Nauka.


Stanford: CSLI.


b. \( \exists e [\text{again}, \lambda e[\text{AGENT}_e(\text{John}) \& \text{EV}_e \text{ open the shop}]] \) repetitive

Verbs without accessible resultant states do not have EV and hence only have repetitive readings.

**Lexical variation:**

(57) Maria putzte die Küche wieder. “Mary cleaned the kitchen again”

Some people (e.g. Veronika Ehrich, p.c.) don’t obtain the restitutive reading for this sentence. They represent the verb as an accomplishment without accessible resultant state, not a matter of ontology but of conceptualisation. I represent the verb as one with accessible resultant state.

**Result modification**

Adverbs of the type für zwei Stunden “for two hours” are only defined for verbs with accessible resultant states. This explains the observed grammaticality pattern. The case is different for noch immer “still”. These adverbs modify states, i.e. properties of times, but they require that the states are not unbounded to “the right”, a pragmatic condition for predicability ((Klein 1994)). There is much more to say about that;

(58) a. *Fritz ist noch immer augewacht
     Fritz is still woken up

   b. Fritz ist noch immer wach
     Fritz is still awake

   c. ?Fritz ist für zwei Stunden aufgewacht
     Fritz is for two hours woken up

5. **CONCLUSION**

**REFERENCES**


(52) Verbs without accessible results only have the repetitive reading
   a. POST wieder der Aufsatz abgegeben = \( \lambda t t \exists e [e < t \& \text{BECOME}_e(\text{delivered}(\text{the paper}))] \& \exists e^* [e^* < e \& \text{BECOME}_{e^*}(\text{delivered}(\text{the paper}))] \)
   b. wieder POST der Aufsatz abgegeben = \( \lambda t t \exists e [\tau(e) < t \& \text{BECOME}_e(\text{delivered}(\text{the paper}))] \& \exists t^* [t^* < t \& \exists e^* [e^* < t^* \& \text{BECOME}_{e^*}(\text{delivered}(\text{the paper}))]] \)

The first LF is true at an interval if the interval is after a delivering of the paper, and there had been a delivering before that. The second property is true of an interval if this interval is again a post time of some delivering. Both come to the same, a welcome result.

While the analysis is rather intuitive for adjectival passives, we have to work it out for ordinary active sentences as well. This can be done without too much effort. The only further operator we need is an “eventizer” which maps transformative verbs with accessible result states into properties of events. ((Kratzer 2000) has a similar operator, but for her, results are individuals.)

(53) An eventizer

\( EV = \lambda R \lambda e \exists P[R(e)(P)] \)

The active VP \textit{open the shop} would then have the following structure:

(54) \( EV \text{ open the shop} = EV(\lambda e \lambda P[\text{BECOME}_e(P) \& P = \text{open(shop)}]) \)
    = \( \lambda e \text{BECOME}_e(\text{open(shop)}) \)

As before, we obtain the repetitive/restitutive distinction by giving \textit{again} different scope with respect to \( EV \):

(55) a. \( EV \text{ again open the shop} \) restitutive
    b. \( \text{again EV open the shop} \) repetitive

The two representations would suffice to represent the ambiguity of an intransitive sentence like \textit{The shop opened again}. In order to derive the causative reading, we would have to add the agent information in the style of (Kratzer 1994). For instance, the sentence \textit{John opened the shop again} could have the following LFs

(56) a. \( \exists e[\text{AGENT}_e(\text{John}) \& EV_e \text{ again open the shop}] \) restitutive
(49) \( \text{again}_{\text{rest}} = \lambda R \lambda e \lambda P[R(e)(P) /& \exists [t < \tau(e) & P(t)]] \), \( R \) of Typ \(<vS, t>\), \( v \) the type of events, \( S \) the type \(<i,t>\)

This means that the participial phrase in (34a) under the restitutive reading, would have the analysis:

(50) The restitutive reading

\[
\begin{align*}
\text{[PartP RESULT } \text{again}_{\text{rest}} \text{ [VP open the shop]]} \\
= \text{RESULT(again}_{\text{rest}}(\lambda e \lambda P[\text{BECOME}_e(P) & P = \text{open(the shop)])}) \\
= \text{RESULT([\lambda e \lambda P[\text{BECOME}_e(P) & P = \text{open(the shop):} \exists [t < \tau(e) & P(t)]])} \\
= \lambda R \lambda e \lambda P[\text{BECOME}_e(P) & P = \text{open(the shop):} \exists [t < \tau(e) & P(t)] & e >>= t & P(t)] \\
= \lambda e[[\text{BECOME}_e(\text{open(the shop):})]: \exists [t < \tau(e) & \text{open(the shop)}(t)] & e >>= t & \text{open(the shop)}(t)]
\end{align*}
\]

In other words, the shop has been opened if it is open, if it is immediately after an opening and if it had been open before that opening.

