Semantic and Morphological Reflexes of Functional Categories: The Case of Telicity Marking in L2 Russian[*]

Roumyana Slabakova
University of Iowa

1. Introduction

Aspect has widely been identified as an area presenting the most significant challenge to second language learners of Russian. The following citation from the pedagogical literature illustrates the common perception: "For speakers of English and other language learners who are only familiar with other, structurally similar Western European languages, the Russian verbal system is a *tangled web of unseen connections and morphological pitfalls*. While the number of tenses is limited to present and past with a compound, non-inflected future and the only mood, *per se*, is the indicative, the complexities of the aspectual system offset any perception of simplicity." (Altman, 1992: 52). In this article, I argue that "the tangled web" mentioned above combines two different learning tasks that are worth teasing apart: acquiring that a prefixed verb denotes a telic event, and learning all individual prefixes that are selected by a specific verb. The first type of knowledge involves acquisition of the semantic reflex of a functional category, while the second task essentially involves a mapping problem: lexical learning of different morphemes instantiating the functional category. In acquiring Russian, English native speakers have to switch to another value of the telicity marking parameter (Smith 1991/1997, Slabakova, 1997, 2000, 2001). My experimental results indicate that advanced and intermediate Russian L2 learners have successfully acquired the grammatical mechanism of marking telicity, while still having considerable difficulty with learning the lexical items signaling telicity. I suggest that mapping problem difficulties may persist in interlanguage development long after the actual acquisition of a functional category has been completed.

This interpretation naturally invites the question of what constitutes evidence for successful acquisition of a functional category. Let us consider the three types of knowledge to be acquired. These are:

1) morphological reflexes: target-like usage of inflectional and/or derivational morphology (if any);
2) syntactic reflexes: knowledge of feature strength, which would result in movement prior to or after spell-out, case-marking, etc.; and
3) semantic reflexes: knowledge of the semantic properties of the functional category, or what meanings are computed when the particular functional category is checked.

Both researchers who claim that full acquisition of L2 functional categories is feasible (e.g., Epstein, Flynn, & Martohardjono, 1996; Flynn, 1996; Haznedar & Schwartz, 1997; Lardiere, 1998a, 1998b; Prévost & White, 1999, 2000; Schwartz & Sprouse, 1996; among others) and those who consider access to functional categories to be severely restricted (Hawkins & Chan, 1997; Meisel, 1997; Smith & Tsimpli, 1995; Tsimpli & Roussou, 1991) have investigated the syntactic reflexes of functional morphology in interlanguage production. For example, Lardiere (2000) studied the linguistic production of a Chinese learner of English whose L2 morphological form diverges considerably from that of the target language input. In order to assess whether the learner had a TP in

her interlanguage grammatical system, Lardiere looked at overt syntactic effects of a TP projection, like nominative case checking and (lack of) overt verb movement (among others). Lardiere suggested that the learner demonstrated presence of a TP projection, even if she did not produce past tense morphology reliably (around 35% of the time), because she produced nominative subjects 100 per cent of the time and failed to raise main verbs (the correct option for English). Thus, in investigating the morphological form to syntactic meaning mapping, one type of evidence for acquisition of feature strength comes from overt movement, agreement, case-marking, and other syntactic effects. Another type of evidence may come from directly investigating the semantic reflexes of functional categories, as revealed in L2 comprehension. For example, if on hearing a past tense form a learner understands that a past time event or state is encoded, this would also constitute evidence that the learner has engaged the functional category TP in her interlanguage grammar. This study takes a novel approach to functional category acquisition by zooming in on the functional semantics and morphology, and highlighting a possible dissociation between knowledge of semantic effects and knowledge of the semantics-morphology mapping. In what follows, I consider a functional category to be acquired if its semantic interpretation is over 80% accurate. Next, we turn to what the semantic effects are of the telicity functional category.

2. Russian and English telicity marking

Telic events have inherent endpoints after which they cannot continue, as in (1). Atelic events, on the other hand, do not have inherent endpoints, as in (2).

(1)   eat a/the cake, find a wallet, swim ten laps in the pool
(2)   eat sushi, swim laps in the pool

Telicity is a universal interpretable feature marked on all verbal predicates. In most languages, properties of the object and properties of the verb together encode telic or atelic interpretations of VPs.
    Two major mechanisms of marking telicity have been identified in the literature (Krifka, 1992, 1998; Verkuyl, 1993, 1999): one is to mark the object as exhaustively countable or measurable; the other is to utilize a specific prefix on the verbal form. Russian, which does not have a system of overt determiners, utilizes the verb-marking mechanism of signaling telicity, at least for activities and accomplishments. Verbal forms exist in simple and perfective forms, where the simple form is atelic as in (3), while the perfective form is telic as in (4).[1]

(3)   Masha jela   tort.   atelic
        Masha eat-PAST cake
        'Masha was eating cake'
(4)   Masha s-jela   tort   telic
        Masha PREFIX-eat-PAST cake
        'Masha ate the cake.'

