# Aspeclecticism

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Graz, January 26, 2023

## Points of departure

1. Cross-Slavic differences in the use of aspect in various contexts: Russian vs. Czech
   - → Is this a semantic or pragmatic difference?
   - → How can we formalise this difference?

2. The requirements for using the perfective (PF) or imperfective (IPF) aspect in Russian (in past tense contexts) hold for finite but not necessarily for non-finite verb forms.
   There are further differences between Czech and Russian with non-finite forms (participles, nominalisations).
   - → What is the role of finiteness in the Russian aspect system?
   - → Why does it (presumably) not play a role in Czech?

3. What does definiteness have to do with it all?

# Background assumptions on: Definiteness, Aspect, Tense

# Definiteness in the nominal domain

- Different theoretical approaches
  - Uniqueness: only one ($+$ contextual restriction)
    Maximality for plural definites
  - Familiarity
  - Determinacy

  (also: definites are specific / indefinites can be specific or non-specific; cf. e.g.
  Enç 1991)

- Different types of definites
  - Uniqueness/maximality in the situation vs. world knowledge
  - Anaphoric definites: referent in the common ground
  - Predicative definites
  - Weak vs. strong definites
  - ...

- Different types of indefinites ...

# Heim (2011)

Semantics of (in)definiteness (not necessarily of *the/a*):

(1)   a.   $[[+\mathrm{DEF}]] = \lambda P : \exists x \forall y [\mathrm{MAX}(P)(y) \leftrightarrow x = y].\iota x.\mathrm{MAX}(P)(x)$
      b.   $[[-\mathrm{DEF}]] = \lambda P.\lambda Q.\exists x [P(x) \wedge Q(x)]$

- Indefinites and definites form a scale; indefinites are logically weaker
- → In definite contexts the indefinite article cannot be used due to an anti-uniqueness implication with indefinites
  (competition with definites + maximise presupposition)

# Coppock and Beaver (2015)

Definite morphology vs. determinate/indeterminate interpretation

- Definite descriptions are predicative (type $\langle e, t \rangle$), presupposing uniqueness but not existence ("Weak Fregean")

  Point of departure: Definites in predicative position (2)

  (2)  a.  The king of France is the greatest French soldier.
       b.  Scott is (not) the only author of *Waverly*.

- Existential import through type-shifting

- Definite descriptions can have both determinate and indeterminate readings

  - Determinate: Denoting an individual (type $e$ by IOTA-shift)
  - Indeterminate: Functioning as an existential quantifier (type $\langle \langle e, t \rangle, t \rangle$ by EX-shift)

# Grønn and von Stechow (2016); Grønn (2015)

- Draw parallels between events, times and the semantics of bare nominals in articleless languages (e.g. Russian)

    - Tenses and aspects are relational predicates; verbs/VPs are predicates
    - Further information about times and events (e.g. adverbials): added via predicate modification
    - Covert definite and indefinite operators turn them into dynamic generalised quantifiers (anaphoric to a previous referent, maximally presupposing given information, or introducing a new referent)

- Tenses

    - Relations between reference time and speech time or some other time
    - covertly, on top: definite or indefinite reference time

- Russian imperfective forms either have imperfective semantics or perfective semantics ("fake" IPF; see below)

    covertly, on top: definite or indefinite event

# Tense, Aspect

Common cross-linguistic assumptions about Tense and Aspect

- **Tense**: Relation between Speech time and Reference time
  e.g. Reichenbach (1947); Klein (1994): R-S / TT-UT (topic time, aka assertion time-utterance time)

- **(Outer) Aspect**: Relation between Event time and Reference time
  e.g. Reichenbach (1947); Klein (1994): R-E / TT-TSit (situation time)
  (vs. inner aspect: telicity/resultativity/event types at the level of the VP)

- Syntactic assumptions in Demirdache and Uribe-Etxebarria (2014, 858)
  (building on Demirdache and Uribe-Etxebarria 2000):

*The temporal phrase structure for tense and aspect*
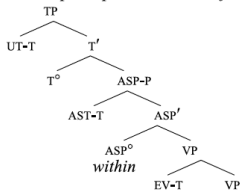
# Background on (I)PF readings, e.g. Russian

- (PFs usually express concrete facts.)
- IPF forms can have different readings in context:

  Canonical IPF readings:
  - Process/durativity (~ Progressive) (3-a)
  - Iterativity/habituality (3-b)

  (3)   a.   Kogda ja vošla,     moj brat   čital    knigu.
             when  I   in-went.PF my brother read.IPF book
             'When I came in, my brother was reading a book.'
        b.   Ona každyj den' otkryvaet okno.
             she every  day   opens.SI window
             'She opens the window every day.'

  Non-canonical IPF reading(s): General-factual
  - Possible with typical perfective meaning
    (e.g. bounded "completed" events in the past)
  → Notoriously difficult to account for

# The (general-)factual IPF

(Maslov 1959)

**1** Existential (4) (from Grønn 2004) (see also Padučeva 1996)

Paraphrase: *There was/is etc. (at least)* **one** *event of this type.*
(e.g. Mehlig 2001, 2013; Mueller-Reichau 2013, 2015; Mueller-Reichau and Gehrke 2015)

(4)    Ne bylo    somnenij,    čto ja prežde vstrečal ee.
       not was.NEU doubt.PL.GEN that I  before met.SI   her
       'There was no doubt that I had met her before.'

