The use of aspect in Czech L2

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Abstract

The focus of the present paper is on the difference between English and German learners' use of perfectivity and imperfectivity. The latter is expressed by means of suffixation (suffix *-va-*). In contrast, perfectivity is encoded either by suffixation (*-nou-*) or by prefixation (twenty different prefixes that mostly modify not only aspectual but also lexical properties of the verb).

In the native Czech data set, there is no significant difference between the number of imperfectively and perfectively marked verb forms. In the English data, imperfectively and perfectively marked verb forms are equally represented as well. However, German learners use significantly more perfective forms than English learners and Czech natives. When encoding perfectivity in Czech, German learners prefer to use prefixes to suffixes. Overall, English learners in comparison to German learners encode more perfectives by means of suffixation than prefixation.

These results suggest that German learners of Czech focus on prefixes expressing aspectual and lexical modification of the verb, while English learners rather pay attention to the aspectual opposition between perfective and imperfective. In a more abstract way, the German learner group focuses on the operations carried out on the left side from the verb stem while the English learner group concentrates on the operations performed on the right side qfrom the verb stem.

This sensitivity can be to certain degree motivated by the linguistic devices of the corresponding source languages: English learners of Czech use imperfectives mainly because English has marked fully grammatical form for the expression of imperfective aspect - the progressive *-ing* form. German learners, on the other hand, pay in Czech more attention to the prefixes, which like in German modify the lexical meaning of the verb. In this manner, Czech prefixes used for perfectivization function similar to the German verbal prefixes (such as *ab-*, *ver-*) modifying *Aktionsart*.

1 The aspectual system of the target language

Czech has developed a systematic method for *aspect* marking: it is marked by morphological devices on the verb root or stem. These devices are grammaticalized and in many cases still productive. The difficulty seems to be that aspect is not a pure grammatical category, and as we will see later it is not easy to distinguish between morphological means and word formation means (cf. perfectivization via prefixation).

It is traditionally assumed that a Czech verb, aside from a few exceptions, exists in two forms (Karlík et al. 1995, Short 1993, Petr et al. 1987): *perfective* (Perf) and *imperfective* (Imperf).

> In Czech, most verbs appear in two or three forms which do not differ in their basic lexical meanings but rather in their aspect. (Petr et al. 1987: 179)

Because of this dichotomy it is often assumed that many though not all Czech verbs form so-called *aspectual pairs*. A pair consists logically of two forms, a *perfective* and an *imperfective*

form. The fundamental difference between the two forms is aspect. This difference is considered to be grammatical.

The claim that every Czech verb is either *perfective* or *imperfective* and that the main pattern within the aspect domain is aspectual pairing, immediately raises the question: How does the speaker (or a learner!) know that a particular verb form is Perf or Imperf?

Assuming that a grammatical category, such as the Czech aspect, is based on a mapping between a particular form and particular function(s), two answers are possible:

The categories Perf and Imperf are based on an explicit **formal** marking represented by any type of verbal inflectional morphology (such as a prefix) or by some other morphosyntactic device. In this sense, the meaning connected to each aspect can cover an entire range of variants. That means that only the formal contrast matters.

The categories Perf and Imperf are based on a specific **meaning** such as "degree of completion", which characterizes each category in a unique way. These semantic features might, depending on context, vary to some extent but they must be stable enough so that one can clearly differentiate between Perf and Imperf.

To start off, we concentrate on the form-based possibility: the distinction between Perf and Imperf is based on an explicit formal marking. For this reason, we need to outline the way in which verbs in Czech are assigned aspectual interpretation or are overtly marked for aspect.

Simplex verbs
Simplex verbs are verb forms that are not morphologically marked for aspect. Most simplex verbs are *imperfective* (e.g. psát 'to write'). However, there is also a small group of simplex *perfective* verbs (e.g. *dát* 'to give'). Additionally, some simplex verbs are ambiguous between Perf and Imperf (e.g. *jmenovat* 'to name/to appoint').

Verbal prefixes
A large set of *prefixes* can be used in order to form a *perfective* verb. These prefixes are: 1. *do-*, 2. *na-*, 3. *nad*(*e*)-, 4. *o-*, 5. *o*/*ob*(*e*)-, 6. *od*(*e*)-, 7. *po-*, 8. *pod*(*e*)-, 9. *pro-*, 10. *pøe-*, 11. *pøed*(*e*)-, 12. *pøi-*, 13. *roz*(*e*)-, 14. *s*(*e*)-, 15. *u-*, 16. *v*(*e*)-, 17. *vy-*, 18. *vz*(*e*)-, 19. *z*(*e*)-, 20. *za* (Karlík et al 1995: 199ff).

Each of them is associated with a cluster of meanings, most of them exhibit polysemy and homonymy, and the realization of a given meaning of a prefix is highly dependent on the context in which the prefix occurs. Four main possibilites can be observed here.

(1) The verbal prefix modifies the underlying meaning of the verb in a characteristic way. Thus it regularly makes the verb, for instance, inchoative (*roz-esmát* 'to start laughing'), resultative (*do-psat* 'to write to an end'), etc. In other words, these prefixes not only lead to *perfective* aspect but also introduce a specific *Aktionsart* to the verb. Note that depending on the verb, one and the same prefix can express different types of *Aktionsart*.

(2) The verbal prefix not **only** modifies the aspectual properties but also influences the lexical semantics of a verb: malovat vs na-malovat 'to draw vs to finish drawing something', zvonit vs za-zvonit 'to ring a bell vs to ring a bell once'. As described above, the same prefix can also be used for Aktionsart-alternation (e.g. only aspectual modification: vy-cvièit psa 'to complete the training of a dog' vs additional lexical modification with verbs of motion vy-couvat 'to back out of a parking space', which gives only directional information).

(3) The verbal prefix can perfectivize but only to produce a **new lexical item**. They often have a local meaning. For example, *pøed-* 'pre-' as in *vést* vs *pøed-vést* ('to carry vs to perform'), *pod-* 'sub' as in *vést* vs *pod-vést (*'to carry vs to cheat'), *od-* 'away from' as in *jet* vs. *od-jet*

('to go vs to go away'). There is also a small group of prefixes containing a long vowel that never perfectivize. E.g., *závidìt* 'envy', *pøíslušet* 'appertain'. Also the rare *pa-*, as in *padìlat* 'counterfeit'.

