1 Introduction

The goal in this paper is to investigate crosslinguistic variation in the interpretation of imperfectives from the perspective of a modal analysis within formal semantics. While there is a large body of work on imperfective modality within formal syntax and semantics in generative grammar, a crosslinguistic picture is still missing. However, the view that emerges from detailed comparative studies in several frameworks, which we leave unmentioned for lack of space, however, seems surprisingly idiosyncratic, with a range of variation even amongst closely related languages, as in the Slavic family (i.e. microvariation). In this paper, we will investigate the interpretation of imperfective morphology across a variety of unrelated languages, some being highly permissive (e.g. Romance languages, with a rich list of so-called modal imperfectives including intentional ones), others more restrictive (e.g. Polish and Russian in Slavic, lacking some intentional imperfectives), and others highly restrictive (e.g. Amazonian Mëbengokre, a Jê language from Central Brazil, with particular particles specialized for specific interpretations). We propose that variation in the range of imperfective readings shows that these must be hardwired into the semantics of an Imperfective operator (IMPF), arguing against popular accounts that consider imperfective aspect as simply ‘unmarked’, or that its shifts in interpretation arise from pragmatic coercion. We offer a modal account of IMPF, and capture variation via accessibility relations (‘modal bases’) similar to those for modal verbs (see Kratzer 1991). In §2, we exemplify crosslinguistic variation, comparing Romance, Slavic, and Mëbengokre. In §3, we outline a modal analysis of IMPF. In §4 and §5, we reexamine Slavic and Mëbengokre in view of our proposals for IMPF.

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2 On Variation in imperfectives

In this section we briefly examine imperfective categories in Romance, Slavic, and Mēbengokre, seeking both similarities and differences in their readings, stressing variation.

2.1 Romance

Romance offers morphology that subsumes both imperfective aspect and past tense. Imperfectives (Impf) can have a wide range of readings in the most intensely studied Romance languages like French, Italian and Spanish. In addition to the often discussed generic/habitual, ongoing and ‘imperfective paradox’ readings illustrated in (1) through (3) via Spanish (Sp), Portuguese (Por) and French (Fr), we find ‘plans in the past’ readings, as in (4), including Italian (It). In addition, there are ‘ludic’ readings for future role-playing, modal readings in conditional sentences, and narrative readings, none of which are illustrated in this paper for lack of space.\(^3\)

(1) ‘Generic/ habitual’ = In some past time, X (typically/always) did Y.
   a. Hace veinte años, los niños veían menos televisión. \(\text{Sp}\)
   a’. Há vinte anos, as crianças viam menos televisão. \(\text{Por}\)
      ‘Twenty years ago children watched (Impf) less TV.’
   b. Napoleón (siempre) se bañaba después de una larga batalla. \(\text{Sp}\)
   b’. Napoleão (sempre) tomava banho depois de uma longa batalha. \(\text{Por}\)
      ‘After a long battle, Napoleon (always) took (Impf) a bath.’

(2) ‘Ongoing’ = At a past time, X was doing Y.
   a. Cuando mi madre entró en mi habitación, yo hablaba con mi novio. \(\text{Sp}\)
   b. Quando a minha mãe entrou no meu quarto, eu estava falando/com ou falava com o meu namorado. \(\text{Por}\)
      ‘When my mother came into my room, I was talking (Impf) to my boyfriend.’

(3) ‘Imperfective paradox’ = At a past time, X had began accomplishing Y.
   Le chien traversait la route, quand il s’est fait écraser par un autobus. \(\text{Fr}\)
      ‘The dog was crossing (Impf) the road when he was run over by a bus.’

(4) ‘Plans in the past’ = At a past time, there was a plan for Y.
   a. Domani andavo in biblioteca. \(\text{It}\)
      ‘Tomorrow I was going (Impf) to the library.’
   b. A gente ia ao cinema (amanhã), mas mudamos de ideia. \(\text{Por}\)
      ‘We were going (Impf) to the cinema (tomorrow), but we changed our mind.’
   c. El vuelo salía a las 8, pero fue cancelado. \(\text{Sp}\)
      ‘The flight was leaving (Impf) at 8, but it was cancelled.’

\(^3\) See traditional grammars. See Ippolito 2004, in particular on Italian, among others.
\(^4\) The Brazilian Portuguese progressive is often preferred to the imperfect tense for both ongoing readings, (2), and progressive paradox readings, (3). Brazilian Portuguese imperfects, then, may bear a resemblance to Hindi imperfectives, which have generic but no progressive uses (see Bhatt 2006). Another example of variation in Romance is in conditional constructions: imperfects are grammatical in consequent clauses with future reference in Italian, Rumanian, and Spanish, but not French.
In sum, languages within the Romance family appear to consistently display a large variety of readings for Imperfects, coupled to some microvariation. Imperfective morphology in Romance appears highly permissive in so far as it is able to give rise to a wide range of intensional interpretations, including the ‘plans-in the-past’ reading illustrated in (4), which plays an important role in our later analysis.