    In addition, there are nineteen perfective prefixes in Russian, combining idiosyncratic lexical meaning(s) with the basic telicity meaning. Each verb selects for a number of them, with subsequent

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[1] The literature on Slavic aspect is divided on the issue of whether Slavic perfective prefixes fall in the domain of grammatical (viewpoint) or lexical (situation) aspect. Most researchers (Comrie, 1976, Dahl, 1985, Kučera, 1983, among others) agree that Slavic aspectual prefixes mark specific ways of presenting the situation as a process, a telic event, or a state. But it is also true that the vast majority of research on Slavic aspect does not necessarily refer to the two levels of aspect marking. Thus we can only conjecture on how most researchers would solve the viewpoint versus situation aspect issue. Among the ones who do have a clear position, Smith 1991/97 (see Chapter 10 written with Gilbert Rappaport) claims that perfective prefixes encode viewpoint aspect. Brecht (1984), Filip (1993, 1994), Piñon (1993), and Verkuyl (1999), however, convincingly argue that Slavic prefixes' contribution to the overall aspectual makeup of the sentence is at the VP (or situation aspect) level. Brecht (1984: 12) explicitly relates prefixes to telicity marking. In this article, I follow Brecht, Filip, Piñon, and Verkuyl, and refer the reader to the original literature. For more evidence supporting this claim, see Slabakova, 2001, pp. 86-7.

changes in lexical meaning. It is important to note that all prefixed verbs are telic, cf. (5a) versus (5b, c, d, e).

(5)   a. pisat' 'write'   atelic
        b. na-pisat' 'write up/out'   telic
        c. pod-pisat' 'sign a document'   telic
        d. do-pisat' 'write to the end (something that was started before)'   telic
        e. vy-pisat' 'order from a catalogue' (among other meanings), etc.   telic

Some Russian prefixes as in (5b) do not add any semantic information to the root meaning over and above that of telicity, they can be thought of as pure telicity markers. Others as in (5c, d, e) have lexical meanings in addition to telicity. Thus, they may denote potentially different, but still telic, events, e.g., signing a document, or ordering from a catalogue.

English uses the object-marking mechanism (again, in accomplishment and activity predicates): specified cardinality (quantized) objects, those that can be exhaustively counted or measured as in (6), mark a telic event, while unspecified cardinality (non-quantized) objects, those that cannot be exhaustively counted or measured as in (7), encode atelic events.

(6)   Masha ate a/the cake.   telic
(7)   Masha ate cake/sushi.   atelic

Following Smith (1991/97), I have argued elsewhere (Slabakova, 1997, 2000, 2001) that Russian and English exhibit two different values of a telicity marking parameter. In capturing the aspectual distinction in phrase structure, I adopt the syntactic decomposition of eventive verbs approach, following Larson (1988), Pustejovsky (1991), Hale and Keyser (1993), and Travis (1992). The trees in (8) and (9) illustrate the proposed phrase markers for English and Russian respectively.
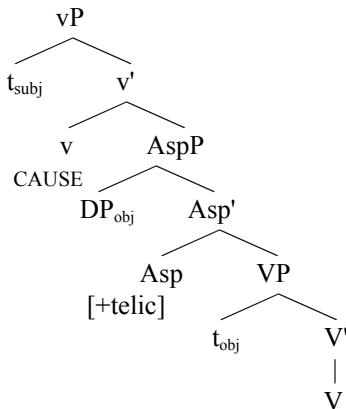
(8)   English   (9)   Russian
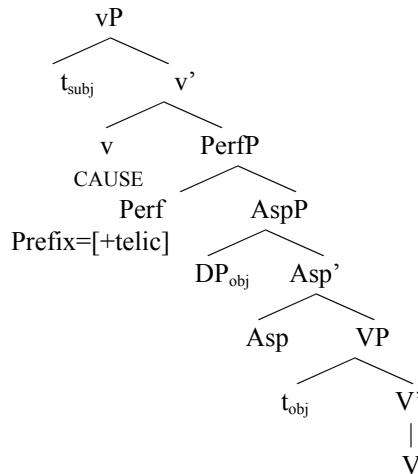
Let us concentrate on the English tree in (8) first. The VP shell structure (Larson, 1988) reflects the semantic fact that events may be viewed as having at least two subevents (Dowty, 1979): a causative subevent and a resultant state. The light vP denotes the causative subevent and the lower VP denotes the resultant state subevent of the eventive classes. This decomposition is reflected by postulating a null CAUSE morpheme in the head of the vP in a VP shell structure (Hale and Keyser, 1993; Pesetsky, 1995; Chomsky, 1995).