(4) A prefixed verb has a lexical meaning that can not be compositionally derived from its components at all. For example, *dovést* 'to be (cape)able', *vejít se* 'to fit (can go in)'.

In summary: the majority of verbal prefixes change lexical meaning in one way or another. In other words, they change the aspectual but also the lexical properties of a verb. Some prefixes can have a pure perfectivizing function. Other prefixes always modify the aspectual **and** the lexical characteristics of a verb. Overall, it is not an easy task (even for a native speaker) to determine whether a prefix is used only for aspectual or also for lexical modification because depending on the verb, one and the same prefix can be purely aspectual or aspectual and lexical.

Verbal suffixes

Suffixation can also express *aspect*. There are two suffixes, one for imperfectivity,-*va*-[1], and one for perfectivity -*nou*-. These two suffixes are "morphological exponents of the imperfective and perfective aspectual operator, respectively" (Filip 2001: 14). In addition, the suffix -*va*- can have a generic interpretation. Here, we adhere to the view of Filip and Carlson (1997: 103): "… although imperfective sentences can have a contextually induced generic/habitual reading, genericity is a category sui generis, formally and semantically independent of the imperfective category". This interpretation of the suffix will not be discussed here.

The suffix **-va-** can form:

(a) an *imperfective* verb from a derived or simplex perfective verb

vy-psat (*derived* Perf)	vy-piso-***va***-t
PREF.write.INF	PREF.write.IMPERF.INF
to write out/to be writing out	to write out
to announce/to be announcing	to announce
dát (simplex Perf)	dá-***va***-t
give.INF	give.IMPERF.INF
to give	to give/to be giving

(b) an *imperfective* verb with the generic -*va*- from a simplex imperfective verb

psát (*simplex* Imperf)	psá-***va***-t
write.INF	write.HAB.INF
to write	to have the habit of writing

The suffix **-nou-** can form

(a) a perfective verb from a simplex imperfective verb[2]

køièet (*simplex* Imperf)	køik-***nou***-t
to be screaming/to scream	to scream (only once)

[1] The form -*va*- is used as an overgeneralization of all the possible allomorphs of this form which can be found in the actual data.

[2] Note that some verbs suffixed with -*nou*- are imperfective (e.g. tisk-nou-t 'to press'). Hence, the presence of this suffix does not necessarily predict that a verb will be perfective.

Note that the only contribution of the suffix -*nou*- is to change the aspectual properties of a verb. The lexical meaning is not changed in any way. The perfectivizing suffix -*nou*- can be applied to some but not all Czech verbs.

Based on the difference made between *simplex* and *derived* verbs and the outline given for aspectual derivation possibilities (*suffixation* and *prefixation*) in Czech, the following types of Perf - Imperf combinations need to be distinguished:

(1) Some forms are ambiguous between Perf and Imperf (e.g. *vìnovat* 'devote/give'). These verbs only form a small group and are not relevant for the purpose of our study.

(2) There are few aspectual pairs, where a *simplex* Imperf and *simplex* Perf are contrasted: *bìžet*/*bìhat* 'to run/to be running'. Additionally, there are few suppletive pairs, notably *brát*/*vzít* 'take', *klást*/*položit* 'put', etc.

(3) Some verbs have no aspectual partners. For example, modal verbs and some statives do not have aspectual partners as they are inherently *imperfective.* They are called *imperfectiva tantum*: *muset* 'must', žít 'live', *viset* 'hang', etc. There is also a small group of verbs that exclude imperfectivity and can only be interpreted *perfectively*. They are called *perfective tantum*: *nadchnout* 'to inspire', *vynadívat se* 'to see enough of something', etc.

(4) Some *simplex* Imperf verbs have a *derived* Perf partner, which is formed by *suffixation* (suffix -*nou*-). This is a pure aspectual contrast based on a systematic morphological process. However, it applies only to a restricted set of verbs of a particular type that is not easy to specify.

(5) The opposition between *simplex* Imperf and a *derived* Perf verb can also be formed by *prefixation*. The problem here is that most prefixes add a new *lexical meaning* to the verb, which makes the two aspectual partners differ not only in aspect but ALSO in lexical meaning. Furthermore, in some cases the *imperfective* partner can then have several perfective partners, each of which expresses a particular *Aktionsart*. This is rather unfortunate for the concept of aspectual pairs (partners) that are supposed to differ essentially in *aspectual* properties.

(6) There are few cases of *derived* Imperf (suffixation -*va*) and *simplex* Perf forming a pair. For example, *koupit/kupovat* 'buy/to be buying'. Since *simplex perfectives* are rare, this group is very small.

(7) There is a larger group of aspectual counterparts where a *derived* Imperf (formed by means of *suffixation*) is paired with a *derived* Perf (formed by means of *prefixation*). For example, *s-lepo-**va**-t*/ ***s**-lepit* 'to glue together'. As in the case described in (4), the difference between these two forms is a pure aspectual contrast based on a systematic morphological process. The problem is that only a particular type of verbs can undergo this process. Moreover, it is not easy to characterise this verb type in clear semantic terms.

It can be concluded from points (1) through (7) that aspectual marking is not based on formal marking. Many verbs are simplex *imperfectives*, a smaller group are simplex *perfectives*. From a formal point of view, no *simplex* verbs are marked for aspect at all.

Moreover, the possibility of forming pure aspectual pairs is restricted to only a few verbs and is therefore not to be understood as a rule but rather as an exception. This way, the difference between Imperf and Perf is only partially grammaticalized in Czech (cf. Klein 1995 for Russian). On the other hand, the English contrast between the *simple* form and the progressive -*ing* form affects the majority of verbs (except a few verbs such as *to know*, *to love*).

Since we rejected the first possibility that the differentiation between Perf and Imperf is based on formal marking, the second option must be explored: the categories Perf and Imperf are based on a specific meaning. In what follows, we will focus on the the notion of *completion*.

It is widely assumed that the categories perfective vs imperfective differ with respect to degree of completion (completed vs non-completed).

> […] these forms have the same lexical meaning but differ with respect to the degree of completion of the action depicted by the verb. (Karlík et al. 1995: 318)

There are three major problems with this analysis. First, imperfective verbs can also be used for depicting situations that are clearly completed. Consider the following example:

(1) Jana spala (***Imperf***) vèera u kamarádky.

Jana sleep.3sg.Past.Imperf-S yesterday at friend.Gen.sg.Fem

Yesterday, Jana slept at a friend's.