The repetitive reading of (34a) is obtained by applying the usual \text{again}-operator to RESULT \text{open(the shop)}. Now matter, whether we call this \text{again} repetitive or restitutive, it simply says that the property modified (be it a property of times or a property of events) had occurred in the past. So this \text{again} means \( \lambda P \lambda i.P(i) /& \exists [i' < i & P(i')] \), \( i,i' \) times or event. The analysis for the examples would then be:

(51) The repetitive reading

\[
\begin{align*}
\text{again [PartP RESULT [VP open the shop]]} \\
= \lambda t[\exists P \exists e[[\text{BECOME}_e(P) & P = \text{open(the shop):} & e >>= t & P(t)] : \\
\exists [t' < t & \exists P \exists e[[\text{BECOME}_e(P) & P = \text{open(the shop):} & e >>= t' & P(t)]]]
\end{align*}
\]

This still is a scope solution. The two variants of \text{again} have a slightly different semantics, but this is a technical artefact due to the type differences of the arguments.

Verbs without accessible resultant state form the adjectival passive by means of POST. It is interesting to observe that the relative scope of POST and \text{again} doesn’t seem to affect the meaning:
a. RESULT = \( \lambda R \lambda s \exists e. R(s)(e) \), \( R \) a relation between events and states

b. POST = \( \lambda P \lambda t \exists e. P(e) \land t > \tau(e) \), \( P \) a property of states

POST is basically identical with PERFECT, i.e., the two stative operators embody aspectual relations. Furthermore, the look at the logical type of the embedded aspectual class. So they are aspectual operators. RESULT is a new aspectual operator.

This is another illustration of the thesis that the same aspectual morphology, viz. Perfect morphology, may require a different semantics,

**Problem**: I still don’t know how to represent the restitutive reading for the adjectival passive. The verb \( \text{öffnen} \) “to open” allows to modify the resultant state \( s \) and “again” could say that there is a previous state \( s' \), but how to we know that the shop is open in \( s' \). We obtain a solution under the following assumption:

(45) **Results are qualities, viz. properties of times.**

A qualitative version of Kratzer’s proposal:

(46) **Two kinds of telic verbs (official version)**

a. Verbs with accessible resultant state

\( \text{öffnen} := \lambda x \lambda e \lambda P [\text{BECOME}_e(P) \land P = \text{open}(x)] \)

b. Verbs without accessible resultant states

\( \text{abgeben} = \lambda x \lambda e [\text{BECOME}_e(\text{delivered}(x))] \)

(47) **Two kinds of stative operators (official version)**

a. RESULT := \( \lambda R \lambda t \exists P \exists e [R(e)(P) \land e > < t \land P(t)] \)

b. POST = \( \lambda P \lambda t \exists e [e < t \land P(e)] \), \( P \) a set of events

Applying this operator to the VP would yield the participial phrase

(48) \([_{\text{PartP}} \text{RESULT} [_{\text{VP open the shop}}]]\)

\( = \lambda t \exists P \exists e [\text{BECOME}_e(P) \land P = \text{open(the shop)} \land e > < t \land P(t)] \)

Restitutive again would have to modify a relation between an event and a result state, i.e., it would have to apply to the VP before the formation of the participial phrase by means of the result operator. Restitutive again would have this meaning:
a. \( \text{PERF } \lambda e. \text{again}(e)(\lambda e. \text{open(the shop)}(f_{\text{result}}(e))) \)
   “The shop is in the resultant state of another opening of it”

b. \( \lambda s. \text{again}(s) \text{PERF } (\lambda e. \text{open(the shop)}(f_{\text{result}}(e))) \)
   “The shop is again in the resultant state of an opening of it”

We want:

c. \( \text{PERF } \lambda e[\lambda s[\text{again}(s)(\text{open(the shop)})(f_{\text{result}}(e))]] \)
   “The shop is in the resultant state of an opening and it had been open some when before the event”

Problem for classical decomposition theory: We cannot derive the adjectival passive \textit{opened} from the verb \textit{to open}, because the resultant property is not accessible

(41) \textit{geöffnet} “opened” = \( \lambda s\lambda x[\text{open}_e(x) /\& \exists e \text{ abuts } s \& \text{BECOME}_e(\text{open}(x))] \)
   /\& stands for “presupposes”
   Not derivable from \( \lambda e. \text{BECOME}_e(\text{open}(x)) \)

(Stechow 1996) and (Rapp and Stechow 2000) define an operator \textsc{RECBECOME}, which applies to the adjectival root and derives this meaning.

