of the manner specified by the verb and the arguments *has been instantiated*. For instance, the semantics of (29a) below is formalized in (29b):

29 a. Dima begal.
      Dima ran$_{\text{IND IMP}}$
   b. λe [run-Dima (e) $\wedge \tau(e) < t_0$]

Thus, I propose to analyze indeterminate aspect as an identity function[2]. This analysis accounts for the fact that indeterminate predicates are semantically compatible with both single event and plurality of events interpretations. It also predicts the compatibility of indeterminate aspect with the Statement of Fact interpretation, since sentences that exhibit this convention entail that an event property is instantiated. This is precisely the semantics that I propose to assign to sentences with indeterminate verbs. In addition, the proposed analysis captures the negation facts introduced in Section 4.1.1. A negative sentence with an indeterminate verb is predicted to entail that the event property in question has not been instantiated, which means that even a

---

[2] I assume an approach to the imperfective that treats it as a default aspect which should be analyzed as an identity function. (For discussion of the default aspect approach to imperfectivity, see Forsyth (1970), Klein (1995), Kagan (in press) and references therein). Under this approach, indeterminate aspect should be treated as an instance of the "ordinary" imperfective, whereas determinate verbs are characterized by special aspectual properties. If one assumes a different analysis of the imperfective, for instance, one according to which imperfectivity encodes atelicity (e.g. Smith 1991), the approach to indeterminate aspect would have to be modified accordingly. In particular, this aspect should be subject to exactly the same restrictions as the ordinary imperfective.

single event of the specified type did not take place. The prediction is borne out, as revealed above.

The question that remains unanswered at this stage is why indeterminate verbs tend to be incompatible with a "single event in a single direction" meaning in affirmative clauses. Why is the usage of this aspect intuitively associated with event plurality? Why is (27b), repeated below, not likely to be used to encode a single motion event?

27 b. Lena begala   v storonu supermarketa.
      Lena ran$_{\text{IND IMP}}$ in direction supermarket$_{\text{GEN}}$
      Lena ran in the direction of the supermarket.

I propose that the restriction under discussion is not semantic in nature, but rather pragmatic. The usage of indeterminate aspect is subject to an independently motivated informativeness constraint, which can be derived from the Gricean Maxim of Quantity. This constraint has been divided in the literature into two principles, Maximize Assertion and Maximize Presupposition. The formulation that these principles receive in Sauerland (2003b) is provided below:

30. *Maximize Assertion:* Use the most informative assertion that is true.
   Maximize Presupposition: Use the most informative presupposition that is satisfied.

If two grammatical forms are compatible with the same interpretation, we are instructed by (30) to use the one which has a more restricted meaning, i.e. the one that contributes stronger entailments or presuppositions. If the less restricted form is used, the hearer concludes that the use of the more restricted item was impossible because its presuppositions or semantic restrictions are not satisfied.

These constraints have been claimed to determine the choice between competing grammatical forms in different languages and within the framework of various phenomena; for instance, Heim (1991), who introduces Maximize Presupposition, argues that this principle determines the choice between definite and indefinite NPs. Sauerland (2003a) claims that the same principle restricts the usage of the plural morphology, and in Kagan (in press), it is proposed that Maximize Assertion determines in certain cases the choice between perfective and imperfective verb forms in Russian.

Turning back to verbs of motion, crucially, a determinate form is clearly more informative than its indeterminate counterpart. Therefore, whenever the former is appropriate, the latter is ruled out by Maximize Assertion. This is why indeterminate aspect is not generally used to report a single, one-way motion event: this interpretation is compatible with the more informative determinate form. The distribution of indeterminate verbs therefore reveals the important role that is devoted to pragmatic restrictions in Russian aspectual system.

Importantly, we can now account for the puzzle noted in Section 4.1.4. It has been pointed out that sentences with indeterminate verbs are made true by a single event of motion in a single direction, but are not typically appropriate if such an event is being encoded. Semantically, such sentences are perfectly compatible with this

interpretation, but pragmatically, once a single event is encoded, they are ruled out by Maximize Assertion (unless the special Statement of Fact reading is invoked).

Table 3 below lists the different aspectual meanings that are available to determinate and indeterminate verbs in Russian. It can be seen that the range of meanings available for indeterminate verbs is dependent on the range of meanings of their determinate counterparts. Indeterminate verbs can get any aspectual meanings except for the ones that are available to determinate verbs. Crucially, we can now account for this fact without assuming, following Forsyth, that indeterminate aspect lacks a unified semantics.

Table 3: The Range of Meanings of Imperfective Verbs of Motion

Interpretations	Determinate (e.g. *idti*)	Indeterminate(e.g. *xodit'*)
single event of motion in a single direction	√	X
Statement of Fact	X	√
progressive (single direction)	√	X
progressive (multiple directions)	X	√
Iterativity	X	√
Genericity	X	√

To sum up, in this paper, I have proposed a formal semantics analysis of determinate and indeterminate imperfective verbs of motion in Russian. I have developed an account of determinate verbs that is based on Dowty's approach to the English progressive. I further argued that indeterminate verbs can be assigned a unified semantics, as illustrated in (29b). Essentially, the indeterminate aspect constitutes an identity function. The usage of these verbs is restricted by pragmatic principles, in particular, by Maximize Assertion, which dictates that out of two (or more) competing grammatical forms, the one with stronger entailments has to be used.

References

Asher, Nicholas and Michael Morreau. (1995). "What Some Generic Sentences Mean". In: G.N. Carlson and F.J. Pelletier, eds., *The Generic Book*. Chicago: University of Chicago Press.