The verb used in example 1 is *simplex imperfective* although the situation is bounded and completed. This is not because the situation is in the past, which should not matter for aspect in any case. The same holds true for situations in the future:

(2) Jana bude zítra pracovat (***Imperf***)/pracuje (***Imperf***) od dvou do osmi.

Jana 3sgAUX tomorrow work.Inf.Imperf/3sg.Perf Prep TempAdv

Tomorrow, Jana will be working/works from two to eight.

The situation in example 2 is completed at eight o'clock. In other words, similar to example 1, despite the fact that it is a bounded/completed situation an imperfective verb is used. The reason is that the verb *pracovat* 'to work' is a simplex verb, which has no perfective partner with the same lexical meaning. A further consequence of this fact is that the simplex imperfective form *pracuje* can be used in the simple future form, which is normally reserved for perfective verbs.

The second major problem with the notion of *completion* is that speaking of completion only makes sense with respect to some particular time. In other words, "completion is always relative to a time interval" (Klein 1995: 676). A situation is completed at some time and at any time thereafter (the so-called posttime). It is, however, not completed at any time before that. This 'completion time' can but need not to be explicitly specified in the utterance. Nevertheless, without a clear notion of this 'completion time' at which completion was achieved, the notion of completion as a definition for the difference between Perf and Imperf remains incomplete.

A third weakness of the notion of *completion* is that it emphasizes the endpoint of the situation while ignoring other parts, specifically the onset point (Comrie 1976). As pointed out by Klein (1995: 677), this observation is correct, however, difficult to demonstrate. We only refer to this point in order to complete the picture.

For our present purposes, the first of the two problems discussed above are sufficient to indicate that the **meaning** approach can not systematically account for the differences between Perf and Imperf. This is supported by Klein (1995: 673) who demonstrated the same point for other common notions such as '± totality', and '± internal boundary'. All these notions are valuable intuitions, however, unsatisfactory when used as defining criteria for the difference between Perf and Imperf.

The definition we adopt for the analysis of Czech aspect is a strict time-relational analysis that was already introduced in 2.1 and 2.3. Within this approach, *aspect* is defined as a temporal relation between topic time (TT) and time of situation (TSit). The aspectual system in Czech consists of only two aspects: the *imperfective* and the *perfective* aspect.

The *imperfective* aspect is defined as TT included in TSit, which naturally corresponds to the intuition of *incompletion*: within a given TT, there is no change and therefore also no completion. Compare the following figure (dashed line ----- refers to the TSit, brackets [ ] refer to TT)[3]:

Figure 1 Imperfective aspect as a temporal relation between TT and TSit

Imperfective:	Petr *vcházel* dovnitř.	-----[--------]-----
	Peter *was coming* in.	Posttime

The perfective aspect, on the other hand, is defined as TT at TSit and in the posttime of the TSit. This definition can also easily account for the *completion* intuition: within a given TT, there is always a change and therefore a situation gets completed. For illustration, consider figure 2:

Figure 2 Perfective aspect as a temporal relation between TT and TSit

Perfective:	Marie *zavřela* dveře.	----------[----------]
	Mary *closed* the door.	Posttime

From an acquisitional point of view, it seems that German and English learners probably need to focus on different parts of the Czech aspectual system. While German learners could encounter difficulties acquiring the basic opposition between *perfective* and *imperfective*, English learners might be challenged by the use of prefixes for derivation of *perfective* aspect. In any case, it is assumed that both learner groups are familiar with the concept of *aspectual* marking from their native language, but to a highly varying degree. We will delve further into this assumption later.

2 The use of aspect: Czech native speakers vs learners of Czech

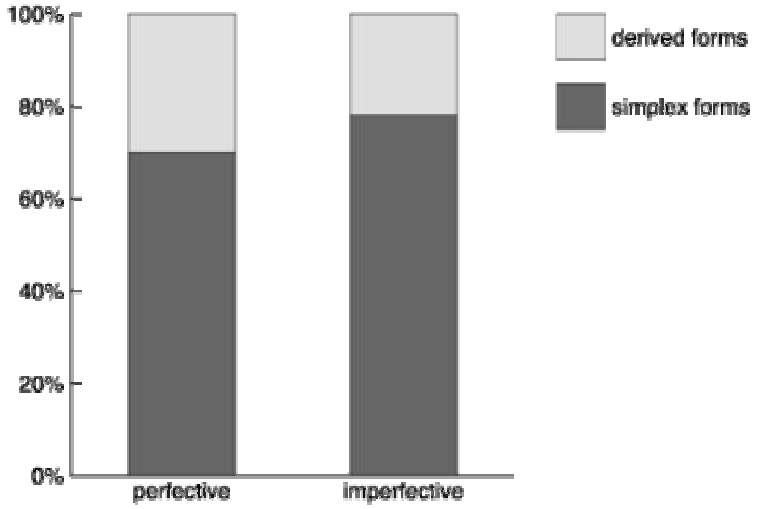
First, we shall view the results of the Czech native speakers. The Czech native speakers used a total of 627 verb forms - *simple* and *derived* forms together (types: 383). Out of these forms, 40% (252 occurrences) represent *perfective* verb forms: *simplex* perfective verb occurs in 70% (token: 177; types: 68) of the cases and *derived* perfective verbs in 30% (token: 75; types: 71). *Imperfective* verb forms were found in 60% (375 occurrences) of the cases: *Simplex* imperfective verbs represent 78% (token: 261; types: 160) whereas *derived* imperfective verbs are used 22% (token: 114; types: 52) of the time.