(42) \textbf{Two kinds of telic verbs} (Krater)

a. \( \text{abgeben’ } = \lambda x\lambda e[\text{delivered}(x)(e)] \)

b. \( \text{öffnen’ } = \lambda y\lambda e\lambda s[\text{cause}(s)(e) \& \text{open}(y)(s)] \)

The analysis of the adjectival passive requires different stativisers:

(43) a. \( \text{PRES } \lambda s[\text{PartP POST}_s [\text{vp } \lambda e[\text{delivered(the paper)}(e)]] \)
   Der Aufsatz ist abgegeben
   (better: \text{delivered(the paper)}(f_{\text{res}}(e))

b. \( \text{PRES } \lambda s[\text{PartP RESULT}_s [\text{vp } \lambda e\lambda s[\text{cause}(s)(e) \& \text{open(the shop)}(s)]] \)
   Das Geschäft ist geöffnet:

(44) \textbf{Two kinds of stativisers}
11

the shop is still always opened
b. *Der Aufsatz ist noch immer geschrieben
the article is still always written

(36) a. Das Geschäft ist für zwei Stunden geöffnet
the shop is for two hours opened
b. *Der Aufsatz ist für zwei Stunden geschrieben
the article is for two hours written

(37) (Kratzer 1994):
das Geschäft öffnen’ = \( \lambda e.\text{open}(\text{the shop})(\text{fresult}(e)) \)
\( \text{fresult} \) assigns “its” resultant state to each event

(\( \text{fresult} \) is a doubtful notion.) (Stechow 1996): This analysis cannot represent the restitutive reading. We must decompose.

(38) to open the shop again

We get:
\( \lambda e.\text{again}(e)(\lambda e.\text{open}(\text{the shop})(\text{fresult}(e))) \) “being another opening of the shop”

We want:
\( \lambda e[\lambda s[\text{again}(s)(\text{open}(\text{the shop}))](\text{fresult}(e))] \) “bringing about another being open”

(Kratzer 1996) defines a RESULT-operator that generates the meaning the verb to open from the adjective open and allows scoping of again in the syntax.

Similar problems arise with adjectival passives:

(39) Kratzer’s (1994) perfectiviser

\( \text{PERF} = \lambda P\lambda s\exists e.P(e) & s = \text{fres}(e) \)

The most natural reading of (34a) cannot be represented.

(40) We get:
<table>
<thead>
<tr>
<th></th>
<th>PRES</th>
<th>PAST</th>
<th>FUTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPERFECTIVE</td>
<td>Present</td>
<td>Imperfetto</td>
<td>Future</td>
</tr>
<tr>
<td>PERFECTIVE</td>
<td>(Reporter’s) Present</td>
<td>Passato Remoto Pass. Prossimo (Imperfetto)</td>
<td>Future (Present)</td>
</tr>
</tbody>
</table>

The classification is not fine enough, not taking account of the difference of selected aspectual classes: The correct distribution of the imperfetto presumably requires a subclassification of the quantized VPs (cf. G&P’s terminative/non-terminative distinction).

### 4. Resultant States

(32) John opened the window again (restitutive/repetitive)

Decomposition analysis ((Dowty 1979), (Stechow 1996)):

(33) a. \(\exists e.\text{again}(e)(\lambda e[\text{Agent}(e, \text{John}) \& \text{BECOME}_e(\lambda t.\text{open}(_t\text{the window})))\) repetitive
    b. \(\exists e[\text{Agent}(e, \text{John}) \& \text{BECOME}_e(\lambda t.\text{again}(_t)(\lambda t.\text{open}(_t\text{the window})))\)]\] restitutive

The resultant state is a property of times. It is not accessible for modification for adverbs outside BECOME. This creates a problem for the semantics of adjectival passives.