Event participants (arguments) take part in the aspectual composition through case checking in AspP (accusative case) and TP (nominative case). AspP is an important functional category for aspect construal. The object moves to the spec of AspP to check accusative case and the verb moves to the

head Asp (Borer, 1994; van Hout, 1996, Schmitt 1996; Travis, 1992). It is at this point, in a spec-head relationship with the verb, that the object DP imparts its temporal-bounding properties to the verb. Depending on a verbal feature (stative or dynamic) and on a nominal feature (specified or unspecified cardinality), the aspect of the whole VP is calculated (Verkuyl, 1993). Whenever the object is of specified cardinality, the interpretation is one of a telic event. Whenever the object is of unspecified cardinality, being a mass or bare plural noun, the interpretation is atelic.[2] Thus the independently needed mechanism of accusative case checking is also used for aspectual feature checking at the syntax-semantics interface.

In Russian, the telic morpheme is overt, it is a lexical morpheme, usually a prefix, on the verb. It occupies the head of a functional projection Perfectivity Phrase (PerfP), a position higher than the one in English.[3] If a preverb is in the Perf°, a position from which it c-commands the object, the interpretation is telic. If there is no preverb in the Perf°, then the interpretation is atelic. Consequently, the cardinality of the object in Russian does not matter for aspectual interpretation, it is only the presence or absence of prefix that signals a(telicity).

3.   Learning tasks and research hypotheses

When English native speakers are acquiring Russian, they are faced with the following two tasks regarding lexical aspect: They have to acquire the fact that all prefixed verbs are telic, and to learn each individual verb with its subset of perfective prefixes. For example, in learning the lexical item for 'write' (see 5 above), a learner has to know that the root *pisat'* is imperfective and denotes an atelic event akin to *be writing*; as well as that its perfective equivalent *na-pisat'* denotes a telic, complete event akin to *write up*. In other words, the learner has to acquire the fact that interpretable features of Russian telicity morphemes still have to be checked in a functional category, say, PerfP, but unlike English, Russian telicity is marked on the verb.

However, the prefix *na-* is not the only pure telicity marker. The verb *est'* 'eat' as in (3) takes a different prefix to signal telicity: *s-jest'* as in (4). A number of other prefixes also have this function: *vy-* as in *vy-pit'* 'drink up'; *po-* as in *po-želat'* 'wish'; *v-* as in *v-ljubit'sja* 'fall in love' are just a few examples. Thus, a learner is not faced with a regular inflectional morpheme signaling telicity every time it is attached to an atelic root, but a number of derivational morphemes lexically selected by individual verbs. The learning task is complicated even further by prefixes, which signal telicity and have additional lexical meanings (5c, d, e). In short, there is a lot of lexical learning to be done in acquiring Russian lexical aspect over and above acquiring that aspectual prefixes signal telicity and have to be checked in a functional category.

Assuming initial transfer from their native English, learners are expected to pay attention to the form of the object at the start of acquisition. For example, they are expected to interpret both sentences in (3) and in (4) as atelic past events, given that the object in both sentences is the mass noun *tort* 'cake'.[4] However, once learners notice that Russian nominal arguments do not mark telicity, they will know that all prefixed verbal forms denote complete events.

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[2] As it stands, this formulation is too strong, of course. Stative verbs are atelic regardless of their objects (e.g., *John likes the girl next door*, *Mary hates this house*). *Push*-type verbs are also not affected by the cardinality of their objects (e.g., *John pushed the cart, Mary drove the red car* are atelic). My analysis captures these facts by postulating that both stative and *push*-type verbs are marked with an atelic feature in the lexicon. Hence, their objects' cardinality is irrelevant for the aspectual composition. The experiment described in this article does not include such verbs.

[3] The analysis I present here has Russian perfective morphemes in a higher, c-commanding position as compared to the functional projection where English telicity is calculated and where the optional telicity-marking particles may be situated (e.g., *up* in *eat up*). Strictly speaking, the experiment does not test the scope effects that obtain from the difference in positions, but the overt versus covert quality of the telicity morpheme. Therefore, I will not offer extensive justification for the higher position of the Russian morpheme and will I refer the reader to Slabakova (1997, 2001) for more arguments.

[4] This hypothesis assumes that even if the learners do not know whether *cake* in Russian is used as a mass or countable noun, they will map the Russian lexical item onto their English nominal feature specification.

Keeping in mind the daunting lexical learning task described above, learners are also expected to have long(er)-term problems with the individual prefix-verb combinations, or with acquiring prefixes as lexical items. Thus, we expect to see a dissociation of accuracy on grammatical meaning of prefixes (their general, telicity-marking property) and idiosyncratic lexical knowledge of specific prefixes. The experimental design described below allows us to tease apart these two sides of acquiring Russian lexical aspect.

4. The study

4.1. Participants

Fifty-eight learners of Russian as well as 41 controls took an on-line test, posted on the Internet. The experimental materials were linked to the Russian and East European studies program website of a research university in the US. Participation was solicited through browser notice boards, email to Russian departments in the US and Canada, and advertising on the Linguist List. Participation was entirely voluntary and could be interrupted at any time. Individuals were not financially compensated for their time and effort. Russian natives who had lived outside Russia or another Russian-speaking country for more than 5 years were discarded from consideration, since it was deemed possible that some first language attrition might have started. The vast majority of Russian learners were college students in the US, the rest were academics or other professionals. Table 1 lists the relevant participant information.