Within each aspectual category, Czech natives used significantly more *simplex* than *derived* forms in our experiment [for the perfective: χ^2 (1, N = 252) = 20.23, $p < .05$); for the imperfective: χ^2 (1, N = 375) = 18.7, $p < .05$)]. However, when comparing the distribution of

[3] Klein (1994) differentiates between the *source state (SS)* and the *target* state (TS) of a situation. For example, in 'to enter a room' the SS is 'being outside of a room' and the TS 'being inside a room'. Other verbs, like 'to stand' includes only a single state, which can be treated either as SS or TS. In this analysis, only the source state is treated for English as the relevant part of TSit for all verbs.

the *simplex* and *derived* forms of the two aspects, no significant difference could be found (z = 0.21 [Perf]; z = 0.45 [Imperf], n.s.). For an overview, consider figure 3:

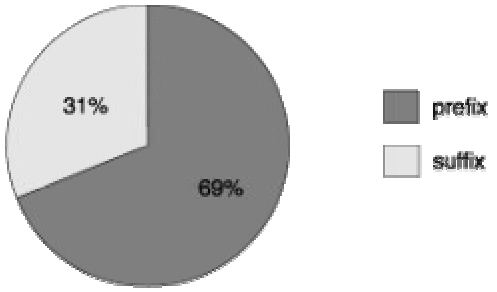
Figure 3 The use of perfective and imperfective aspect by Czech native speakers



For the imperfectivization, the only option available in Czech is to use the suffix *-va*. Perfectivization, however, can be accomplished either by using a *prefix* or a *suffix*. Czech native speakers derive a *perfective* verb form by means of a *prefix* 69% (88 occurrences) of the time. They employ a *suffix* for this purpose only in 31% (40 occurrences) of the cases. This difference is significant (χ^2 (1, N = 128) = 5.21, p < .05). In other words, Czech native speakers derive a *perfective* verb form by adding a *prefix* rather than a *suffix* to the verb stem/root.

Compare the following figure illustrating the proportion of prefixed and suffixed verb forms used by Czech natives when deriving perfectivity:

Figure 4 The use of prefixes and suffixes for perfectivization by Czech native speakers

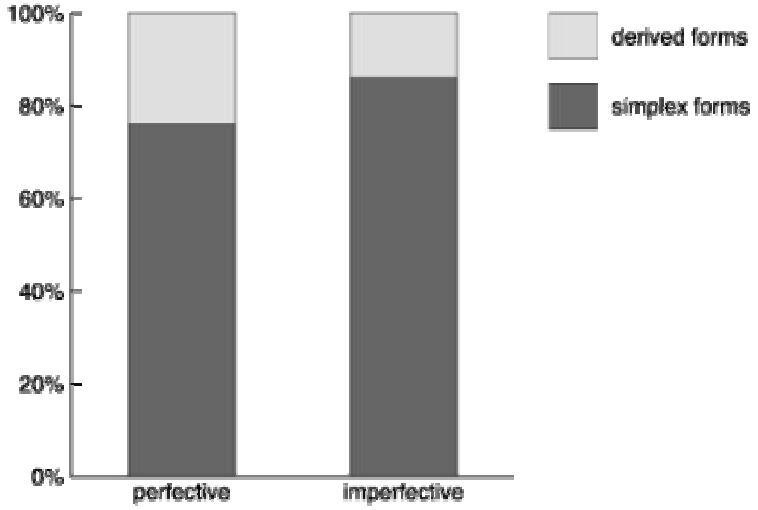


The English learners used 1142 verb forms in total (types: 754). Out of them 35% (400 occurrences) represent *perfective* verbs and 65% (742 occurrences) *imperfective* verbs. *Simplex* perfective verbs occur 76% (token: 304; type: 63) of the time, *derived*[4] perfective verbs 24% (token: 96; type: 55). Of all the *imperfective* verbs, 86% (token: 638; type: 542) are *simplex* imperfective forms. *Derived* imperfectives are used in 14% (token: 104; type: 79) of the cases.

4 These verbs are formed either by means of prefixation or suffixation.

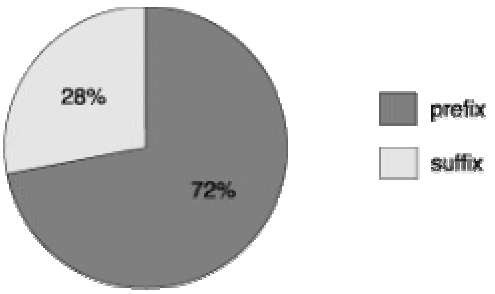
Furthermore, of all *perfective* verbs, 31% (125 occurrences) are *derived* perfectives. The difference between derived *perfective* and *imperfective* verbs is not significant. Like Czech native speakers, English learners use significantly more *simplex* than *derived* forms in each aspectual category [for the perfective: (χ^2 (1, N = 400) = 23.2, p < .05); for the imperfective (χ^2 (1, N = 742) = 21.84, p < .05)]. In addition, similar to the Czech native group, no significant difference could be found when comparing the distribution of *simplex* and *derived* verbs of the two aspectual categories (z = 0.64 [Perf]; z = 0.73 [Imperf], n.s.).

Figure 5 The use of perfective and imperfective aspect by English learners



Finally, like Czech native speakers, English learners also achieve perfectivization more often by using a *prefix* 72% (90 occurrences) of the time than by a *suffix* 28% (35 occurrences). This difference is statistically significant (χ^2 (1, N = 125) = 5.69, p < .05). Consider figure 6:

Figure 6 The use of prefixes and suffixes for perfectivization by English learners



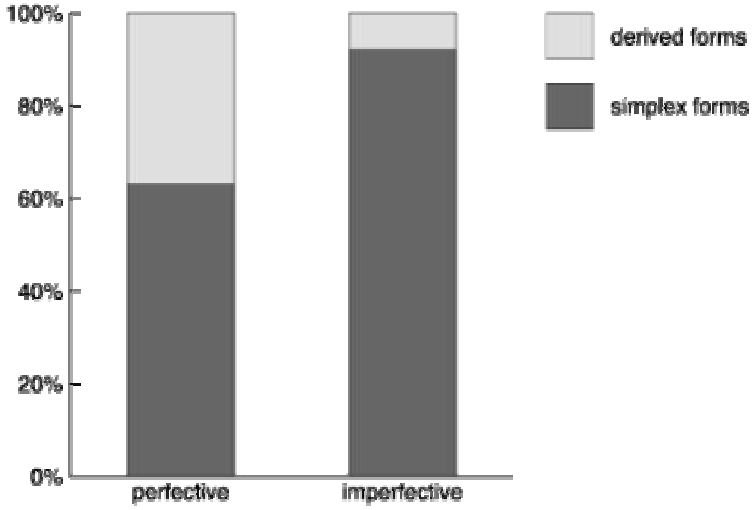
Concering the German learners, they employ overall the largest number of verbs.[5] The total number of verbs is 1227. *Simplex* perfective verbs are used in 63% (token: 258; type: 96) of the cases and *derived*[6] perfective verbs in 37% (token: 151; type: 149). *Simplex* imperfective forms occur in 92% (token: 753; type: 512) of the cases whereas *derived* imperfectives are employed only in 8% (token: 65; type: 14). Similar to the two previous groups, German learners, too, employ significantly more *simplex* than *derived* verbs within each *aspectual*

5 The number of verbs used by learners and native speakers is related to the length of the entire retelling. In this sense, German learners produced the longest narrations overall.