2.2 Slavic

In this section, we will briefly examine data from a range of Slavic languages. The objective is to highlight commonalities and differences in the interpretation of imperfectives both within the Slavic family itself (microvariation), and in comparison to the Romance family (macrovariation).

2.2.1 Core readings in Slavic

Languages in the Slavic family share a range of core readings with languages in the Romance family. As often reported in the literature, Slavic imperfective verbs share ongoing, habitual, and generic readings, and give rise to imperfective paradox effects, as illustrated in (5) through (8). Such a situation obtains both when imperfective Vs display a simple /default morphology, or when they display the complex morphology associated with so-called secondary imperfectivization. Bulgarian (Bg) in the a. examples is a representative of South Slavic, Polish (Po) in the b. examples is a representative of West Slavic, and Russian (Ru) in the c. examples is a representative of East Slavic.

(5) ‘Ongoing’ = At a past time, X was doing Y.
  a. Kogato majka mi vlezε v stajata mi, az govorε s gadžeto mi. Bg
  b. Kiedy moja mama weszła do pokoju, ja rozmawialem z moim chłopakiem. Po
  c. Kogda mama voshla v moju komnatu, ya razgovarivala so moim parнем. Ru
  ‘When mother came into my room, I was talking (Impf) to my boyfriend.’

(6) ‘Generic’ = In some past time, X typically did Y.
  a. Predi 20 godini decata gledaxa po-malko TV. Bg
  b. Dwadzieścia lat temu dzieci spędzaly mniej czasu przed telewizorem. Po
  c. Dwadcať let nazad deti smotreli televizor men’še. Ru
  ‘Twenty years ago children watched (Impf) less TV.’

(7) ‘Habitual’ = At a past time, X (always) did Y.
  a. Napoleon (vinagi) se kăpešε sled dălga bitka. Bg
  b. Po długiej bitwie Napoleon (zawsze) brał kapiel. Po
  c. Posle dîtel’noj bitvy Napoleon (vsegda) prînimal vannu. Ru
  ‘After a long battle, Napoleon (always) took (Impf) a bath.’

(8) ‘Imperfective paradox’ = At a past time, X had began accomplishing Y.

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6 We thank Nikolay Slavkov and Galia Dukova-Zheleva for help with Bulgarian, Ewelina Frackowiak for help with Polish, and Ulyana Savchenko for help with Russian. Due to space limitations, we do not describe the morphosyntax of TAM systems in the various Slavic languages illustrated in this paper, which differ from each other in details, and refer the interested reader to Arregui, Rivero & Salanova (to appear) for some clarification.
a. Kučeto presičase pätja, kogato avtobusat go bläsna. Bg
b. Pies przechodził przez ulicę i został uderzony przez autobus. Po
c. Sobaka perebegala dorogu kogda na nejo naexal avtobus. Ru
‘The dog was crossing (Impf) the road when it was hit by the/a bus.’

2.2.2 Microvariation in Slavic

Outside of the core in 2.2.1, imperfectives display considerable internal variation within Slavic, leading to both further differences and also similarities with Romance. In this paper, we identify two instances of such a microvariation: one concerning so-called Factual Imperfectives and the other concerning what we dub Intentional Imperfectives. In §4, we will provide a formal analysis for the second type.

A first type of microvariation we identify but do not analyze in this paper resides in Imperfectives for complete/culminated past events, which are often dubbed ‘Factual Imperfectives’ in the literature (see Dickey 2000, Gronn 2003, a.o., for references and discussion). Such ‘Factual Imperfectives’ are found in Russian as illustrated in (9), and Polish, which we do not illustrate.

(9) Odnazdy on uže polučal vygovor za opozdanie. Ru
Once he already receive.Impf.Past reprimand for lateness
‘He (has) already once received (Impf) a reprimand for being late.’
(adapted from Dickey 2002)

It is well known that Factual Imperfectives are not a feature of all Slavic languages, but Dickey (2000) proposes that Bulgarian is among the languages that exhibit them. In our view, Bulgarian lacks Factual Imperfectives, and we use this language to illustrate a first kind of microvariation within Slavic.

Bulgarian expresses readings parallel to the one in Russian (9) via forms that are semantically perfective, and cannot express such an interpretation via forms that are semantically imperfective, as the paradigms in (10) and (11) illustrate. The first label on the verb identifies the morphology traditionally known as imperfective (Impf) or perfective (Perf), and the second a particular past tense: Aorist, Imperfect, or Perfect.