Table 1: Participants' information

		Age	Age of first exposure to Russian	Lived outside of a Russian-speaking country
Natives (*n* = 41)	*mean*	32.2		
	range	18-57	n.a.	2.3 years
Non-natives (*n* = 58)	*mean*	23.7	14.85	
	range	19-46	12-24	n.a.

4. 2. Tasks and materials

The main task of the study was an interpretation test. Participants read 50 simple sentences and chose which of the provided continuations was logically possible. In order to choose a continuation, Russian speakers had to interpret the event as complete (telic) or incomplete (atelic). In order to test for L1 transfer, three conditions manipulated the form of the object, as shown below. Condition A involved mass and bare plural objects, Condition B had singular count objects, and in Condition C objects were modified by overt demonstrative pronoun or quantifier. These conditions were crossed with the two levels of perfectivity as shown below.

(8)   Condition A: objects are mass and bare plural nouns (non-countable)
   a.   *Masha vezla detej domoj…*
        Masha drove children home
        ☐   and the children are not at home yet
        ☐   and the children are now at home
        ☐   both continuations above are possible   ⇐ CORRECT
   b.   *Masha pri-vezla detej domoj…*
        Masha brought children home
        ☐   and the children are now at home   ⇐ CORRECT
        ☐   and the children are not at home yet
        ☐   both continuations above are possible

(9)　　Condition B: objects are countable and singular
a.　*Dasha ela buterbrod…*
　Dasha eat sandwich
　☐　and there is none of it left
　☐　and there is some of it uneaten
　☐　both continuations above are possible　　⇐　CORRECT
b.　*Dasha s'-ela buterbrod…*
　Dasha PERF-eat sandwich
　☐　and there is some of it uneaten
　☐　and there is none of it left　　　　⇐　CORRECT
　☐　both continuations above are possible
(10)　Condition C: objects are modified by overt demonstrative pronoun or quantifier
a.　*Včera večerom　ja smotrel etot fil'm…*
　yesterday evening I　watched this film
　☐　and watched the film to the end
　☐　and did not see it to the end
　☐　both continuations above are possible　　⇐　CORRECT
b.　*Včera večerom　ja po-smotrel　etot fil'm…*
　yesterday evening I　PV-watched this film
　☐　and did not see it to the end
　☐　and watched the film to the end　　　⇐　CORRECT
　☐　both continuations above are possible

　　It is important to notice that since the imperfective aspect highlights the progress of the event but not its final endpoint, the correct answer for all imperfective sentences in the three conditions is "both continuations above are possible". But the atelic answer "and did not finish doing the event" is more salient than the strictly speaking "correct" answer, so it was also accepted as correct. Thus, only one out of three answers was appropriate in perfective sentences but two out of three in imperfective sentences.
　　The second part of the study was a cloze test. It presented continuous text, a fairy tale about the four seasons, with 30 blanks, 5 of which tested lexical knowledge of verbs, and another 5 lexical knowledge of perfective prefixes. Participants had to choose which was the best word for the blank out of the three choices the test provided. Only one answer was appropriate in each case.

(11)　An example of a cloze test sentence checking knowledge of verbs:
　Kogda Leto prišlo, Vesna uže ne _____ prišla /☑ušla / uxodila.
　when Summer came Spring yet not _____ came / go / was going
　'When Summer came, Spring had not gone yet.'
(12)　An example of a cloze test sentence checking knowledge of perfective prefixes:
　S etovo dnja _____po-grustila / grustila / ☑za-grustila Vesna
　from this day　　　　　　was sad for a while / was sad / became sad Spring
　'From this day onwards, Spring became sad.'

4.3. Group Results

The cloze test results were used as a measure of proficiency in Russian. Learners were divided into Advanced, High Intermediate and Low Intermediate groups. Table 2 gives the relevant statistical information. All the learner groups were statistically different from the native speaker controls and from each other in their performance on the proficiency test.

Table 2: Experimental Groups According to the Proficiency Test Scores

	Natives (n = 41)	Advanced (n = 26)	High Intermediate (n = 20)	Low Intermediate (n = 12)
Mean	29.7	28.3	24.5	15.9
Sd	0.5	1.1	1.6	3.57
Range	28-30	27-30	21-26	10-20
Different from Native speakers	-	$p < .05$	$p < .0001$	$p < .0001$

Next, we turn to the results of the interpretation test. Analysis of variance (General Linear Model, repeated measures) was performed on the data, with sentence trial as within factor, and group (Native Speakers, Advanced, High Intermediate, Low Intermediate), perfectivity (imperfective, perfective), and type of object (non-count, count, demonstrative) as the between factors. Effects and interactions are reported in Table 3.