6 These verbs are formed either by means of prefixation or suffixation.

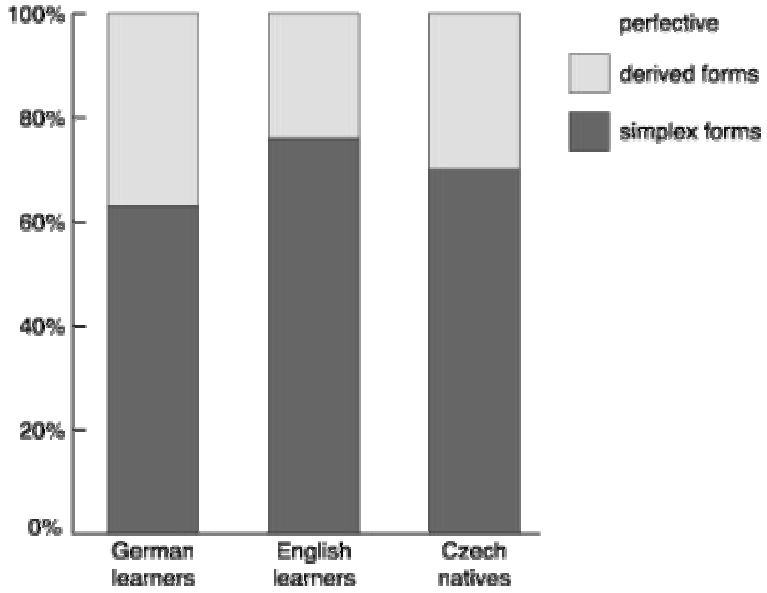
category [for the perfective: (χ^2 (1, N = 409) = 6.3, p < .05), for the imperfective: (χ^2 (1, N = 818) = 38.9, p < .05)]. For a better overview, see the next figure:

Figure 7 The use of perfective and imperfective aspect by German learners



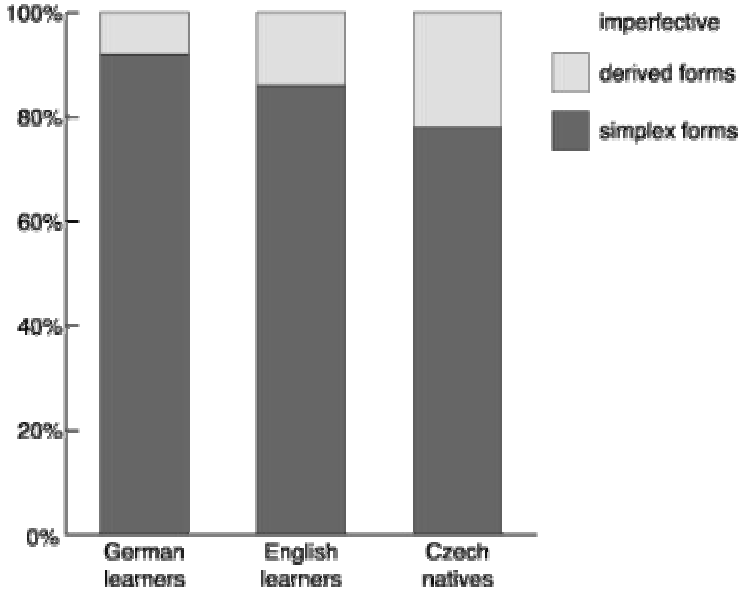
Unlike Czech natives and English learners, the German learners' use of ***derived perfective*** verbs is higher than that of English learners and Czech native speakers (z = 4.9 [Ger-learners vs Eng-learners], z = 2.1 [Ger-learners vs Cz-natives), p < .05). When comparing English learners and Czech native speakers, no such a difference can be found (z = 0.9, n.s.). In other words, English learners and Czech natives use *derived perfective* verbs equally often. For comparison, consider the following figure:

Figure 8 The use of simplex and derived perfective aspect by all learners and Czech native speakers



English learners, on the other hand, use ***derived imperfective*** aspect significantly more often than German learners (z = 4.3, p < .05). Czech native speakers employ *derived imperfective* aspect significantly more often than any learner group (z = 3.7 [Cz-natives vs Eng-learners]; z = 7.6 [Cz-natives vs Ger-learners), p < .05). These findings are summarized in figure 9:

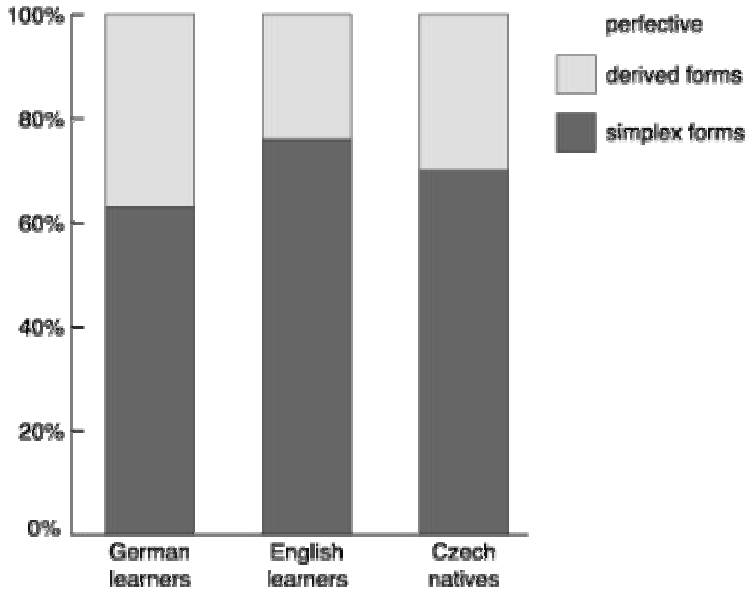
Figure 9 The use of simplex and derived imperfective aspect by all learners and Czech native speakers



In order to derive a *perfective* verb, German learners also prefer *prefixes* to *suffixes*. Prefixes are used 91% (372 occurrences) of the time, suffixes only 9% (37 occurrences). Similar to the other two groups, German learners use prefixation significantly more often than suffixation for deriving the *perfective* aspect (χ^2 (1, N = 409) = 13.7, p < .05).