(10) a. Vednuž toj veče polučava zabeležka za zakusnenie. Impf Aorist
Once he already receive.Impf.Aorist remark for tardiness
b. Vednuž toj veče poluči zabeležka za zakusnenie. Perf Aorist
Once he already receive.Perf.Aorist remark for tardiness
c. Vednuž toj veče e polučavaš zabeležka za zakusnenie. Impf Perfect
Once he already be.3sg.Pres receive.Impf.Perfect remark for tardiness
d. Vednuž toj veče e polučil zabeležka za zakusnenie. Perf Perfect
Once he already be.3sg.pres receive.Perf.Perfect remark for tardiness
All a-d: ‘He (has) already once received a reprimand for being late.’

(11) a. *Vednuž toj veče polučavašte zabeležka za zakusnenie. Impf Imperfect
Once he already receive.Impf.Imperfect remark for tardiness

For an analysis of Factuals in terms of Imperfective Viewpoint (i.e. IMPF) and a Resultative MB see Arregui, Rivero, and Salanova (to appear).
b. *Vednuž toj večer polučēše zabležka za zakusnenie. Perf Imperfect
   Once he already receive.Perf.Imperfect remark for tardiness
   Both a-b: ‘*He (has) already once received a reprimand for being late.’

As the paradigm in (10) suggests, Bulgarian Vs with imperfective or perfective morphology must combine either with the Aorist as in (10a-b), or with the Perfect as in (10c-d), to successfully convey complete/culminated events, the crucial point. In more detail, the verb in (10a) is a secondary imperfective inflected for the Aorist, while (10c) displays a secondary imperfective V in the Present Perfect. We do not, of course, claim that the above sentences are synonymous (see, a.o., Maslov 1982 on differences between Aorists and Perfects). In all instances, however, the compositional effect of the combinations in (10) results in the semantic type of Viewpoint Aspect (Smith 1991) usually dubbed ‘perfective’ in the literature, not ‘imperfective’. By contrast, recent analyses of Factuals are based on a notion of imperfectivity encoded in IMPF (see Grønn 2003, Altshuler 2009, a.o.). By contrast, the paradigm in (11) illustrates that Imperfect tenses necessarily convey Imperfective Viewpoint Aspect whether they are combined with morphologically imperfective or perfective Vs, and are thus unsuitable to express readings corresponding to Factual Imperfectives in Russian. In more detail, (11a) contains a secondary imperfective V inflected for the Imperfect tense. Even though such a combination could intuitively be dubbed a ‘double imperfective’ from a morphological perspective, it cannot be used to express a culminated event, thus, establishing a clear contrast with Russian simple or secondary imperfectives. Thus, it can be concluded that Bulgarian is not one of the Slavic languages that displays a semantic class of ‘Factual Imperfectives’ (i.e. IMPF resulting in a complete event interpretation).

The Romance family also lacks Factual Imperfectives, so we consider Spanish (12a-b), also with an Aorist and a Perfect, the Romance counterparts of the Bulgarian semantic perfectives in (10a-d).

(12) Una vez él ya {a. recibió /b. ha recibido} un aviso
   Once he already {receive.a. Aorist/ b. Perfect} a remark
   por su tardanza.
   for his tardiness.
   ‘He (has) already once received a reprimand for being late.’

In the analysis for imperfectives developed in §3 for Romance and Slavic, the Bulgarian and Spanish patterns under discussion are parallel is so far as they all lack the Viewpoint IMPF Operator proposed in (31): [TP T [AspP IMPF [vp Voice [vp .........]]]]. Oversimplifying, they instead contain a PERF operator. To conclude with Factual Imperfectives, those are found in at least Russian and Polish, but not in Bulgarian.

A second kind of microvariation we illustrate in this section, and analyze in §4 hinges on imperfectives for plans, which we dub ‘Intentional Imperfectives’. This type of variation

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8 The idea is not new. Ivancev (1976) considers that in semantics the perfective/imperfective opposition corresponds in Bulgarian to the aorist/imperfect opposition (also Comrie 1976, Bertinetto & Delfitto 2000). In our analysis, IMPF is morphologically encoded in the Imperfect, and c-commands the perfective / imperfective morphology on V. In other Slavic languages, IMPF is phonologically null, and signaled by imperfective morphology on V. Bulgarian Imperfects are inflectional, and perfective /imperfective morphology is often derivational; however, such contrasts play no role in semantics, and in some theories of morphology (i.e. Distributive Morphology), they are also orthogonal to the issue at hand.
divides the Slavic family into two distinct groups, as (13) indicates. The difference is that languages in the South Slavic branch that include Bulgarian, Macedonian, Serbo-Croatian, and Slovenian have Intentional Imperfectives, albeit not under exactly the same syntactic conditions, while West Slavic languages such as Czech, Polish, and Slovak, and also Russian, lack such imperfectives.