**2** Presuppositional/actional (5) (example: Zaliznjak and Šmelev 2000, terms: Grønn
2004/Padučeva 1996)

Paraphrase: **The** *(already mentioned or contextually retrievable) event was/is etc.
such and such.*

(5)    Zimnij    Dvorec    stroil    Rastrelli.
       winter-.ACC palace.ACC built.IPF Rastrelli
       'It was Rastrelli who built the Winter Palace.'

(information structural cues: Padučeva 1996; Grønn 2004, 2015; Borik and Gehrke 2018)

# Grønn (2015)

(6)  a.  $[[PF]] = \lambda t \lambda e. e \subseteq t$
     b.  $[[IPF_{ongoing}]] = \lambda t \lambda e. t \subseteq e$
     c.  $[[IPF_{factual}]] = \lambda t \lambda e. e \subseteq t$    "Fake IPF"

+ covertly, on top: definite or indefinite event
  **e.g.** Definite event with presuppositional IPF (+ definite reference time)
  **e.g.** Indefinite event with existential IPF (+ indefinite reference time)

• Aspectual competition between PF (6-a) and "fake IPF" (6-c)
  (pragmatic account)
    • Presuppositional IPFs arise when narrative progression is to be avoided.
        • Aspect neutralisation rule (see also Grønn and von Stechow 2016):
          When a semantically PF aspect is definite/anaphoric, it is
          morphologically neutralised to IPF.
    • Existential IPFs when the reference time is too large for the perfective
      semantics to be informative

# Tentative proposal (for Russian) in Gehrke (2022)

- Existential IPFs
  Related to iterative/habitual readings (*kratnost'*; cf. Padučeva 1996)

- Presuppositional IPFs
  Related to the process reading: Zooming in on a narrower reference time (Gehrke 2023)

# Presuppositional IPFs (Gehrke 2023)

(7)  a.  Zaplatili.    Plačeny byli naličnymi šest' tysjač    rublej [...]
         paid.3PL.PF paid.IPF were in-cash    six    thousand Rubles
         'They paid. It was paid 6.000 Rubles in cash.'

   b.  $[e_1, e_2, t_1, t_2, n, x | \textbf{pay}(e_1), \tau(e_1) \subset t_1, t_1 < n, \textbf{pay}(e_2), \text{THEME}(e_2, x),$
      $\textbf{6.000R}(x), \textbf{in-cash}(e_2), e_2 = e_1, t_2 \subset \tau(e_2), t_2 < n]$

      aspect semantics / tense semantics / anaphoricity

- Event completion intuition due to the first sentence about $e_1$.

   - Since $e_2$ equals $e_1$ the actual event of paying remains completed.
   - $t_2$ is part of the run time of $e_2$ → it is part of the run time of $e_1$.
   - By transitivity, $t_2$ is then also part of the bigger reference time $t_1$.

→ The second sentence zooms in on a narrower reference time for which an assertion is made, and this is what is captured by the IPF semantics.

→ There is no "fake" IPF.

# Cross-Slavic variation in aspect

# Aspect semantics vs. pragmatics

- Often (more or less implicit) assumption:
  Uniform aspect semantics in Slavic languages

- Parallel corpus studies (e.g. Dübbers 2015):
  No one-to-one correspondence in aspect usage

**Q:** Are these differences semantic or pragmatic?
**Q:** Which other factors play a role?

# Differences in aspect usage

e.g. Dickey (2000): Differences in 10 Slavic languages

- Contexts: habituality, general-factual, historic present, instructions and commentaries, IPF in chains of events, ingressivity, deverbal nouns

Dickey's analysis: West-east isogloss

- East: Prototype Russian (also: Belorussian, Ukrainian, Bulgarian)

    - PF: Temporal definiteness
    - IPF: Qualitative temporal indefiniteness

- West: Prototype Czech (also: Sorbian, Slovak, Slovenian)

    - PF: Totality
    - IPF: Quantitative temporal indefiniteness

- Peripheral types:

    - Polish (closer to the Western type)
    - Serbo-Croatian [BCMS] (closer to the Eastern type)

(see also Dickey 2015, 2018; Fortuin and Kamphuis 2015, 2018)

# Cross-Slavic differences in aspect usage

- Further contexts and literature:
    - Ingressivity (Ivančev 1961; Berger 2013)
    - Imperative (Dokulil 1948; Benacchio 2010; Alvestad 2013; von Waldenfels 2014)
    - Negation (Dickey and Kresnin 2009; von Waldenfels 2014)
    - Present tense (Bondarko 1958, 1959; Křížková 1955, 1958; Širokova 1963; Petruxina 1978, 1983, 1998, 2000; Fortuin and Kamphuis 2015)
    - Motion events (Eckert 1991)
    - General-factual contexts (Gehrke 2002, 2022; Alvestad 2013; Dübbers 2015; Mueller-Reichau 2018; Klimek-Jankowska 2022)

# Russian vs. Czech

- Theses particularly about this:
  - Eckert (1984): Single vs. multiple events, motion events, spoken vs. written, present, general-factual, negation, imperative (PhD)
  - Stunová (1993): Multiple events, chains of events (PhD)
  - Gehrke (2002): Single vs. habitual events, general-factual (MA) (small-scale parallel corpus study)
  - Dübbers (2015): Multiple events, general-factual (PhD) (large-scale corpus studies)

| | Russian | Czech |
|---|---|---|
| Single events in chains of events | PF | IPF, PF |
| Multiple / habitual events | IPF | IPF, PF; frequentatives |
| General-factuals | IPF | IPF, PF |

# Findings in Gehrke (2002)

- Single events: Differences only with particular verb classes
    - → States/activities: Czech IPF vs. Russian PF
    - → Accomplishments/achievements: both PF
      (or Czech IPF to dwell on duration)

- Multiple events / habituality:
    - Marked on the verb form in Russian only (IPF)
    - Aspect usage in Czech more or less like with single events
      (in other words: IPF appears for the same reasons it appears with
      single events: process, longer duration, stativity etc.)