Table 3: Overall Statistics for the Interpretation Task Results

Source	df	F	p-value
Within			
Sentence	4	23.217	0.004*
Between			
Group	3	45.423	0.000*
Perfectivity	1	19.01	0.0001*
Type of object	2	.22	0.801
Group x Perfectivity	3	7.9	0.0001*
Group x Type of object	6	.345	0.913
Perfectivity x Type of object	2	6.09	0.002*
Group x Perf x Object	6	.151	0.989

Overall results revealed significant main effects for group and perfectivity, but no effect of type of object. Two interactions were significant at the $p < .05$ level, those between group and perfectivity, and perfectivity and type of object. These results suggest that the learners were not equally accurate on perfective as they were on imperfective sentences, but that the type of object did not influence their accuracy of interpretation. This conclusion is also supported by the two significant interactions. In what follows we focus on the interaction effects.
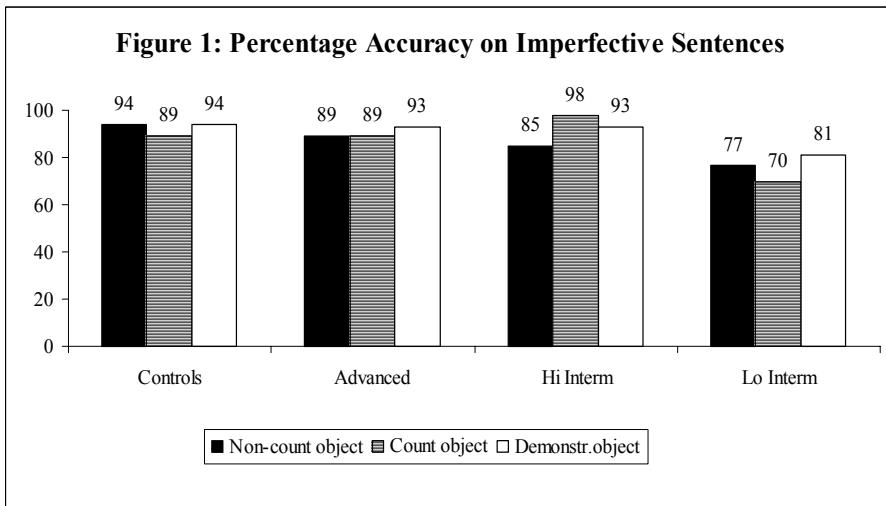
Figure 1: Percentage Accuracy on Imperfective Sentences

Figure 1 represents the partipants' accuracy on imperfect sentences. Analysis of variance (General Linear Model, repeated measures) was performed on the accuracy data from imperfect sentences only, with sentence trial as within factor, and group (NS, Advanced, High Intermediate, Low Intermediate) and type of object (non-count, count, demonstrative) as the between factors. There was a significant effect for group ($F(3,277) = 10$, $p < .0001$), but no effect for type of object ($F(2,277) = 2.65$, $p = .073$) and no interaction between the two factors ($F(6,277) = .26$, $p = .956$). Post-hoc Tukey HSD tests revealed that only the Low Intermediate group was significantly different in accuracy from all the rest of the groups, but the High Intermediate, Advanced, and Native Speaker groups did not differ in accuracy.

## Figure 2: Percentage Accuracy on Perfective Sentences
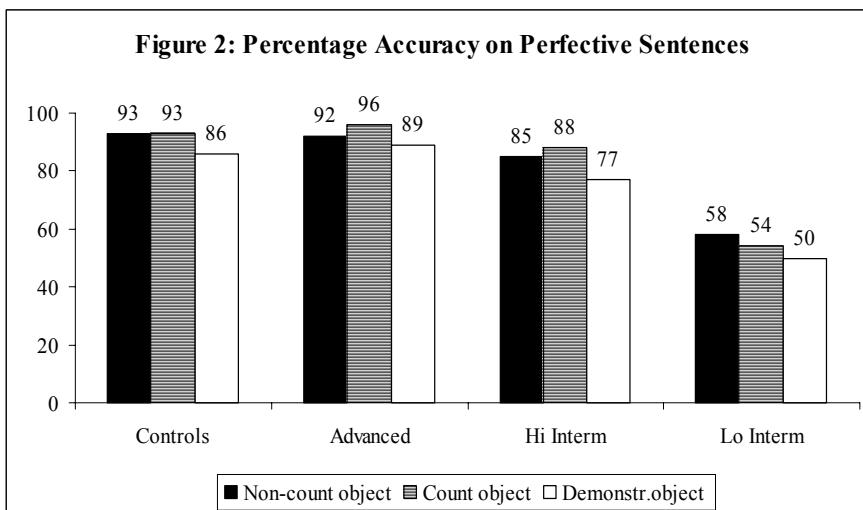
The same type of analysis of variance was performed on the other half of the data: the accuracy results on perfective sentences (see Figure 2). This time, the outcome was somewhat different. There was a significant effect of group ($F(3,277) = 39.04$, $p < .0001$) but an effect for type of object as well ($F(2,277) = 3.56$, $p = .03$). Their interaction, however, was not significant ($F(6,277) = .24$, $p = .96$), suggesting that as learners' overall proficiency develops, they also learn NOT to pay attention to the type of object in calculating the telicity value of a sentence. Post-hoc Tukey HSD tests showed again that the Low Intermediate group was significantly different in accuracy from all the rest of the groups. The Advanced group also differed from the High Intermediate group ($p = .046$). The Native Speakers