(34) a. Das Geschäft ist wieder geöffnet (rep./rest.)
     the shop is again opened
    b. ?Der Aufsatz ist wieder geschrieben (rest.)
     the article is again written

(35) a. Das Geschäft ist noch immer geöffnet
The example suggests that the imperfecto is a marked tense-aspect, i.e., it has a fixed meaning. But the imperfecto doesn’t always imply completion:

(25) Ieri Gianni raggiungeva già la vetta, quando un violento temporale lo fermò
    (Bertinetto 2001)
    “Yesterday G. was on the verge of reaching the mountain top. when a heavy storm stopped him”

(26) Mario mangia una mela (*in/per un’ ora) (Giorgi and Pianesi 2001: 215)
    PRES IMPERFECTIVE ACC

(27) Alle tre Mario mangiò una mela (*e la sta mangiando tutt’ ora) (Giorgi and Pianesi 2001: 216)
    At three, Mario eat-pf-past an apple (and he is still eating it)
    PAST PERFECTIVE ACC

The example shows that the Passato Remoto is a marked tense-aspect, in fact an aorist. According to °Giorgi, 2001 #25427, the Passato Prossimo has the same meaning:

(28) Alle tre Mario ha mangiato una mela (*e la sta mangiando tutt’ ora)
    Mario has eaten an apple.

But:

(29) Ho già mangiato.
    PRES XN ACC

(30) Ieri Mario raggiungeva la vetta in tre ore. G&P, 218

(31) Italian T/A-typology
When we arrive-pf-past, he wait-ipv-past already for an hour
“When we arrived, he had already been waiting for an hour”
PAST XN STATE

Past Perfective + STATE may express an XN.

(20) Pochemu kniga takaja grjaznaja? Kto jejo bral’? (Zakhava-Nekrasova)
Why is the book so dirty? Who has had it?
PRES PERFECT ACCOMPLISHMENT

(21) – Vy chitali “Vojnu i mir”? You read-ipf-past “War and Peace”
– Chital’. Yes, I have.
PRES PERFECT ACCOMPLISHMENT

Past Imperfective + ACCOMPLISHMENT may express PRES PERFECT.

(22) **Russian T/A-Morphology**

<table>
<thead>
<tr>
<th></th>
<th>PRES</th>
<th>PAST</th>
<th>FUTR</th>
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</thead>
<tbody>
<tr>
<td>IMPERFECTIVE</td>
<td>Pres. Impf.</td>
<td>Past Impf.</td>
<td>budu + Impf</td>
</tr>
<tr>
<td>PERFECTIVE</td>
<td>(Reporter’s) Present</td>
<td>Past Perfective (Past Impf.)</td>
<td>Pres Perfective</td>
</tr>
<tr>
<td>XN</td>
<td>Past Impf.</td>
<td>Past Impf</td>
<td></td>
</tr>
<tr>
<td>PERFECT</td>
<td>Past. Impf.</td>
<td>Past Perfective (Past Impf)</td>
<td>Pres Perfective</td>
</tr>
</tbody>
</table>

**3.4. Italian**

(23) Alle tre Mario mangiava una mela  (Giorgi and Pianesi 2001: 213)
At three Mario eat-ipf-past an apple
PAST IMPERFECTIVE ACC

(24) Mario mangiava una mela (*in un’ ora)  (Giorgi and Pianesi 2001: 214)
aspectual classes – in principle; (Forsyth 1970), (Schoorlemmer 1995). **There is no such thing as “the” meaning of the Russian imperfective aspect.**

The unmarked aspectual relation licensed by the imperfective aspect is INCLUDED/”PERFECTIVE”. But PERFECT possible as well; cf. (Forsyth 1970), (Paslawska and Stechow 2001). The choice of PERFECT is also often possible with imperfective VPs; (Forsyth 1970).

(16) Masha vyshla v vosem’ chasov
Masha leave-past-pf at eight o’clock
a. PAST at eight PERFECTIVE ACHIEVEMENT
   “Masha left at eight”
b. PAST PERFECT at eight ACHIEVEMENT
   “Masha hat left at eight”
c. PAST at eight PERFECT ACHIEVEMENT
   “At eight, Masha had left”

Past Perfective + ACHIEVEMENT denotes either PAST-PERFECTIVE or PAST-PERFECT.

(17) V vosem’ chasov, Masha uedet
At eight o’ clock Masha leave-pres-pf
a. FUTR at eight PERFECTIVE VP
   “Masha will leave at eight”
b. FUTR at eight PERFECT VP
   “At eight, Masha will leave”
c. FUTR PERFECT at eight VP
   “Mash will have left at eight”

(18) Kogda ty priedesh‘, on uzhe uedet (Maslov 1987: p. 200 f.)
When you come-pres-pf, he already leav-pf-pres
“When you will come, he will have gone already”

Present Perfective + ACHIEVEMENT denotes either FUTR-PERFECTIVE or FUTR-PEFECT.