- Hypothesis about general-factuals (further elaborated on in Gehrke 2022)
    - Czech only has presuppositional ("actional") IPFs
      (Gehrke 2022: related to the process reading)
    - Czech does not use IPFs to mark existentials because the existential
      IPF is related to the use of IPF for multiple events (non-single events),
      where Czech does not use the IPF (for this reason)
      (in other words: different reasons for IPF in existential contexts)

# An example (Gehrke 2002/2022)

(8)  a.  On **pomolčal**  <u>nekotoroe</u> vremja v smjatenii,  **vsmatrivajas'** v
         he PO-was-silent.PF some  time  in confusion.ACC in-watch.AP.SI in
         lunu,  plyvuščuju  za  rešetkoj,  i  **zagovoril**:  [...]
         moon.ACC swimming.ACC behind bars.INSTR and ZA-spoke.PF
         'He stayed silent for some time in confusion, watching the moon that
         swam behind the bars, and (then) said: ...'  (RU MM130/109)

     b.  <u>Chvíli</u>  zaraženě  **mlčel**,  **sledoval**  plující
         while.ACC confused.ADV was-silent.IPF followed.IPF swimming.ACC
         měsíc  za  mříží,  a  <u>pak</u> **se**  **zeptal**:  [...]
         moon.ACC behind bars.INSTR and then REFL inquired.PF
         'For a while he was silent in a confused manner, followed the swimming
         moon behind the bars, and then inquired: ...'  (CZ translation)

- Russian:
  - Chain of two foregrounded single events: finite PF past
  - Backgrounded simultaneous event: non-finite IPF adverbial participle
- Czech: Finite IPF or PF past tense (depending on the verb type & duration)

# Another example (Gehrke 2002/2022)

(9)    Balodis služil povarom. Glavnoj ego zabotoj byla prodovol'stvennaja kladovaja. Tam xranilis' salo, džem, muka. Ključi Balodis celyj den' nosil v rukax.
'Balodis worked as a cook. His main task was the storage room. There they kept bacon, jam, flour. As for the keys [to this room], Balodis kept them in his hands all day.'

    a.    **Zasypaja**,        **privjazyval** ix   špagatom k svoemu detorodnomu   organu.   Ėto ne **pomogalo**.
        asleep-falling.AP.SI   to-tied.SI   them string.INSTR to his.DAT childbearing.DAT organ.DAT that not helped.SI
        Nočnaja smena dvaždy **otvjazyvala** ključi i   **vorovala** produkty. Daže muka **byla     s"edena**     ...
        night   shift  twice  un-tied.SI   keys and stole.IPF foods   even flour was.IPF eaten.PPP.PF
        'Before going to bed he tied them to his childbearing organ. That did not help. The night shift untied the
        keys twice and stole the food. Even the flour was eaten ...'            (RU Dov 49f./29)

    b.    **Než  šel      spát**,      **přivazoval** si   je   provázkem k přirození. Ne**pomáhalo** to.
        before went.DET.IPF sleep.INF.IPF to-tied.SI   REFL them string.INSTR to sex organ NEG-helped.SI that
        Noční    směně   se   **dvakrát podařilo**   klíče **odvázat**   a   potraviny si   **nakrást**.   Dokonce
        night-.DAT shift.DAT REFL twice   succeeded.PF keys untie.INF.PF and foods   REFL steal.INF.PF even
        i   mouku   **sežrali**   ...
        also flour.ACC up-scoffed.3PL.PF ...
        'Before he went to sleep he tied them with a string to his sex organ. That did not help. The night shift
        succeeded twice in untying the keys and stealing the food. They even scoffed up the flour ...' (CZ translation)

- Russian: Finite IPF forms because of multiple events in chain of events / non-finite forms for simultaneous events
- Czech: Mix of IPF (native speakers: took some time) and PF (chain of events)

# Side note: Adverbial participles in Russian

- Express states (IPF: state of the event in process vs. PF: result state) that are backgrounded to the foregrounded events that are expressed by finite IPF or PF verb forms (10)

(10)  a.  Sobiraja       kartofel', Vanja stal        mečtat.
          gather.AP.IPF potatoe  Vanja started.PF dream.INF
          '(While he was) gathering potatoes, Vanja began to day-dream.'
      b.  Sobrav        kartofel', Vanja stal        gotovit'     obed.
          gather.AP.PF potatoe  Vanja started.PF prepare.INF dinner
          'After he had gathered the potatoes / Having gathered the potatoes, Vanja started to prepare dinner.'