and the Advanced did not differ in accuracy. Learners were significantly less accurate on sentences with demonstrative objects than on sentences with non-countable ($p = .014$) and countable ($p = .004$) objects

Next, we zoom in on the performance of the Low Intermediate group. If there is any evidence of transfer from the native language, these are the learners that are most likely to demonstrate it. We have to distinguish between the influence of two variables: how accurate the least advanced learners are on perfective versus imperfective sentences; and what is the effect of type of object, if any. Keeping in mind that chance performance is around 67% for imperfective sentences (due to the two possible answers in the task), but 50% on perfective sentences, the low learners seem to be performing at or just around chance on both perfective and imperfective sentences. In other words, when faced with a perfective verb, they are as likely as not to choose a complete (telic) paraphrase, and when faced with an imperfective sentence, they are also not more likely to choose an atelic paraphrase than a telic one. In other words, no effect of perfectivity demonstrates itself. With respect to the second variable, the influence of the object, one-way ANOVA shows no effect of type of object as well ($F(2,60) = .184$, $p = 832$). In sum, no effect of L1 transfer is detected in the data.

Successful acquisition of lexical aspect is measured not only by knowledge of semantic interpretation but also by lexical knowledge of the morphemes that signal this interpretation. To test the other side of the coin, the cloze test was used as a test of lexical knowledge. Accuracy means are given in Figure 3.

Figure 3: Lexical knowledge of prefixes vs verbs
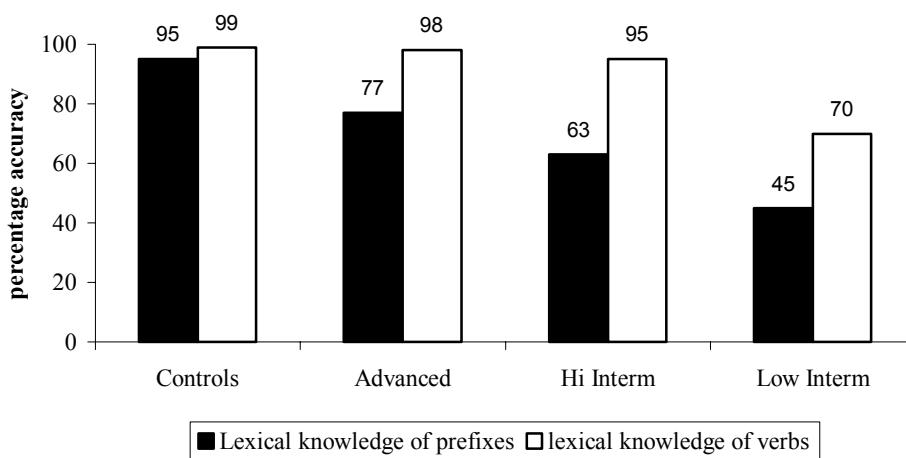
ANOVA reveals that there are highly significant effects of group ($F(3, 183) = 65.2$, $p < .0001$) and of lexical item (prefix versus verb) ($F(3, 183) = 82.4$, $p < .0001$). All participant groups, including the native speakers ($p = .02$), are significantly more accurate in their vocabulary knowledge of verbs than of perfective prefixes. However, for the native speakers this is a difference within a ceiling performance, while for the learner groups there is between 21 and 32 percentage points of difference in each case ($p < .0001$). It is important to notice that *all* learner groups, and not only the Low Intermediates, exhibit this difference. Given the highly accurate performance of the High Intermediates and the Advanced groups on the interpretation task, a dissociation manifests itself between knowledge of the semantics and knowledge of the morphology for all but the least advanced learners.

4.4. *Individual results*

Group results may be misleading when considering second language learner knowledge of a grammatical phenomenon. A group mean, especially if it is low, may be due to half the learners in that group performing accurately, and the other half performing inaccurately. Therefore, it is important to look at individual results as well. Eighty per cent accuracy, or four out of five correct answers in a

condition, was chosen as the cutoff point for accepting that an individual participant had acquired the property in question. Tables 4, 5, and 6 present the number of individuals in each group who could safely be assumed to have performed accurately on imperfective and perfective sentences in the interpretation task, and on the knowledge of verb versus prefix lexical task.