(19) Kogda my prishli, on zhdal yzhe chas. (Forsyth 1970: 69)
Dowty 1979):

(11) **Extended Now**: XN(J,I) iff I is a final subinterval of J.

(12) a. John has lived in Boston for six years (Dowty 1979: 340)
    PRES XN STATE
    b. PRES λI. ∃J[XN(J,I) & for six years(I) & live in Bosten(j,J)]

XN is perhaps an aspecual relation. Have can also express the PERFECT relation:

(13) a. John had left at 5 (Klein)
    PAST PERFECT at 5 ACHIEVEMENT

The simple past can occasionally express the PERFECT-relation:

(14) a. I will answer every email that arrived (Abusch 1996)
    b. ≠ Ich werde jede Mail beantworten, die ankam
    c. Ich werde jede Mail beantworten, die angekommen ist

(15) **English T/A-typology**

<table>
<thead>
<tr>
<th></th>
<th>PRES</th>
<th>PAST</th>
<th>FUTR</th>
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</thead>
<tbody>
<tr>
<td>PROGRESSIVE</td>
<td>Present Progressive</td>
<td>Past Progressive</td>
<td>will Progr.</td>
</tr>
<tr>
<td>PERFECTIVE</td>
<td>(Reporters') Present</td>
<td>Simple Past</td>
<td>will (Present)</td>
</tr>
<tr>
<td>XN</td>
<td>Pres. Perfect</td>
<td>Past Perfect</td>
<td></td>
</tr>
<tr>
<td>PERFECT</td>
<td>Pres. Perfect</td>
<td>Past Perfect</td>
<td>will Perfect (Simple Past)</td>
</tr>
</tbody>
</table>

3.3. **Russian**

The accepted view is that verbs with prefixes (without the secondary imperfective derivative –va) have perfective morphology. The general picture seems to be that perfective morphology selects quantized/telic VPs (Forsyth 1970), (Schoorlemmer 1995), (Filip 2000), (Paslawska and Stechow 2001), The imperfective morphology is a “privative opposition” and is compatible with all
a. Als ich nach Stuttgart fuhr, *studierte Hans*
   
   When I to Stuttgart went, studied Hans

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Past</th>
<th>Present</th>
<th>Future (= werde)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPERFECTIVE</td>
<td>ACTIVITY</td>
<td>ACTIVITY</td>
<td>ACTIVITY</td>
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</table>

b. Als ich nach Stuttgart gefahren bin, *hat Hans studiert*
   
   When I to Stuttgart gone have, has Hans studied

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Past</th>
<th>Present</th>
<th>Future (= werde + Aux)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPERFECTIVE</td>
<td>ACTIVITY</td>
<td>ACTIVITY</td>
<td>ACTIVITY</td>
</tr>
</tbody>
</table>

Past expresses PAST-PERFECTIVE or PAST-IMPERFECTIVE. (b) shows that Present Perfect may express PAST-IMPERFECTIVE.

(9) **T/A-typology for Standard German**

<table>
<thead>
<tr>
<th></th>
<th>PRES</th>
<th>PAST</th>
<th>FUTR</th>
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<tbody>
<tr>
<td>IMPERFECTIVE</td>
<td>Present</td>
<td>Past</td>
<td>Future (= werde)</td>
</tr>
<tr>
<td>PERFECTIVE</td>
<td>(Present)</td>
<td>Past</td>
<td>Future</td>
</tr>
<tr>
<td>PERFECT</td>
<td>Present Perfect</td>
<td>Past Perfect</td>
<td>Future Perfect</td>
</tr>
</tbody>
</table>

(10) LFs for *Hans hat studiert*

a. PAST₀ λ∃e. e ⊆ I & study (hans,e) (PAST-PERFECTIVE)

b. PAST₀ λ∃e.I ⊆ e & study (hans,e) (PAST-IMPERFECTIVE)

c. FUTR₀ λ∃e. e < I & study (hans,e) (FUTR-PERFECT)

d. PRES₀ λ∃e. e < I & study (hans,e) (PRES-PERFECT; standard analysis, e.g. (Reichenbach 1947))