→ No "reference time movement" with adverbial participles

→ In Russian, only finite verb forms follow the rules of aspect usage in narrative past tense contexts, outlined above.

# Slavic: Two "passive" constructions, e.g. Russian

(11)     Active Voice
         Storož          otkry(va)l      vorota.
         watchman.NOM opened.(I)PF gate.ACC.PL
         'A/The watchman opened/was opening etc. a/the gate.'

(12)     Periphrastic passive: BE + past passive participles (PPP)
         Vorota          byli otkryty          storožem.
         gate.NOM.PL were opened.PF.PPP watchman.INSTR
         'A/The gate was opened by a/the watchman.'

(13)     Reflexive passive: Active form + reflexive -sja/-s'
         Vorota          otkryvalis'          storožem.
         gate.NOM.PL opened.SI.PL.RFL watchmann.INSTR
         'A/The gate was (being) opened by a/the watchman.'

# Passives: Aspectual restrictions in Russian

- Periphrastic passive: only PF (usually) (14)

- Reflexive passive: only IPF (usually) (15)

  (14)   a.    Vorota     byli otkryty      storožem.
                gate.NOM.PL were opened.PF.PPP watchman.INSTR
                'A The gate was opened by a/the watchman.'
        b.   *Vorota     byli otkryvany     storožem.
                gate.NOM.PL were opened.SI.PPP watchman.INSTR

  (15)   a.    Vorota      otkryvalis'       storožem.
                gate.NOM.PL opened.SI.PL.RFL watchmann.INSTR
                'A/The gate was (being) opened by a/the watchman.'
        b.   *Vorota      otkrylis'        storožem.
                gate.NOM.PL opened.PF.PL.RFL watchmann.INSTR

- Exceptions to these "rules":
  - IPF PPPs: e.g. Knjazev (2007); Borik and Gehrke (2018)
  - PF refl. pass.: e.g. Schoorlemmer (1995); Fehrmann et al. (2010)

# Passive: Russian vs. Czech

- Russian: Aspectual restrictions in the passive
    - Periphrastic passive: mostly PF
      Exceptions: factual IPF participles, but no process IPF or secondary IPFs
      (Borik and Gehrke 2018)
    - Reflexive passive: maybe only IPF
      (would have to be explored in more detail)

- Czech: No such aspectual restrictions (as far as we know)
    - Both "passives" with both aspects
    - All IPF meanings possible? (again, this would have to be explored)

    **Q:** What are the differences between reflexive and periphrastic passives?
    **Q:** Which IPF meanings do we find in both languages with both passives?

## **Further differences with reflexive passives**

- Differences in reflexive constructions (but no discussion of aspect)
    - Fehrmann et al. (2010): Formal analysis
    - von Waldenfels (2014): Corpus study

e.g. *by*-phrases possible in RU but not in CZ (from Fehrmann et al.):

(16)  RU  Dom        stroitsja        (plotnikami).
          house.NOM builds.IPF.RFL carpenter.INSTR.PL
          'The house was built by carpenters.'

      CZ  Šaty          se  právě  šijí              (*babičkou).
          dress.NOM.PL RFL just-now sew.3PL.PRES granny.INSTR
          'The dress is just now being sewn (*by granny).'

**Q:** What is the reflexive passive (RU vs. CZ)? A verbal passive in RU, but
      something else in CZ? (see also Schäfer 2016)

**Q:** How does the reflexive passive relate to other reflexive constructions?

**Q:** What kind of passive is the periphrastic passive (RU vs. CZ)?

**Q:** What kind of *by*-phrases do we get (RU vs. CZ)?

# Czech vs. Russian: Nominalisations

- Similar: Nominalisations, e.g. (17) (NOMs from Dickey 2000)

(17)   e.g. 'realisation, execution'

    CZ  pf. INF provést > NOM provedení          (cp. PPP proveden)
          ipf. INF provadět > NOM provadění       (cp. PPP provaděn)
    RU  pf. INF osuščestvit' > NOM osuščestvlenie    (cp. PPP osuščestvlen)
          ipf. INF osuščestvljat' > NOM *osuščestvljanie  (cp. PPP *osuščestvljan)

→ Morphological connection to PPPs; but:

(18)   e.g. '(food etc.) processing' (Russian)

    a.   pf. INF obrabotat' > NOM *obrabotanie
        ipf. INF obrabatyvat' > NOM obrabatyvanie
    b.   *obrabotannaja pišča* 'processed food'        vs. *obrabatyvan(nyj)*

|  | Russian | Czech |
|---|---|---|
| PPP | (mostly) PF | IPF, PF |
| Reflexive passive | (mosty) IPF | IPF, PF |
| Nominalisations in *-nie/-ní* und *-tie/-tí* | "aspectually neutral" (according to Dickey) | IPF, PF |

**Q:** Again: What is the role of finiteness?

Reviewer 3 (of the first draft of Gehrke 2022):

*I don't think the author's speculations about aspect in non-finite verb forms make any substantial contribution to the paper. The non-finite verb forms are very different in nature (from infinitives to gerunds) and without a proper theory, or syntactic analysis, we must assume as a null-hypothesis that aspect here behaves as with finite verbs.*

Well, then let's add this to the research agenda.