Table 4: Individuals per participant group who are 80% accurate on Imperfective sentences

	Non-count object	Count object	Demonstrative object
Controls (n=41)	41 (100%)	41 (100%)	41 (100%)
Advanced (n=26)	24 (92%)	22 (85%)	24 (92%)
Hi Interm (n=20)	17 (85%)	18 (90%)	19 (95%)
Lo Interm (n=12)	7 (58%)	6 (50%)	11 (92%)

Table 5: Individuals per participant group who are 80% accurate on Perfective sentences

	Non-count object	Count object	Demonstrative object
Controls (n=41)	41 (100%)	41 (100%)	41 (100%)
Advanced (n=26)	25 (96%)	25 (96%)	22 (85%)
Hi Interm (n=20)	16 (80%)	17 (85%)	13 (65%)
Lo Interm (n=12)	4 (33%)	3 (25%)	4 (33%)

Table 6: Individuals per participant group whose lexical knowledge is 80% accurate

	Perfective prefixes	Verbs
Controls (n=41)	41 (100%)	41 (100%)
Advanced (n=26)	17 (65%)	26 (100%)
Hi Interm (n=20)	5 (25%)	20 (100%)
Lo Interm (n=12)	0	4 (33%)

It is important to notice the high percentage of individuals in the Advanced and the High Intermediate groups who have acquired the semantic effect of the aspectual functional category checking. These results come in full support of the group results reported above. However, note that even in the Low Intermediate group, more than half of the learners are accurate on imperfective sentences, and roughly about a third have acquired the Russian mechanism of telicity marking (Table 5). The crucial thing to notice in Table 6 is the even bigger gap between accuracy on perfective prefixes and accuracy on lexical verbs than the group results detected. In the Advanced group, the difference is between 65% and 100 % of individuals, in the High Intermediate group it grows to 25% versus 100 % of individuals. Clearly, these individual results are in support of the group result

findings. It can safely be assumed that the conclusions drawn in the discussion section below are not based on (potentially) statistically misleading averages.

5. Discussion and conclusions

The central concern of this study was whether adult English-speaking Russian learners could acquire full linguistic competence of the aspectual functional category, converging on the grammar of native speakers. Full competence in the aspectual domain was defined as: first, knowledge of the interpretive effect of the presence of perfective prefixes and their meaningful absence, and second, as knowledge of perfective prefix morphemes. The first type of knowledge represents successful engaging of the functional category in which the interpretive feature is checked; the second type of knowledge involves the lexicon at the semantics-morphology interface. Results of interpretation and cloze tests on the perfective/imperfective contrast in Russian administered to 58 learners and 41 native speakers showed that functional category acquisition is not only possible but actually accomplished by the great majority of learners. Advanced and high intermediate learners' performance on perfective and imperfective sentence interpretation was statistically indistinguishable from that of the native speakers. These findings were corroborated by the fact that the majority of individuals in those groups were 80% accurate on both types of sentences.

A related research question asked whether the semantics and the morphology went hand in hand in this developmental process. The answer to this question comes from the findings of the cloze test in comparison with the high accuracy on the interpretation task. The huge dissociation between prefix knowledge and lexical verb knowledge is demonstrated by both group and individual results. Let's consider, for example, the High Intermediate group performance. They are around 80% accurate on the semantics of perfective sentences in Russian (see Figure 2), but they are only 63% accurate on perfective morphological markers. The same is true of the Advanced learner group. In light of the theoretical approach assumed, and based on this dissociation of accuracy, we can conclude that the difficulty in acquiring Russian aspect lies in learning the *lexical items* signaling telicity, but crucially NOT in learning *the grammatical mechanism* for telicity marking.

The important issue of transfer from the native language remains to be discussed. The design of the experiment addressed this issue by providing learners with perfective and imperfective sentence conditions crossed with type of direct object: non-countable bare plurals and mass nouns, countable nouns in the singular, and nouns modified by demonstrative pronouns. Given that their native English uses the form of the object to mark telicity, the prediction was that especially the low proficiency learners would initially pay attention to, and hence be influenced by, the type of object in a sentence. In particular, it was expected that those learners would be more accurate on imperfective sentences with non-count objects, since they would map them onto English activities (e.g., *eat cake, eat apples*). On the other hand, it was expected that the same learners would be aided by count and especially demonstrative objects in interpreting perfective sentences, again based on their English grammar (e.g., *eat this cake, eat an apple*). These predictions were not confirmed by the group and individual results. There is no main effect of type of object in the data overall, nor a significant interaction between group and type of object (see Table 3). The analysis of variance performed separately on imperfective sentences did not yield an effect of object either. ANOVA on perfective sentences did reveal an effect of object, but only in the higher proficiency groups: the demonstrative object condition seemed to pose a bit more difficulty to those learners. In sum, non-count objects do not have an advantage in the imperfective conditions, nor do the count objects in the perfective conditions. The same general picture is confirmed by the individual results (see Tables 4, 5). There are at least two explanations for this state of affairs that come to mind. First, the individuals that I have classified as Low Intermediate may not be true beginners. It is entirely possible that learners at an earlier stage of their development of aspectual knowledge do indeed display L1 transfer (as revealed by the experimental work reported in Slabakova, 1997, 2000, 2001). One should keep in mind that participation in the experimental study was entirely learner initiated, and true beginners are not very likely to take Russian tests posted on the Internet.