When the use of the perfectivization *suffix* and *prefix* by the learner groups and the Czech native group is compared, the following differences can be established: (1) German learners employed significantly more *prefixes* than English learners and Czech natives (z = 5.3 [Ger-learners vs Eng-learners]; z = 7.2 [Ger-learners vs Cz-natives]. English learners, in contrast, used the perfectivization *suffix* significantly more often than German learners (z = 4.9, p < .05). With respect to the use of this suffix, no significant difference was found between the English learner group and the Czech native group (z = 0.6, n.s.). For comparison, consider the following figure:

Figure 10 The use of prefixes and suffixes for perfectivization by German learners, English learners and Czech native speakers



To sum up: English and German learners differ significantly in their frequency of deriving *perfective* and *imperfective* verbs. While German learners use significantly more derived *perfective* verbs, English learners make significantly more use of *imperfectively* marked verbs. Also, German learners use significantly more perfectively derived verbs than Czech natives. This does not hold true for the English learners: Czech natives use derived *imperfective* verb forms significantly more often than the English learner group (and the German learner group).

In other words, German learners "overuse" the *derived perfective* verbs in Czech. At the same time, they use a lot fewer imperfectively derived verbs than the Czech native speakers as well as the English learner group. English learners, on the other hand, never match the amount of derived *imperfective* or *perfective* verbs used by the Czech natives. In this sense, *imperfectively derived* verbs are underrepresented in both learner groups.

German learners use significantly more *prefixes* than English learners or Czech native speakers for deriving perfective verbs. Although English learners employed *suffixes* for perfectivization significantly more often than German learners, there is no significant difference between German learners' use of *suffixes* and Czech natives' use. The same holds true for *prefixes*: no significant difference between English learners and Czech native speakers.

These results suggest that German learners have a strong inclination to derive *perfective* verbs and to carry out the perfectivization mainly by means of *prefixes*. In addition, the use of *imperfective derived* verbs is not only far less extensive than the use of *perfective derived* verbs but also substantially less frequent compared to the English learners and Czech natives.

English learners show a tendency to derive fewer *perfective* verbs than German learners. Overall, however, the difference between the amount of perfectively and imperfectively *derived* verbs within the English learner group is not significant. In this manner, English learners resemble Czech natives more than German learners.

English learners exhibit the ability to realize both *aspectual* derivation possibilities equally well. At this point, it can be concluded that English speakers of Czech are receptive to the basic *aspectual* distinction between *perfective* and *imperfective*, which makes it easier for them to express simultaneity in Czech by using *aspectual* marking.

German learners focus greatly on the derivation of *perfective* verbs. Despite the possibility of using both options for perfectivization in Czech, a very strong preference for *prefixation* can be detected. *Imperfective* verbs are derived, but only rarely. This suggests that German learners are capable of imperfectivizing though they do not use this derivational strategy as often as Czech native speakers. Therefore, German speakers are **not insensitive** to the central *aspectual* opposition between the *perfective* and *imperfective* in Czech. However, they focus too much on the process of perfectivization and hence neglect the other operation necessary for effective use of the *aspectual* system.

As far as the target language employment of *aspect* is concerned, the Czech native speakers in our experiment used *simplex imperfective* and *perfective* verbs more often than the respective *derived* forms. Additionally, in the area of overtly marked *aspect*, the proportion of *derived perfective* and *derived imperfective* verbs used by Czech native speakers is similar.

3 The use of aspect: learners at different proficiency levels

Before turning to some possible explanations for our findings in the domain of *aspect* use, we outline its use by English and German learners at the three proficiency levels. We investigate

the question whether or not the differences between learners proposed in the previous section also hold true at different acquisitional stages. For the purpose of this analysis, the entire database containing all the retellings of all eleven testing items was used.

Recall that both learner groups employ *aspectual* marking when expressing simultaneity in Czech. English learners tend to use aspectual *juxtaposition* of two *imperfective* verbs more often than aspectual *contrast*. German learners, on the other hand, display the opposite by preferring aspectual *contrast* of a *perfective* and an *imperfective* verb to aspectual *juxtaposition*.

As pointed out in Chapter 2, many verbs in Czech are *simplex*. This means that they are not morphologically marked for *aspect*, however, they have an *aspectual* meaning. In what comes next, we distinguish between *simplex* and *derived* verb forms in the learner data and investigate whether then too learners differ from each other and from the Czech native group. In our analysis of the Czech *aspectual* system only a few regularities grounded in the presence of inflectional morphology could be established. In other words, it has been shown that from a formal point of view, the Czech *aspectual* system is based on more exceptions than rules. Although this system is certainly challenging for a learner acquiring Czech as a second language it is feasible to acquire (cf. sections 7.3 through 7.6). One could speculate here that learners when acquiring *aspect* in Czech do not (only) rely on the grammatical information but also make use of **another information source** such as location of the inflectional morpheme. This hypothesis is labeled as "perceptual saliency hypothesis". We outline and discuss this hypothesis in section 5.

3.1 Basic level of proficiency

English as well as German beginners employ significantly more *simplex imperfective*, for example *psát* 'to write/to be writing', than *simplex perfective* verb forms such as *dát* 'to give once' [English beginners: (χ^2 (1, N = 322) = 4.6, $p < .05$); German beginners: (χ^2 (1, N = 94) = 4.8, $p < .05$)]. Note that beginners do not always assign the target like function to *aspectual* forms. This, however, does not further affect learners' proper use of *aspect* for expressing simultaneity in the target language.

But a z-test revealed that when comparing the use of the *simple imperfective* form between the groups, English beginners used *simplex imperfectives* significantly more frequently than German beginners ($z = 2.96$, $p < .05$). In addition, English beginners made use of some *derived imperfective* verbs (14 occurrences), while German beginners did not use *derived imperfective* verb forms at all.

A reverse pattern can be observed with regard to the use of *simplex* and *derived perfective* verbs. When comparing the two beginner groups, German beginners employed *simplex perfective* verbs significantly more often than English beginners do ($z = 2.6$, $p < .05$). Furthermore, they also used significantly more *derived perfective* verbs than English beginners ($z = 1.9$, $p < .05$). Both learner groups used more *prefixes* than *suffixes* for deriving *perfective* verbs. There is no significant difference between English and German beginners when compared with respect to their use of perfectivizing *prefixes* and *suffixes* ($z = 0.36$, n.s.).