Bahry, Sharon Elizabeth. (1997). *Towards a More Graphic Representation of Russian Simple Verbs of Motion*. M.A. Thesis.
http://www.collectionscanada.ca/obj/s4/f2/dsk2/ftp04/mq22513.pdf

Bennett, Michael and Barbara H. Partee. (1972). "Toward the Logic of Tense and Aspect in English". Bloomington, Indiana University Linguistic Club.

Borik, Olga. (2002). *Aspect and Reference Time*. Ph.D. dissertation, University of Utrecht.

Brecht, Richard D. (1989). "The Form and Function of Aspect in Russian". In: *Russian Morphosyntax*. Columbus: Slavica.

Comrie, B. (1976). *Aspect*. Cambridge: Cambridge University Press.

Dowty, David R. (1979). *Word and Meaning in Montague Grammar*. Dordrecht: D. Reidel Publishing Company.

Filip, Hana. (1999). *Aspect, Eventuality Types and Nominal Refrence*. New York and London: Garland Publishing, Inc.

Filip, Hana. (2000). "The Quantization Puzzle". In: C. Tenny and J. Pustejovsky, eds., *Events as Grammatical Objects*. Stanford: CSLI Publications.

Filip, Hana. (2003). "Prefixes and the Delimitation of Events". *Journal of Slavic Linguistics* 11(1): 55-101.

Filip, Hana. (in press). "Events and Maximalization". In: Susan Rothstein, ed., *Theoretical and Crosslinguistic Approaches to the Semantics of Aspect*. Amsterdam: John Benjamins.

Filip, Hana and Susan Rothstein. (2006). "Telicity as a Semantic Parameter". In: James Lavine, Steven Franks, Hana Filip and Mila Tasseva-Kurktchieva, eds., *Annual Workshop on Formal Approaches to Slavic Linguistics*: The Princeton University Meeting. Ann Arbor: Michigan Slavic Publications. Forsyth, James. (1970). *A Grammar of Aspect*. Cambridge: Cambridge University Press.

Greenberg, Marc and Stephen M. Dickey. (2006) "Slavic *Jazditi 'To Ride' and Its Implications for the Category of (In-)Determinacy". In: Marko Jesensek and Zinka Zorko, eds. Jezikovna predanost. Akademiku prof. dr. Jozetu Toporisicu ob 80-letnici. Maribor: Slavisticno drustvo Maribor, 153-8.

Grice, H. Paul. "Logic and Conversation". In: Peter Cole and Jerry L. Morgan, eds., *Syntax and Semantics*, vol. 3, *Speech Acts*. New York: Academic Press.

Gronn, Atle. (2003). *The Semantics and Pragmatics of Russian Factual Imperfective*. Ph.D. dissertation, University of Oslo.

Heim, Irene. (1991). "Artikel und Definitheit" ("Articles and Definiteness"). In: A. von Stechow and D. Wunderlich, eds., *Semantik: Ein internationals Handbuch der zeitgen¨ossischen Forschung*. Berlin: de Gruyter, 487–535.

Isačenko, A.V. (2003). *Grammatičeskij stroj russkogo jazyka v sopostavlenii s slovackim*. Moscow-Wien: Jazyki slavjanskoj kultury.

Kagan, Olga. (in press). "On the Semantics of Aspect and Number". To appear in: *Annual Workshop on Formal Approaches to Slavic Linguistics: The Stony Brook Meeting*. Ann Arbor: Michigan Slavic Publications.

Kiparsky, Paul. (1998). "Partitive Case and Aspect". In: M. Butt and W. Geuder, eds., *The Projection of Arguments*. Stanford: CSLI Publications.

Klein, Wolfgang. (1995). "A Time-Relational Analysis of Russian Aspect". *Language* 71: 669-695.

Kratzer, A. (1989). "An Investigation of the Lumps of Thought". *Linguistics and Philosophy* 12: 607-653.

Krifka, Manfred. (1992). "Thematic Relations as Links between Nominal Reference and Temporal Constitution". In: I. Sag and A. Szabolcsi, eds., *Lexical Matters*. Stanford: CSLI Publications, 29-53.

Landman, F. (1992). "The Progressive". *Natural Language Semantics* 1:1-32.

Moltmann, Friederike. (1991). "Measure adverbials". *Linguistics and Philosophy* 14: 629-660.

Partee, Barbara H. (2000). "Some Remarks on Linguistic Uses of the Notion of "Event"". In: C. Tenny and J. Pustejovsky, eds. *Events as Grammatical Objects*. Stanford: CSLI Publications.

Portner, Paul. (1994). "A Uniform Semantics for Aspectual *-ing*". In: Merce Gonzalez, ed., *Proceedings of NELS 24*, vol. 2. Amherst.

Rothstein, Susan. (2004). *Structuring Events*. Oxford: Blackwell Publishing.

Sauerland, Uli. (2003a). "A New Semantics for Number". In: R. Young and Y. Zhou, eds., *Proceedings of SALT 13*. Ithaca: CLC Publications, Cornell University

Sauerland, Uli. (2003b). "Implicated Presuppositions". Paper presented at *Polarity, Scalar Phenomena, Implicatures*. University of Milan Bicocca.

Smith, C. (1991). *The Parameter of Aspect*. Dordrecht: Kluwer Academic Publishers.

Vainikka, Anne and Joan Mailing. (1996). "Is Partitive Case Inherent or Structural?" In: J. Hoeksema, ed., *Partitives*. New York: Mouton de Gruyter.

Zucchi, A. (1999). "Incomplete Events, Intensionality and Imperfective Aspect". *Natural Language Semantics* 7, 179-215.