Another hypothetical explanation for the lack of L1 transfer comes from the properties of Russian nominals themselves. Definiteness is orthogonal but to some degree overlapping with the marking of

specific quantity (quantization). All definite nouns are quantized (e.g., *the apple*, *the apples*), including the ones modified by a demonstrative (*this apple*). Indefinite nouns split into quantized count singulars (*an apple*) and non-quantized bare plurals and mass nouns (*apples, sushi, cake*) Thus, it is not inconceivable that learners could use definiteness to bootstrap themselves into specific quantity marking. For example, in the test sentence *Masha vezla detej domoj* 'Masha drove/was driving (the) children home', in the absence of context, the learners simply do not know whether the object *detej* should be interpreted as 'children' or 'the children'. Given that definiteness is not overtly encoded, they have no means to access the aspectual interpretation.[5] If this explanation were on the right track, however, we would predict to see overtly demonstrative objects producing a surge of accuracy in the Low Intermediate group perfective results. It is logical to expect that specific quantity, clearly encoded by the demonstrative, will point the learner to a telic interpretation. However, this prediction is not supported by the actual findings (see Figure 2). Therefore, I submit that the findings of the present study are inconclusive as to the issue of L1 transfer.[6]

Even though the effects of transfer are not clearly detected, it is worth noting that the low proficiency learners as a group are performing just about and a bit above chance levels for both the imperfective (chance = 67%) and perfective (chance = 50%) conditions. In other words, these learners may not be relying on their native language, but they are clearly not aware yet of how to mark lexical aspect in Russian. It is important to remember, however, that this brief confusion quickly sorts itself into a highly accurate performance. This latter conclusion is supported by the fact that the more advanced groups are not significantly different from the native speaker group in their semantic interpretation of telicity. Individual accuracy shows that four of the twelve learners in the Low Intermediate group have already acquired the telicity marking mechanism, and this number jumps quickly to about 80% of individual learners at the next proficiency level and to 96% at the advanced level. Thus, there are indications that acquiring the semantic effects of the aspectual functional category may not be subject to a protracted development, but has the nature of a momentary engaging of this functional category. Such a pattern of acquisition is consistent with the idea of a more or less rapid parameter resetting in the L2 acquisition of functional categories. Most learners' superior performance on the semantic reflexes of a functional category in this experimental study constitutes support for the hypothesis that access to functional categories in adult non-native acquisition is not impaired but is in fact fully operational (Epstein, Flynn, & Martohardjono, 1996; Flynn, 1996; Haznedar & Schwartz, 1997; Lardiere, 1998a, 1998b; Prévost & White, 1999, 2000, Schwartz & Sprouse, 1996, among many others).

To conclude, this experimental study has suggested that in the examination of L2 functional category acquisition, semantic effects of these categories are worth investigating. What is more, it is important to tease these effects apart from the lexical knowledge of the relevant morphology. Knowledge of semantic interpretation and semantics-morphology mapping are both necessary conditions for convergent language acquisition; however, one of these aspects of functional category knowledge can develop faster, or even instantaneously. The other aspect may present a (formidable) challenge to the learner memory and lexicon-learning skills. In particular, it was demonstrated here that the common perception that Russian aspect is extremely difficult to acquire, stands in need of correction. What is difficult about Russian telicity marking is learning the various lexemes (aspectual prefixes) that can check the aspectual functional category. What is not difficult at all is acquiring that a prefixed verb denotes a telic event, independent of its direct object. In extending the research program

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[5] This hypothesis assumes, of course, that learners who need to see the form of the object in order to calculate sentence telicity, are not paying attention to the verbal form.

[6] It is possible that a third factor (besides true beginner status and lack of overt articles in Russian) may have played a role here: that of classroom instruction. I have shown elsewhere (Slabakova, 1997, 2000, 2001) that Bulgarian native speakers demonstrate clear L1 transfer effects in acquiring telicity marking in English, essentially taking the other direction in acquiring the L2 aspect parameter. But the telicity marking mechanism is not subject to instruction in English classrooms, while it is explicitly taught and drilled in Russian classrooms. (In both cases, learners are speakers of a language exhibiting the opposite value of the parameter.) Thus, explicit positive and negative evidence in classroom input may be in a position to account for the findings of the present study. The earlier studies are not comparable to this one, however, since there is no way to match the respective proficiency levels of the learners.

of the L2 generative endeavor, careful examination of how the semantics-morphology interface is acquired can offer yet another perspective to our growing understanding of the human language faculty.

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