# Aspect and definiteness
## Some proposals

# Recall Dickey's (2000) west-east isogloss

- East: Prototype Russian (also: Belorussian, Ukrainian, Bulgarian)
    - PF: Temporal definiteness
    - IPF: Qualitative temporal indefiniteness
- West: Prototype Czech (also: Sorbian, Slovak, Slovenian)
    - PF: Totality
    - IPF: Quantitative temporal indefiniteness
- Peripheral types:
    - Polish (closer to the Western type)
    - Serbo-Croatian [BCMS] (closer to the Eastern type)

(not formally worked out)

# Formal proposals of cross-Slavic aspect

- Alvestad (2013)

    - Various Slavic languages: Imperatives as instances of factual IPFs ("fake IPFs")
    - Building on Grønn (2004, 2015); Grønn and von Stechow (2010)

- Mueller-Reichau (2018): Russian, Czech, Polish: factual IPF vs. PF

- Klimek-Jankowska (2022)

    - Russian, Polish, Czech: Factual IPFs
    - Building on Ramchand (2004, 2008)

- Mueller-Reichau (2022)

    - Sorbian (vs. Russian, Czech): Chains of events, events in progress, iterativity ...
    - Building on Stunová (1993); Klein (1994); Krifka (1998); Grønn (2004); Zwarts (2005); Filip (2008) ...

All these proposals resort to some notion of definiteness.

# Alvestad (2013)

- Cross-Slavic variation in imperatives, choice of IPF (Alvestad 2013, 312):

  Russian (60%) > Belarusian (59%) > Ukrainian (58%) > Bulgarian (48%) >
  Polish (47%) > Serbian, Croatian (45%) > Macedonian (44%) > Upper
  Sorbian (43%) > Slovak (33%) > Czech (31%) > Slovene (29%)

(19)    The Aspect Neutralization Rule (Alvestad 2013, 230)

   a.    When a semantically perfective Aspect is definite/anaphoric, it is
         morphologically neutralized to IPF. This holds irrespective of whether the
         Tense is indefinite or definite. When this rule is adhered to, we see an
         instance of the presuppositional type fake IPF.

   b.    When a semantically perfective Aspect is indefinite AND the Tense is
         indefinite, (the extended future in the case of imperatives), the Aspect is
         morphologically neutralized to IPF. When this rule is adhered to, we see an
         instance of the existential type fake IPF.

- Pragmatic "account" of the variation            (quote from Alvestad 2013, 312)
  *Slavic languages adhere to the Aspect Neutralization Rule to varying degrees*
  *[...] Russian as the most "law-abiding" language.*

# Alvestad (2013)

- PF is always indefinite (i.e. involves an indefinite event)

- IPF can be both

*Fig. 5.1 Possible constellations of Tense and Aspect in Slavic*

| 1<br>uniq-def T & ind A<br><br>Prediction:<br>Morphological PF | 2<br>ind T & ind A<br><br>Prediction:<br>Aspect neutralization,<br>existential fake IPF |
|---|---|
| 3<br>def T & def A<br><br>Prediction:<br>Aspect neutralization,<br>presuppositional fake IPF | 4<br>ind T & def A<br><br>Prediction:<br>Aspect neutralization,<br>presuppositional fake IPF |

(Alvestad 2013, 229)

# Questions raised Alvestad (and Grønn (&vS))

- How is the system with covert (in)definite operators restricted? (G&vS)

- Why is the reference time with presuppositional IPFs necessarily definite? (G&vS) (for A: can be either)
  In Gehrke (2023) it is indefinite (I will come back to this)

- Why do PFs always involve indefinite events? (A)
  In Mueller-Reichau (2018) PF events are always definite/unique (see next slide)

- Why is only Russian "law-abiding", what exactly triggers the choice of one or the other aspect in languages that show more optionality (e.g. Czech)? (A)

# Mueller-Reichau (2018)

- Semantic account of cross-Slavic difference
    - Factual PF in Polish, Czech vs. factual IPF in Russian
    - IPF semantics: underspecified relation between event time and reference time (building on Grønn 2004)
    - Differences lie in the semantics of the PF: Event uniqueness + additional requirement of target state validity in Russian

(20)    Polish, Czech

    a.    $[[\text{IPF}]] = \lambda P \lambda t \exists e [P(e) \wedge e \bigcirc t]$

    b.    $[[\text{PF}]] = \lambda P \lambda t \exists e [P(e) \wedge e \subseteq t \wedge \neg \exists e' [P(e') \wedge e' \neq e]]$

(21)    Russian

    a.    $[[\text{IPF}]] = \lambda P \lambda t \exists e [P(e) \wedge e \bigcirc t]$

    b.    $[[\text{PF}]] =$
$\lambda P \lambda t \exists e [P(e) \wedge e \subseteq t \wedge \neg \exists e' [P(e') \wedge e' \neq e] \wedge f_{\text{END}}(t) \subseteq f_{\text{TARGET}}(e)]$

# Questions raised by Mueller-Reichau (2018)

- Gehrke (2022): Czech PFs do not require event uniqueness, so maybe this is the crucial difference? Proposal in an earlier version of the paper:

  (+ background assumption of "true" IPF semantics)

(22)    Czech

       a.    $[[\text{IPF}]] = \lambda P \lambda t \exists e [P(e) \wedge t \subseteq \tau(e)]$

       b.    $[[\text{PF}]] = \lambda P \lambda t \exists e [P(e) \wedge \tau(e) \subseteq t]$

(23)    Russian

       a.    $[[\text{IPF}]] = \lambda P \lambda t \exists e [P(e) \wedge t \subseteq \tau(e)]$

       b.    $[[\text{PF}]] = \lambda P \lambda t \iota e [P(e) \wedge \tau(e) \subseteq t]$

# Questions raised by Mueller-Reichau (2018) (cont.)

Quote from Reviewer 3:

The idea is that PF encodes event definiteness/uniqueness, but the way this is captured in the formalism looks problematic. In the nominal domain, one cannot say:

(1) (There are two houses in the street). We bought the house, and after a month we bought #the house (correct: we bought the other house).