In addition to these findings, German beginners did not use *aspectual* pairs at all (for a discussion of this notion, see chapter 2, section 2.5). English beginners, by contrast, produced 5 *aspectual* pairs.

Summary: For both beginner groups, it holds true that they make more use of *simplex imperfectives* than *simplex perfectives*. Furthermore, both groups prefer to apply *prefixes* for *perfective* verb derivation.

In comparison, however, German beginners use significantly more *simplex* and *derived perfective* verb forms than English beginners. At the same time, English beginners employ significantly more *simplex imperfective* and *derived imperfective* verbs than German beginners.

3.2 Medium level of proficiency

At the medium level of proficiency, the English as well as the German learner group used significantly more *simplex imperfective* than *perfective* forms (English learners: χ^2 (1, N = 457) = 4.7, p < .05; German learners: χ^2 (1, N = 594) = 53.3, p < .05).

Note that the χ^2-score is much higher for German than for English intermediate learners (English: χ^2 = 7.6; German: χ^2 = 53.3). This shows that the German intermediate learners use more *simplex imperfective* than *simplex perfective* verbs, while the tendency in English intermediate learners is rather towards the middle: a more balanced occurrence of *simplex perfective* and *simplex imperfective* verb forms. Further, together with the increased usage of *simplex imperfective* verbs, German intermediate learners start to produce some *aspectual* pairs (5 in total).

When comparing the two groups, an unexpected result emerges: English intermediate learners make significantly more use of *simplex perfective* forms than German intermediate learners (z = 2.7, p < .05). German intermediate learners, by contrast, use *simplex imperfective* forms significantly more often than English learners (z = 3.5, p < .05).

However, in the **derivational** domain, German intermediate learners use significantly more *perfectively derived* verbs than English intermediate learners (z = 3.1, p < .05); and furthermore, English intermediate learners use significantly more derived *imperfective* verbs than German intermediate learners (z = 2.4, p .05).

Like in the beginners, both intermediate groups favor *prefixation* over *suffixation* for deriving *perfective* verbs.[7] But in addition, German intermediate learners in comparison to English intermediate learners use significantly more *prefixes* than *suffixes* (z = 1.9, p < .05).

This preference can not be explained by a difference in the total number of verbs since English as well as German learners at the medium level of proficiency employed on average a comparable amount of verbs: English intermediate - 62 verbs per subject; German intermediate - 66 verbs per subject.

Next, we summarize the findings at the medium proficiency level and compare them with those from the basic proficiency level.

Also at medium proficiency level, English and German learners employed *more* imperfective than *perfective* verbs overall. Yet, when comparing the two intermediate groups, English learners used significantly more *simplex* ***perfective*** verbs than German intermediate learners. They, in contrast, used significantly more *simplex* ***imperfective*** verbs than English intermediate learners. As pointed out above, English and German **beginners** adopted an opposite pattern.

German intermediate learners, nonetheless, exhibited the same behavior as German beginners and used significantly more ***derived*** *perfective* verbs than English intermediate learners. The German intermediate learners used significantly more *prefixes* for *perfective* derivation than

[7] A possible explanation for this finding could be that this preference is driven by the frequency of prefixed verbs in the input. This remains to be found out.

the English intermediate learners. This difference was not found between the two beginner groups.

Similar to the English beginner group, English intermediate learners employed significantly more *derived imperfective* verbs than German intermediate learners. Finally, German intermediate learners, as opposed to German beginners, assembled *aspectual* pairs.

3.3 Advanced level of proficiency

As observed earlier, learners as well as natives prefer to use *simplex imperfective* over *simplex perfective* forms. This also holds true for advanced English and German learners of Czech. Yet, no significant difference between the two advanced learner groups could be detected in their overall use of *simplex imperfective* and *simplex perfective* forms. In other words, they used *simplex* verb forms equally often, which is in line with target language use.

The two advanced groups differ with respect to the aspectual derivation. German advanced learners used significantly more *derived perfective* verbs than English advanced learners ($z = 1.92$, $p < .05$). In the same way, English advanced learners make use of *derived imperfective* verbs significantly more frequently than German advanced learners ($z = 2.64$, $p < .05$).

When compared to the English advanced group, the German advanced group employed significantly more *prefixes* when marking verbs for perfectivity ($z = 2.71$, $p < .05$). The English group, on the other hand, exhibited the opposite. When compared to German advanced learner group, they favor perfectivizing a verb by means of *suffixation* ($z = 2.54$, $p < .05$).

Moreover, looking at the preference within each group, Germans clearly chose *prefixes* over *suffixes* in order to signal the *perfective* aspect (χ^2 (1, N = 352) = 12.3, $p < .05$). In English advanced learners, by contrast, no significant difference could be observed between the employment of *suffixes* and *prefixes* in the area of perfectivization. In other words, English advanced learners show a more balanced use of prefixes and suffixes for deriving perfectivity and make use of suffixes more often than German learners at the same proficiency level.

As far as constructing *aspectual* pairs goes, the two advanced groups are comparable: each German and English advanced learner produced about 8 *aspectual* pairs. In comparison, in our data, every Czech native speaker used 14 *aspectual* counterparts on average.

In summary, like the learners at the other levels of proficiency, advanced learners also use more *imperfective* than *perfective* verbs. But when comparing these groups, there is no significant difference in their usage of *simplex* perfective and *simplex* imperfective verb forms. In other words, they use them equally frequently. However, they differ significantly with respect to the amount of derivations they perform. English advanced learners make significantly more derivations of *imperfective* verbs than German advanced learners. The latter group, however, use the *perfectively derived* verbs significantly more frequently than the English advanced learners.

In comparison to the beginners and intermediate learner groups, a very strong pattern can be noticed in the area of *aspectual* derivation. Throughout all levels of proficiency, German learners derive *perfective* verbs significantly more often than English learners. The derivation is performed by *prefixes*. Except in the beginner group, German learners derive significantly more *perfectives* by prefixation than English learners. Although English learners derived far fewer *perfective* verbs than German learners, they did it significantly more often by *suffixes* than German learners at the intermediate and advanced level.

In the domain of imperfectivization, another solid pattern emerges. In all levels of proficiency, English subjects use significantly more *derived* imperfectives than German subjects.