(13) Group 1(Yes): South Slavic (Bulgarian, Macedonian, Serbo-Croatian, Slovenian).
    Group 2 (No): Russian and West Slavic (Czech, Polish, Slovak).

Some data illustrating the second type of variation is provided in (14) through (18). The examples in (14-15) vs. (16-17) show that similar past imperfective Vs of motion in sentences that allude to future plans are grammatical in South Slavic, often under restricted conditions (see Arregui, Rivero, & Salanova (to appear) for further discussion), and ungrammatical in West Slavic and Russian. In addition, the paradigm in (18) shows that for such intentional readings to be successful, Russian and Polish sentences must contain an overt modal component in addition to an imperfective V: conditional *by in Russian B’, and modal *mieli in Polish B’. As Bulgarian B suggests, a similar addition is not necessary in this language (but it is also an option).

(14) Bulgarian (Group 1: yes)
    Utre, po plan, Ivan letše za Sofia.(ama tuku-što razbrahme če všički poleti sa otmeneni).
    ‘Tomorrow, according to plan, Ivan was flying to Sofia, (but today we found out that all flights are cancelled).’

(15) Slovenian (Group 1: yes)
    Še včera smo jutri leteli v London,
    ‘Still yesterday we were flying to London tomorrow, (but today we find out that all flights to London are cancelled).’

(16) Russian (Group 2: no)
    * Ivan uletal zavtra v Ispaniju.

Rivero & Arregui (2010, 2012) provide a second argument in support of the division in (13). Briefly, South Slavic Involuntary States such as (i) have a desiderative reading because they are composed of Intentional Imperfectives. West Slavic and Russian Involuntary States such as (ii) have a factual reading because they do not contain Intentional Imperfectives, since those are absent in Group 2. See also (Rivero, Arregui & Frackowiak 2010).

(i) Janezu se je plesalo.
   JDAT REFL be3S dancedNEU
   ‘John was in the mood for dancing.’

(ii) Jankowi tańczyło się dobrze.
    JDAT danced3PL REFL well
    ‘Somehow, John danced with pleasure.’
Imperfectivity: Capturing Variation Across Languages

Ivan fly.Past.Impf tomorrow to Spain
Intended: ‘*Ivan was flying to Spain tomorrow.’

(17) Polish (Group 2: no)
*Jan lecial jutro do Hiszpanii.
Jan fly.Past.Impf tomorrow to Spain
Intended: ‘*Ivan was flying to Spain tomorrow.’

(18) A: It’s a pity the cinema had to close because of fire hazards.
B: (Yes.) Tomorrow they were showing “Avatar”.

Bulgarian (Group 1: yes)
B: Utre davaxa “Avatar”.
Tomorrow give.Past.Impf.3Pl
‘Tomorrow they were giving (=showing) “Avatar”.’

Russian (Group 2: no)
B: *Zavtra oni pokazyvali “Avatar”.
*Tomorrow they show.Past.Impf Avatar
B’: OK: Zavtra oni pokazyvali by “Avatar”.
Tomorrow they show.Past.Impf Cond Avatar
‘Tomorrow they would be showing “Avatar”.’

Polish (Group 2: no)
B: *A jutro grali “Avatara”!
*And tomorrow play.Past.Impf Avatar
B’: OK: A mieli grać “Avatara” jutro!
And shall Past.3Pl play.Inf.Impf Avatar tomorrow
‘And tomorrow they would be showing “Avatar”!’

In sum, languages within Slavic display variation in the interpretation of imperfectives from several perspectives: micro-variation. Our interest in this paper is on differences with respect to Intentional Imperfectives, and we have noted that Slavic languages divide into two groups: Group 1 languages with Intentional Imperfectives, mainly the South Slavic group, and Group 2 languages without Intentional Imperfectives, mainly East and West Slavic.

2.3 The case of Mêbengokre
Mêbengokre (Mb) is a Jê language spoken by approximately 10,000 people in central Brazil. There are only a few published sources on the structure of Mêbengokre and Jê languages more generally. For some references and a very succinct overview, see Salanova and Reis Silva (2010).

Mêbengokre is a consistently head-final language, with a fairly rigid SOV order in independent clauses. Other orders are possible (in particular OSV), but they are pragmatically marked. Heads agree in person with at most one of their dependents. Core cases are only morphologically visible on pronouns. Ergative and oblique cases are postpositions. Clausal subordination always involves nominalization (cf. Salanova 2011), which implies a particular form of the verb (glossed here as N), and ergative alignment of the core participants.
TAME markers in Mëbengokre appear in one of two positions in the clause: (a) clause finally, governing a nominal form of the verb, and (b) as left Peripheral particles. Given this distribution, we propose that the clause-final markers are functional heads (i.e., auxiliaries) that subordinate lexical verbs. For reasons of space, in this paper we focus only on a handful of clause-final auxiliaries. For a broader description of the syntax of the aspectual markers of Mëbengokre, please consult Arregui, Rivero & Salanova (to appear).