The semantics of *other* explains this case. What about perfective events:

(2) I called (PF) my wife, but she didn't answer, so I called (PF) my wife once more.

It is not clear to me how the uniqueness definitions discussed by the author can account for cases like (2). I think that one would need a truly dynamic framework for these cases, which for me also show that the perfective can be indefinite and introduce new events that are not necessarily the unique instantiation of the predicate.

# Mueller-Reichau (2022)

- Aspect in colloquial upper Sorbian (CUS) vs. Czech vs. Russian
    - Like Czech, unlike Russian: PF possible with iterativity/habituality (e.g. with 'often')
    - Unlike Czech, Russian: PF can also express ongoing reading

- Building on the notion of a path (e.g Krifka 1998; Zwarts 2005):

(24)   An event predicate $P$ is determinate iff it is unidimensional, directed and bounded, whereby:

    a.    $P$ is unidimensional iff the events in its denotation set have a path structure such that all paths in it are parts of a common path.

    b.    $P$ is directed iff the events in its denotation set have a path structure such that there are no two non-overlapping paths in it that occupy the same space.

    c.    $P$ is bounded iff the events in its denotation set have a path structure which includes a path that cannot be concatenated by another path such that the resulting path belongs to the path structure.

# Mueller-Reichau (2022), slide 24

Different kinds of perfectivity in Slavic

- CUS "perfectives" impose the weakest constraint on interpretation: the denoted event has to be unidimensional, directed and bounded (defined in terms of the path it traverses) → traverse a single upper-bounded directed path!

- Czech perfectives come with a more specific requirement: the denoted event has to be maximal (definable mereologically in terms of event stages, but also temporally by requiring the reference time to include the final moment of the event) → traverse a single upper-bounded directed path to the end!

- Russian has the most specific perfectivity condition: the conditions of the event's target state have to be relevant to further discourse → traverse a single upper-bounded directed path to the end and make the consequences of it relevant to subsequent conversation

# Mueller-Reichau (2022), slide 25

## Formalism

**imperfective operator**: $IPFV \Rightarrow \lambda P \lambda t \exists e. P(e) \wedge t \bigcirc \tau(e)$

**perfective operators**:
$PFV_{CUS} \Rightarrow \lambda P \lambda t \exists e. P(e) \wedge DET(P) \wedge t \bigcirc \tau(e)$

$PFV_{CZ} \Rightarrow \lambda P \lambda t \exists e. P(e) \wedge DET(P) \wedge t \bigcirc \tau(e) \wedge f_{end}(\tau(e)) \subseteq t$

$PFV_{RU} \Rightarrow \lambda P \lambda t \exists e. P(e) \wedge DET(P) \wedge t \bigcirc \tau(e) \wedge f_{end}(\tau(e)) \subseteq t \wedge f_{end}(t) \subseteq f_{target}(e)$

**determinateness**: $\forall P. DET(P) \leftrightarrow UNI(P) \wedge DIR(P) \wedge BND(P)$

**unidimensionality**:
$\forall P. UNI(P) \leftrightarrow \forall e \forall e' \forall p. P(e) \wedge e' \leq e \wedge TRACE(e') = p \rightarrow p \leq TRACE(e)$

**directedness**: $\forall P. DIR(P) \leftrightarrow \forall e \forall e' \forall e'' \forall p \forall q. P(e) \wedge e' \leq e \wedge e'' \leq e \wedge TRACE(e') = p \wedge TRACE(e'') = q \wedge \neg(p \bigcirc q) \rightarrow SPACE(p) \neq SPACE(q)$

**boundedness**:
$\forall P. BND(P) \leftrightarrow \neg(\forall e \forall e' \forall e'' \forall p \forall q. P(e) \wedge e' \leq e \wedge e'' \leq e \wedge TRACE(e') = p \wedge TRACE(e'') = q \rightarrow \exists r \exists e'''. r = p + q \wedge r = TRACE(e''') \wedge e''' \leq e)$

# Questions raised by Mueller-Reichau (2022)

- New for both PF and IPF (as compared to Mueller-Reichau 2018):
    - Underspecified temporal overlap relation between reference time and event time (following Klein 1994, I suppose).
    - Further requirements for the PF in CZ, RU lead to the end of the temporal trace being part of the reference time.
      (Still the same: target state validity requirement in Russian)
  - → What about ingressives (RU)?
  - → What about predicates without target states (e.g. delimitatives) (RU)?

- The only difference between PF and IPF in CUS: the nature of the event path (directed, unidimensional, bounded event path for PF).

  → Isn't that more related to inner aspect (modulo the imperfective paradox, intensionality, event types/kinds vs. tokens etc.)?