A striking pattern change can be seen at the medium level of proficiency in the overall use of *imperfectives*. Here, the common pairing - English with an increased use of *imperfective*, German together with an increased use of *perfective* - is completely reversed. German intermediate learners use significantly more *simplex imperfective* verbs and English intermediate learners use significantly more *simplex* perfective verbs.

In the advanced learners, all significant differences disappear from the area of *simplex perfective* and *simplex imperfective* verbs. Both learner groups use a comparable proportion of *simplex* verb forms.

4 Conclusions

The data shows several significant results that are steady throughout all levels of proficiency.

(1) Each learner group at every level of proficiency prefers to use *simplex imperfective* over *simplex perfective* verbs. This finding is highly affected by the fact that there are more *simplex imperfective* than perfective verbs in the Czech input. This may also explain the common assumption of prescriptive Czech grammars that the *simplex* (non-derived) *imperfective* form serves as a basic form for further derivation of the *perfective* (for discussion, see chapter 2, section 2.5).

(2) English learners focus on ***derivation*** of *imperfective* verbs during the entire acquisition course, as depicted and defined by this study. In the domain of the use of *simplex imperfective* verbs, this pattern is interrupted at the intermediate level of proficiency. Here, German learners take over and use the *simplex imperfective* verb form more often than the English group. The use of *simplex imperfective* forms is accompanied by the co-appearence of some *aspectual* pairs. This, in fact, may be the reason for the increased use of *simplex* imperfectives in intermediate German learners.

This latter finding suggests that English speakers learning Czech focus on the derivation of *imperfective* aspect. German speakers acquiring the same target language, on the other hand, pay attention to another *aspectual* operation: the derivation of aspect by means of prefixation. **Both these results are significant at all levels of proficiency.**

English subjects use *suffixes* for deriving *perfective* verb forms more often than German subjects. This difference is significant at all levels except the basic level of proficiency. We discuss this finding in more detail in the next section.

5 Perceptual saliency hypothesis

The difference in *aspect* use by English and German learners of Czech could be motivated by the linguistic devices of the corresponding source languages: English learners of Czech use *imperfective* mainly because English has a fully marked grammatical form for the expression of the *imperfective* - the suffix *-ing*. German, on the other hand, has a wide range of *prefixes* that modify the *Aktionsart* of the verb, which often leads to a *perfective* reading (for more detail, see chapter 2, section 2.4). Hence, German learners of Czech use more derived *perfective* than *imperfective* aspect. According to the logic of this account, German learners

should derive a comparable amount of *perfective* aspect by *prefixation* as well as by *suffixation*. This, however, is not the case.

Consider the following alternative explanation. Let us ignore *aspect* for a moment and focus on differences in the ***location*** of the operation that is carried out in order to mark *aspect* in Czech (cf. for a similar hypothesis in L1 Slobin (1973).

One can see that *aspectual* operations are taking place either on the **left** or the **right** side of the verb stem. Note that on the **right** side, **two** different operations can take place: (a) imperfectivization (suffix -va) or (b) perfectivization (suffix -*nou*). Recall that perfectivization can also be accomplished by using a *prefix* which is added to the verb on the left side. In other words, on the **right** side, **two** distinct operations can be carried out, on the **left** side, only **one**. These observations are summarized in figure 11:

Figure 11 The Czech aspectual system from a perceptual point of view

LEFT		**RIGHT**
various prefixes (one operation)	verb stem	suffixes (two operations)
e.g. *VY-*		*-NOU* & *-VA*

There is clear evidence that German learners of Czech "overmark" the *perfective,* while English learners show the opposite pattern by "overmarking" the *imperfective.* Furthermore, English learners use the suffix -*nou* significantly more often for expressing the *perfective* aspect. In other words, German learners focus on the **LEFT** side of the verb stem in their perception whereas English learners concentrate on the **RIGHT** side of the verb stem. Compare:

Figure 12 The English aspectual system from a perceptual point of view

LEFT		**RIGHT**
not present	verb stem	suffixes
not present		*-ing* (for imperfective)
not present		particles *up*, *off* (for perfective)

Figure 13 The German aspectual system from a perceptual point of view

LEFT		**RIGHT**
particles	verb stem	not present
e.g. *auf-* / *ab-*		not present

For illustration, compare the following examples.

	LEFT	**RIGHT**	
German example - perfective reading			
(3)	***auf-***	ess-(en)	
English example - perfective reading			
(4)		eat-infinitive (to eat)	***up***
English example - progressive reading			
(5)		eat-infinitive (to be eat)	***-ing***

We can see from these examples that all operations related to aspectual modification are carried out on the **right** side of the verb stem in English, while in German this is done on the **left** side of the verb stem. We are aware of the fact that many German *prefixes* such as the *prefix ab-* are separable and hence often appear on the right side of the verb stem as in the sentence *Trenn dieses Präfix* ***ab***![8] In English, on the other hand, this is never the case. Particles as well as the suffix *-ing* always appear on the right side of the verb.

The fact that English learners use significantly more *suffixes* for perfectivization than the German group indicates that they also perceive the *aspectual* operations performed on the *right* side of the verb stem. Note that imperfectivization is also achieved by means of suffixation in Czech. From this point of view, there is no difference between suffixation for the purpose of perfectivization and imperfectivization.

On the basis of these observations and our experimental evidence, a *saliency effect* hypothesis is proposed which plays a role in the acquisition of *aspect* by German as well as English learners of Czech. This view does not exclude the former interpretation that the preference for a certain *aspectual* category (*perfective* vs *imperfective*) is motivated by the respective source language. It suggests that learners might also rely on other than *aspectual* information, namly on **locational difference**, which is motivated by the make-up of the **source language**.

In summary, an important difference between English and German speakers with regard to their respective ways of dealing with the Czech *aspectual* system was found. German learners focus on *prefixes* expressing *aspectual* and *lexical* modification of the verb, while English learners also pay attention to those operators that only modify *aspect*. English speakers are, in other words, more inclined to decode the *aspectual* operations that take place on the right side of the verb stem: *imperfectivization* by the suffix *-va* and *perfectivization* by the suffix *-nou*.

As a consequence, English learners are able to grasp and use the opposition between *perfective* and *imperfective* sooner than German learners. This sensitivity is certainly motivated or inspired by the linguistic devices of the corresponding source languages. In this sense, the data shows that there is evidence that the source language is a relevant factor for learners when choosing linguistic means in the target language.

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