2.3.1 Aspectual readings in Mëbengokre
Aspectual distinctions in Mb are expressed by means of a series of post-verbal markers such as those illustrated in bold in (19-20): prospective-like mā in (19a), imminent-like ỳr in (19b), etc.

(19) a.  Ije mry krën mā.  
1erg meat eat.N PROSP ‘I was going to eat the meat.’  

b.  Ije mry krën ỳr.  
1erg meat eat.N IMM ‘I was almost at the point of eating the meat.’

(20) a.  Ba mry krën o=nhỳ.  
1nom meat eat.N o=sit.V ‘I was eating the meat (sitting down).’

b.  Ba mry krën o=dja.  
1nom meat eat.N o=stand.PL.V ‘I was eating the meat (standing).’

Mb aspect markers convey a range of interpretations traditionally associated with imperfectivity in Indoeuropean languages. Progressive-like nhỳ in (20a), for instance, brings to mind the so-called ‘ongoing’ imperfectives in Romance illustrated in (2), equivalents in Slavic (5), and English progressives. Prospective-like mā in (19a) is comparable to intentional imperfectives for future plans in Romance (4), South Slavic (14-15) and (18), and English progressives in so-called futurate uses, and so on and so forth.

Mb markers can give rise to a variety of effects that can be roughly grouped under the ‘imperfective paradox’ label (Dowty1979), as illustrated in (21). Later in §4, however, we distinguish two kinds of such effects, and subdivide the notion of Inertia used in the analysis of imperfectivity into two types.

(21) a.  Maria pry kapêr'yr o=mō be pry kapêr'yr kêt.  
Maria path cross.N PROG but path cross not ‘Maria was crossing the path, but she did not cross the path.’

b.  Maria pry kapêr'yr mā be pry kapêr'yr kêt.  
Maria path cross.N PROSP but path cross not ‘Maria was going to cross the path, but she did not cross the path.’

All the Mb aspect markers in (19) to (21) embed a nominalized clause signaling a subordination structure, as indicated by the morphology on the verb (Salanova 2007, 2008). In this way, aspect markers differ syntactically from temporal adverbs, which do not subordinate the verb phrase, as
illustrated in (22-23). In more detail, krèn ‘eat’ in (19) and (20) is a nominalized verb, while tê ‘go’ in (22-23) is not nominalized, but rather a finite verb.

(22) Kajtire nê arỳm mâ tê.
    Kajtire nfut already away go.V
    ‘Kajtire has left already.’

(23) Ba âm tê.
    1nom now go.V
    ‘I am going now.’

If the Mb aspect markers in (19) to (21) stand for a Viewpoint IMPF Operator, as we propose in §3, and such an operator is in the matrix clause, it c-commands the verb in the subordinate clause. On such an analysis, Mb markers are structurally parallel to IMPF in Romance and Slavic, which c-commands V in a VP-complement, rather than a clausal complement.

2.3.2 Two types of aspect markers in Mèbengokre
We separate aspect markers in Mb into two groups for at least three reasons. First, from a morphological perspective, markers in the first group (Group 1) are simple, and homophonous with directional postpositions, as illustrated in (24a-b).

(24) a. Ije mry krèn {mâ/ỳr}.
    1erg meat eat.N {PROS/IMM}
    ‘I {was going to/about to} eat meat.’

   b. Ba kikre {mâ/ỳr} tê.
    1nom village {to/towards} go.V
    ‘I went to/towards the village.’

Markers in the second group (Group 2) are complex: they consist of a stative light verb, the applicative element o, and a nominalized clausal complement, as in (25).

(25) Ba mry krèn o=nhê.
    1nom meat eat.N O=sit.V
    ‘I was eating meat (sitting down).’

Second, from a syntactic perspective Group 1 aspectual markers are different from those in Group 2. While in Group 1 an ergative pronoun is mandatory and no nominative is present in the construction, as in (24a), in Group 2 the nominative is obligatory, and ergative may appear redundantly, as in (26).

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Applicative o is also used outside the Viewpoint domain, as illustrated in (i).

(i) a. Ba mry o=tê.
    1nom meat O=go.V
    ‘I took the meat.’

   b. Ba kupip o=mex.
    1nom mat O=good
    ‘I fixed the mat.’
Third, there is a semantic relation between Group 2 markers and the subject, while none exists in the case of Group 1 markers. This thematic-like relation is reflected in the fact that the marker specifies the position in which the subject is carrying out the action, as already illustrated in (25) and (26), as well as the plurality of the subject, as the contrast between (27) and (28) now illustrates.