# Klimek-Jankowska (2022)

- Corpus study: Aspect in factual contexts in Czech, Polish, Russian

- Existential IPF
    - Neutral (EX-NEU)
    - Resultative (EX-RES)

- Presuppositional IPF
    - Strong resultative, focus on initiator
    - Strong resultative, focus on result
    - Weak resultative, focus on initiator
    - Weak resultative, focus on result

# Klimek-Jankowska (2022)

Building on Ramchand (2004, 2008):

- First phase [~ vP/VP] introduces an event variable

- Aspect introduces a time variable, which is an instant: The event variable and the temporal variable are related by the temporal trace function $\tau(e)$.

    - PF events introduce a definite reference time
      (R04: "a single unique moment" / R08: "a specific moment")
      e.g. with procP/resP-syntax [~ accomplishments]: reference time must be within both, so it has to be the transition
    - IPF events introduce an indefinite reference time (an arbitrary moment within the temporal trace of the event)
      e.g. with procP/resP-syntax: arbitrary time within the process

- Tense binds the time variable and relates it to the speech time

  Two kinds of (in)definiteness of the time variable

    - Micro-level: wrt to the temporal trace of an event
    - Macro-level: wrt to the utterance time

# Klimek-Jankowska (2020) (as discussed in K-J 2022)

- With complex events, the placement of the temporal variable wrt to the temporal trace of an event depends on whether the focus is more on the initiation, process or result.

    - Focus on result: focus on transition, definiteness wrt temporal trace
    - Focus on initiation or process: arbitrary point, indefiniteness wrt temporal trace

- With presuppositional IPFs, the result is presupposed: the resultee is part of the conversation, event completion is inferred

- Existential IPFs with *once, ever*, etc.:

    - Indefiniteness wrt the utterance time may encourage language users to place the temporal variable at an arbitrary point within the temporal trace → Indefiniteness wrt runtime of the event

# Klimek-Jankowska (2020) (as discussed in K-J 2022)

- Aspectual competition, depending on the speaker's choice

    - Definite wrt temporal trace → at AspP
    - Indefinite wrt utterance time → at TP

  → Competition for lexical insertion at the CP level

- Variation within Polish in existential contexts:

    - Western Polish: Preference to choose definiteness wrt temporal trace/AspP → More PF
    - Eastern Polish: preference to choose definiteness wrt utterance time/TP → More IPF

# Klimek-Jankowska (2022)

- Temporal (in)definiteness at the macrolevel should be understood in terms of temporal specificity.

- EXIST-NEU: Temporally indefinite at macro-level, underspecified for definiteness at the microlevel in the case of accomplishments
  - → Cross-Slavic variation:
    - West Polish, Czech: Preference for definiteness wrt temporal trace/AspP (in some cases obligatory, e.g. achievements)
      - ACHs are instantaneous; the time variable can only be located at a unique time instant at which the change-of-state happens.
    - Eastern Polish, Russian: Preference for definiteness wrt utterance time/TP (RU: in some cases obligatory, e.g. with *ever*)
      - The Russian (but not the Polish, Czech) PF has to be anchored to a specific temporal location on the timeline.

- PRES: Relation to earlier discourse, pragmatically specific → PF also possible in Russian, but more so in Czech, Polish (again: speaker's choice)

# Questions raised by Klimek-Jankowska (2022)

- Again: If it is a matter of speakers' choice, what regulates the choice?

- If it is a matter of speakers' choice, it seems to be a pragmatic account, but at various points it is stated that in some cases the use of a particular aspect is obligatory.

  → Shouldn't this also be reflected in the semantics of (I)PF?

- Are we dealing with definiteness or with specificity?

- If it is true that ...

  with presuppositional IPFs, the result is presupposed: the resultee is part of the conversation, event completion is inferred

  ... doesn't that come close to accomplishments under a process reading (event completion is not inferred, but it is equally not in focus)? How is the presuppositional IPF different then?

  → Suggestion in Gehrke (2022): presuppositional IPFs are a subcase of process/durative IPFs

# Back to the role of finiteness

- Klimek-Jankowska (2022)
    - e.g. Russian speakers tend to be more interested in whether the reference time is (in)definite wrt the speech time.
    - e.g. Czech speakers tend to be more interested in whether the reference time is (in)definite wrt the temporal trace of the event.
- Stunová (1993): Aspect operates on different levels. (see also Petruxina 2000)
    - Czech: Internal structure of the event
    - Russian: Sentence level
- Speculations in Gehrke (2017)
    - Is Aspect in Russian syntactically higher than in Czech?
        - Closer tie to finiteness in Russian than in Czech (but only with finite verb forms)
        - e.g. Internal structure of nominalisations could contain AspP in Czech, but not in Russian
    - Is this related to the observation that Russian *l*-participles raise higher than the Czech ones (Czech still has auxiliaries)?
      But then what about present tense forms, future etc.?

# Excursion: Borik (2018)

- Point of departure: When does the English perfect correspond to Russian IPF, when to Russian PF?

    - Progressive perfects (all tenses) ~ IPF
    - Present/past perfects ~ IPF and PF past
    - Future perfects ~ PF non-past

- Perfect readings (English): Correspondence in Russian suggests 3-way distinction

    - Universal: only with statives (lexical or derived) ~ Russian IPF in most cases; perdurative PF (with *pro-*); always with adverbials (both languages)
    - Experiential: often with [temporally] indefinite adverbial expression ('lately', 'ever' etc.) ~ Russian IPF (existential IPF)
    - Resultative ~ Russian PF

# Borik's (2018) idea

(not fully worked out, just an idea)

- "[T]ense morphology in Russian past vs. non-past forms does not express the same type of temporal relations." (p. 30)
    - Past: Relation between Event time and Speech time (the position of R remains underspecified) (building on Borik 2002, 2006)
    - Non-past: Relation between Reference time and Speech Time
- Speculations about a possible connection to the history of *l*-participle in Russian

# Back to definiteness in the nominal domain: Bare nominals

Recall: Grønn and von Stechow (2016) draw parallels between events and times and the semantics of bare nominals; predicates with covert (in)definite operators on top

# Bare nominals in articleless languages

- Dayal (2004)
    - Bare nominals are either property-denoting (predicates) or kind-denoting (arguments).
    - → Definite when singular; plurals can get an existential interpretation via derived kind predication (reference to instances of the kind)

- Geist (2010): Bare nominals are ambiguous, but topics (~ sentence-initial bare nominals) are definite.

- Šimík and Demian (2020); Seres and Borik (2021), following Heim (2011)
    - Bare nominals are indeterminate (existential quantifiers).
    - Due to the absence of a competition with definites they can also occur in definite contexts in which uniqueness (familiarity/maximality) is satisfied in the common ground.

    Seres and Borik (2021, 340): "The perceived definiteness in Russian is analysed as a pragmatic effect (not as a result of a covert type-shift), which has the following sources: ontological uniqueness, topicality, and familiarity/anaphoricity."

# In lieu of a conclusion

If we want to fully exploit parallels to definiteness in the nominal domain when building a theory of aspect (or tense), we also need to exploit the full spectrum.

- Different types of definites but also of indefinites (see Haspelmath 1997, and literature building on this)

- Relation to specificity

- Contribution of expressions like *kogda-libo/nibud'* etc. and similar expressions in other Slavic languages

- ...

(So far we only scratched the surface)

# What if

- Aspects, tenses, VPs, NPs: Predicates (Coppock and Beaver 2015; Grønn and von Stechow 2016)

- Additional information (e.g. adverbials): added via predicate modification

- Existential closure at the relevant syntactic positions
  - → All events and times are indefinite, just like bare nominals (Heim 2011; Šimík and Demian 2020; Seres and Borik 2021)
  - → Definiteness only due to context but no iota shift

- There is no "fake IPF" (Gehrke 2022, 2023)
  - Presuppositional IPFs involve IPF semantics (reference time is included in the event time) + discourse
  - Existential IPF: Potential iterativity (RU)

- → Requires further exploration of the role of discourse (see also Altshuler 2012); still uniqueness or similar presupposition for RU PFs?

## What if (cont.)

- It is possible that certain tenses and aspects (in some languages) come with uniqueness (or other) presuppositions, leading to competition with other aspects/tenses, similar to the competition that Heim (2011) and others assume for the nominal domain.

    - This is where various approaches in the literature could come into play.
    - (See e.g. Zhao 2022 for recent work on the competition between perfect and past in various languages)

- Further questions one could explore:

    - Is there a difference in past tense semantics between, e.g., Russian and Czech? (inspired by Borik 2018)
    - Does Aspect operate on different levels / is it closer connected to Tense in Russian than in Czech? (e.g. Gehrke 2017; Klimek-Jankowska 2022)
    - Can we gain insights from differences in the diachronic development of aspects and tenses in these languages?

Thanks!

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# Another example (Gehrke 2022)

(25)  a.  Když **přišlo** pozdní jaro, když **bylo** léto, když se **setmělo** a **byla**
when came.PF late.NOM spring.NOM when was.IPF summer.NOM when REFL got-dark.PF and was.IPF
sobota, **přešel** jsem osvětlený most, pak **zahnul** k mlýnu a podle
Saturday.NOM across-went.PF AUX.1SG illuminated.ACC bridge.ACC then off-bent.PF to mill.DAT and past
Staré rybárny jsem **kráčel** kolem plotu farní zahrady.
old.ACC fisherman.ACC AUX.1SG straddled.IPF around fence.GEN churchyard.GEN
'When late spring arrived, when it was summer, when it got dark and it was Saturday, I crossed the
illuminated bridge, then turned to the mill and past the Old Fisherman and strolled around the fence of the
churchyard.' (CZ JR 109)

b.  Kogda vesnja **približalas'** k koncu, kogda **bylo** uže počti leto, odnaždy v
wenn spring approached.SI to end.DAT, when was.IPF already almost summer.NOM once in
subbotnie sumerki ja **perešel** osveščennyj most, a potom **svernul** k
Saturday-.PL.ACC twilights.ACC I across-went.PF illuminated.ACC bridge.ACC and then off-bent.PF to
mel'nice i **zašagal** mimo starogo 'Rybnogo podvor'ja' vdol' ogrady cerkovnogo sada.
mill.DAT and ZA-straddled.PF past old.GEN 'Fisherman's-Inn'.GEN along fence.GEN churchyard.GEN
'When spring came to its end, when it was already almost summer, one Saturday evening I crossed the
illuminated bridge, and then turned to the mill and started straddling past the old Fisherman's Inn along the
fence of the churchyard.' (RU translation)