(27) \( \text{Ba krēn o=dja.} \)
\[ \text{lnom eat.N o=stand.V} \]
‘I was eating it (I'm standing up).’

(28) \( \text{Ba mē krēn o=ku'ē.} \)
\[ \text{lnom PL eat.N o=stand.PL.V} \]
‘We were eating it (we are standing up).’

In view of the three differences mentioned above, we propose that Group 1 markers have a (rough) “raising” structure as schematically depicted in (29), while those in Group 2 have a (rough) “control” structure as in the skeleton in (30). The intuition behind this proposal is that constructions with Group 1 markers involve only one thematic-like role for the logical subject, while those with Group 2 markers involve two thematic-like roles. While the syntactic implementation of our proposal remains for future research, some of its semantic consequences will be discussed in more detail in §5.

(29) Group 1
(30) Group 2

In sum, regarding aspect in a comparative perspective, markers in Mb are structurally similar to imperfective categories in Romance and Slavic since they c-command the verb, as (29)-(30) show. However, Mb contrasts with languages in both Romance and Slavic since it is a language where different imperfective-like interpretations are encoded by distinct aspect markers, and there is little flexibility of interpretation for each marker.

3 Capturing semantic imperfective variation: a modal proposal
Our general idea is to capture semantic variation on the basis of a modal analysis of imperfectives inspired by Cipria & Roberts 2000, with lexically determined modal bases (inspired by the proposal for modals in Rullmann & al. 2008) encoded in syntax. The proposal will be presented within the framework of situations (Kratzer 1989, 2002, 2009), which is particularly appropriate since it allows us to access simultaneously a temporal and a modal
dimension. In a sense, the situations framework collapses temporal and modal categories, and thus provides us with ideal units for the problem at hand.

Situations are parts of possible worlds. Intuitively, we can think of a situation in the actual world as a part of what is going on. Here is an example from (Kratzer 1989), schematized below: ‘Suppose Paula has painted a still life with apples. There is something in the actual world that makes it true that Paula painted a still life. This is the situation of Paula painting the apples. It will have parts, like the situation of Paula painting an apple stalk. And it will be part of bigger situations, like the situation of Paula painting a still life with apples and making dinner.’

The ‘part-of’ relation

Let us now formalize our proposal on imperfectives. We adopt a standard view where Viewpoint Aspect projects above vP and below TP in Romance and Slavic, as in (31). Abstracting from Tense, the crucial point with respect to Viewpoint Aspect in Mb is to project above the nominalized clause complement containing the lexical verb, as in (32). The semantics of the shared IMPF operator are as in (33).\(^ {11}\)

\[
\begin{align*}
(31) & \quad [TP \ T \ [AspP \ IMPF \ [vP \ V \ [vP ...V...]]]] \\
(32) & \quad [AspP \ [Nominalized \ Clause \ ...V...] \ IMPF ] \\
(33) & \quad [[IMPF]] = \lambda P_{<s, <s, t>>}. \lambda s. \forall s': MB_{s}(s') = 1, \ \exists e: P(e)(s') = 1. \\
& \quad P = \text{a property of events (argument saturated by the denotation of \{vP/nominalized clause\}).} \\
& \quad MB_{s} = \text{contextually provided MB (Kratzer), understood as accessibility relation} \\
& \quad \text{(function from situations, to situations to truth values: \(<s, <s, t>>\).} \\
\end{align*}
\]

In (31-32), IMPF combines with a property of events P, and results in a property of situations true of s iff in all situations s’ accessible to s given the contextually salient modal base, there exists a P-event.

\(^ {11}\) (33) does not impose a temporal constraint on the relation between event and reference situation. That is, there is no temporal claim in (33), in contrast with common views on traditional viewpoint aspect. Note that accounts that focus exclusively on the temporal relations corresponding to imperfectivity are not able to handle the modal dimension.
Different choices of MB result in different domains of quantification, and thus flavors for IMPF. MBs for IMPF inspired by Cipria & Roberts (2000) include (34a) and (34b) (where < is the proper part-of relation). (34a) applies to Romance (2a-b), Bg, Po, Ru in (5), and Mb (20a-b), and (34b) applies to Romance (1a-d) and Bg, Po, Ru in (6-7).

(34) a. \( \text{MB}_{\text{ongoing}} = \lambda s. \lambda s'. s' < s \).
   (access to subparts of a s, results in an ongoing interpretation).

b. \( \text{MB}_{\text{generic}} = \lambda s. \lambda s'. s' \) is a characteristic situation in s.
   (access to typical parts of s, results in a generic interpretation).

4 A proposal on Slavic: Group 1 vs. Group 2 imperfectives
We have shown a difference in Slavic between Group 1 and Group 2 as to the availability of intentional readings for imperfectives. Those are available in Group 1, as in Bg (14), Slo (15) and Bg (18) but not in Group 2, where Ru and Po (16-17-18) are ungrammatical. Intentional readings have at times been attributed to coercion. For Cipria & Roberts (2000) in particular, they arise from the pragmatic coercion of the ongoing-event reading, ‘pushing it back’ so that it includes the plans. However, such a proposal seems to pose several problems. One, we saw in §2.2 that in Slavic this is not possible in Group 2. Two, we noted in passing that Brazilian Portuguese imperfectives disfavor an ongoing reading, which is preferably expressed with progressives, so it seems unreasonable to suggest that such a reading is the source of the intentional reading. Three, ‘ongoing’ and ‘intentional’ readings correlate with different aspectual markers in Mb, as we saw in §2.3. The Slavic, Brazilian Portuguese, and Mb situations suggest that the availability of an intentional reading cannot be attributed to coercion, but must instead be lexically encoded.

Concentrating on variation in Intentional Imperfectives, we propose to distinguish between two inertia readings, as in (35) and (36).

(35) Event inertia
   \( \text{MB}_{\text{E-inertia}} = \lambda s. \lambda s'. s' \) is an Event-inertia situation for s.
   s’ is an event inertia situation for s iff all the events that have actually started in s continue in s’ as they would if there were no interruptions.

(36) Preparatory inertia
   \( \text{MB}_{\text{P-inertia}} = \lambda s. \lambda s'. s' \) is a Preparatory-inertia situation for s.
   s’ is a preparatory inertia situation for s iff all the events that are in preparatory stages in s continue in s’ as they would if there were no interruptions.

Event Inertia in (35) is for the traditional ‘Imperfective Paradox’ paradigm shared by Romance and Slavic, as illustrated in §2. Preparatory Inertia in (36) is for Intentional Imperfectives crosslinguistically, including Romance and the South Slavic languages, as also illustrated in §2.

Our proposal is that in West Slavic and Russian IMPF accesses MB_{E-inertia}, MB_{ongoing}, MB_{generic}, but NOT a ‘purely’ Preparatory MB_{P-inertia} in (36). By contrast, in the South Slavic

12 There are well-known problems with the inertia-semantics for imperfectives/progressives, in particular in pinning down what it means for an event or its preparations to ‘continue’ in other worlds. We set such issues aside here, but see a.o. Portner 1998, and Arregui, Rivero & Salanova (to appear).
languages IMPF may access all of those modal bases—namely MB_{E-inertia}, MB_{ongoing}, MB_{generic}—and also a ‘purely’ Preparatory MB_{P-inertia}. Let us fill in the details of our proposal in (37).

(37) A ‘purely’ preparatory MB_{P-inertia} as in (36) for plans in the past in Group 1.

(a) \begin{align*}
(14) & \quad \text{Utre, po plan, Ivan letše za Sofia ……}
& \quad \text{‘Tomorrow, according to plan, Ivan was flying to Sofia …’}
\end{align*}

(b) For all past situations \( s \),
\[ [[(14)]](s) = 1 \text{ iff } \forall s': \text{MB}_{P-inertia}(s)(s') = 1, \]
there exists an event of Ivan flying to Sofia in \( s \)
\[ (= [[(14)]] \text{ is true in (past) } s \text{ iff in all situations } s' \text{ in which the preparations set in motion in } s \text{ bear fruit, there exists an event of Ivan flying to Sofia}). \]

In West Slavic and Russian, IMPF does not access MB_{P-inertia}, so the plans-in-the-past reading is missing.

5 A proposal on Mēbengokre: Group 1 vs. Group 2 markers

We have shown that aspect markers in Mb have each a lexically specified interpretation. Variation arises between Group 1 and Group 2 markers on the basis of morphology, syntax, and argument structure. Group 1 markers give rise to ‘raising’ structures, with only one semantic role for their logical subject, while Group 2 aspect markers give rise to ‘control’ structures, with two semantic roles for their subject. Let us see how this semantic distinction fits within our crosslinguistic analysis of IMPF and its different readings.

We can first capture the specific reading each Mb marker encodes as a lexical entry by making a distinction in terms of modal bases, within a shared semantic architecture for imperfectivity of the type depicted in (32).

It is particularly interesting for the purposes of this paper that Mb resembles Romance and Slavic in making differences in terms of the kind of inertia situations made accessible by aspect markers. Event Inertia as in (34) is involved in Mb (20b), with an aspectual marker whose partial analysis we provide in (37) (see also (39) incorporating an analysis of the subject). That is, \( \text{dja} \) indicates that something has already begun, which brings to mind the traditional imperfective paradox, and effects similar to those found across Romance and Slavic with ongoing imperfectives.

\[ (20) \begin{align*}
\text{b. Ba mry krën o=dja.} \\
\text{1nom meat eat.N o=stand.V} \\
\text{‘I was eating the meat (standing).’}
\end{align*} \]

\[ (37) \quad [[\text{dja}_{\text{IMPF}}]] = \lambda P_{\{l, \langle s, t \rangle_>, \text{P} \}} \lambda s_x: \forall s'_x: \text{MB}_{\text{event-inertia}}(s)(s') = 1, \exists e: P(e)(s') = 1 \]

By contrast, given the proposal in (38), \( \text{mā} \) in (19a) indicates that something is in its planning stage. This corresponds to Preparatory Inertia in (35), and is reminiscent of intentional imperfectives found in general Romance, but restricted to South Slavic.

\[ (19) \begin{align*}
\text{a. Ije mry krën mā.} \\
\text{1erg meat eat.N PROS} \\
\text{‘I was going to eat the meat.’}
\end{align*} \]
In addition to lexically specified imperfective readings, in §3 we identified a type of variation in Mb aspectual markers without counterpart in Romance and Slavic. We showed that Mb Group 1 and Group 2 markers differ on the basis of morphology, syntax, and argument structure, with the first type giving rise to ‘raising’ properties, with one semantic role for their logical subject, and the second type giving rise to ‘control’ properties, with two semantic roles for their subject. Let us see how such a variation can be captured within our general approach to IMPF.

Group 1 ‘raising’ markers resemble imperfective categories in Romance and Slavic, since those also display ‘raising’ properties: i.e. they do not assign a semantic role to subjects. Thus we make no additional comment on Group 1 markers at this point. Group 2 markers as ‘control’ categories, however, deserve additional attention since they have unique characteristics. To this effect consider (28), and the semantic analysis proposed for its aspect marker in (39).

(28) Bākrẽn o=nḥỳ.
1.Nom eat.N o=sit.V
‘I was eating it, sitting down.’

(39) $[[n\text{ḥỳ}]] = \lambda P_{<l, <s, v>} \lambda x_c \lambda s_e. x \text{-is-sitting-down-in-s-and}$
$\forall s_e': MB_{\text{event-inertia}}(s)(s')=1, \exists e: P(x)(e)(s')=1$

According to (39), the aspect marker nḥỳ in (28) combines with a property of individuals and events (P), and an individual (x). The result is a proposition true of a situation s iff x is sitting down in s and, in all situations s’ that are event-inertia situations, there exists a P-event (event-inertia=all the events that have actually started in s continue in s’ as they would if there were no interruptions). As an aspect marker with its own logical subject, nḥỳ thus imposes restrictions (via control) on the subject of the embedded clause. Combining all the ingredients of our analysis in the structure in (40) for (25), where PRO represents the ‘controlled’ subject, the result is the proposal in (41).

(40) Putting things together for Group 2 aspect markers
Bā [ i PRO₁ mṛy krẽn ] o-] nḥỳ.
1.Nom meat eat.N o- sit.V
‘I was eating meat (sitting down).’

(41) a. $[[i PRO₁ mṛy krẽn]] = \lambda x_c. e. t. e. s_e.e \text{-is-an-event-of-x-eating-the-meat-in-s}$
b. $[[b\text{a}]]^c = \text{the speaker in c}$
c. $[[ b [ i [ PRO₁ mṛy kṛen ] o-] nḥỳ ]]]^c =$
$\lambda s_c. \text{the-speaker-in-c-was-sitting-down-in-s-and}$
$\forall s_e'. MB_{\text{event-inertia}}(s)(s')=1, \exists e: e \text{ is an event of the speaker eating the meat in s’}$

6 Conclusions
In this paper we have addressed the topic of cross-linguistic variation in the interpretation of imperfectivity. We have shown that there is a surprising range of variation even within closely
related languages (microvariation), as well as variation across language families (macrovariation). We have argued that this supports a view of the semantics of the imperfective operator that allows languages to lexicalize very specific options. We have captured the range of variations appealing to proposals made in the domain of modality (Kratzer 1991) and argued that languages determine which modal bases are available to the imperfective operator. There is variation regarding how permissive languages may be. We have seen that on the one hand Romance languages allow a wide range of modal bases to be associated with a single manifestation of imperfective morphology, but still lack ‘Factual Imperfectives’. On the other hand while Slavic languages offer crisscrossing patterns of variation, Mebengokre is much more restrictive, with lexically specified modal bases for distinct aspectual morphology.

The proposal made in this paper contributes towards debates on the nature of the imperfective operator. We have argued that to account for the range of variation it is necessary to semantically encode a fine range of variation (e.g. the difference between event inertia and preparatory inertia modal bases) as well as to narrow down the role of pragmatics. In our view pragmatic coercion is not equipped to capture crosslinguistic variation such as the one discussed in this paper.

References