3.2. **English**

English has one morphologically marked aspect, viz. *the continuous form*. It has a fixed meaning, viz. Dowty’s PROG. The Present Perfect expresses the Exentended Now ((McCoard 1978),
I have the paper yesterday delivered

b. Morgen habe ich den Aufsatz abgegeben
   Tomorrow have I the paper delivered

(6)  
   i. Morphology: Present have VP
   ii. Semantics:
      a. PAST INCLUDED/"PERFECTIVE" ACCOMP
      b. FUTR ANTE/"PERFECT" ACCOMP
   iii. Syntax
      a. \[ TP PAST \ pres [\AuxP \ PERFECTIVE [\Asp' \ perfect [\ParP I deliver the paper]]] \]
      b. \[ TP FUTR \ pres [\AuxP \ PERFECT [\AspP perfect [\ParP I deliver the paper]]] \]

PresentPerfect morphology may express PAST-PERFECTIVE or FUTR-PERFECT.

(7)  (Bertinetto 2001: (3a)) (simplified)
   a. Von 1994 bis 1999 studierte Hans
      From 94 to 99 studied Hans
      
      | Morphology | past | VP |
      |------------|------|----|
      | Semantics  | PAST | PERFECTIVE | ACTIVITY |
   
   b. Von 1994 bis 1999 hat Hans studiert
      From 94 to 99 has Hans studied
      
      | Morphology | present | Perfect | PartP |
      |------------|---------|---------|-------|
      | Semantics  | PAST    | PERFECTIVE | ACTIVITY |

(8)  (Bertinetto 2001: (3b)) (simplified)
Aspectual classes are the Vendler classes: accomplishments, achievements, states, activities. The main semantic characteristics of the first two is that they are quantized in the sense of (Krifka 1989). (P is quantized iff P doesn’t have the subinterval/subevent property.) States are homogeneous, i.e. divisive (they have the subinterval property) Activities are cumulative (two Ps are a P again). Telicity in the technical sense means quantization. Aspectual classes are VPs built up by operators like BECOME and others. The use of Krifka’s thematic relations (“incremental theme”) belongs to a total different way of theorising. The recursive definition of the classes is one of the hardest problems in aspectology. There is no agreement on the analysis of elementary VPs such as to write a book (cf. (Stechow 2001)) – telic – or to eat apples (cf. (Giorgi and Pianesi 2001)) – atelic. I will assume that

You may call them with (Bertinetto 2001) actionalities or Aktionsarten. They must distinguished from aspectual relations.

3. ONOMASTIC T/A-TYPOLOGY

(Bertinetto 2001: 186 f.): “...any tense – in any language – necessarily expresses both temporal and aspectual values....the term ‘tense’ should not be understood synonymous with ‘temporal reference’...”. I agree.

Traditiona T/A-typologies classify the forms and try to interpret them in a uniform way (semiasological tradition, e.g. (Dahl 1999)). Kratzer’s (1998) typology asks how different combinations of semantic TENSE and aspectual relations (IMPERFECTIVE, PERFECTIVE, PERFECT) are morphologically realised (onomast perspective).

3.1. German

The following section give an extremely superficial typology for different languages. They merely illustrate the theoretical perspective.

(5) a. Ich habe den Aufsatz gestern abgegeben
Semantic tenses are free variables whose value is contextually determined: (Heim 1994), (Kratzer 1998), (Kusumoto 1999) and (Katz and Arosio 2001)

(3) **Semantic Tenses** are symbols of type i which bear time variables as indices. Let c be the context of the utterance with t_c the speech time

a. $\| \text{PRES}_j \|^{g,c} = g(j)$ is defined only if g(j) overlaps the speech time t_c. If defined, $\| \text{PRES}_j \|^{g,c} = g(j)$.

b. $\| \text{PAST}_j \|^{g,c} = g(j)$ is defined only if g(j) precedes the speech time t_c. If defined, $\| \text{PAST}_j \|^{g,c} = g(j)$.

c. $\| \text{FUTR}_j \|^{g,c} = g(j)$ is defined only if g(j) follows the speech time t_c. If defined, $\| \text{FUTR}_j \|^{g,c} = g(j)$.

Simple aspectual relations connect the tense time (“reference time”) with the event time.

(4) **Aspectual relations**

a. $\tau(e) \subseteq I$ INCLUDED (“PERFECTIVE”)

b. $\tau(e) < I$ ANTE (“PERFECT”)

c. $I \subseteq \tau(e)$ INCLUDES “IMPERFECTIVE”

Aspectual relations may be more complicated. The PROGRESSIVE is a modal operator (cf. e.g. (Dowty 1979). Adjectival passives are built by different RESULT-operators, aspectual relations as well.
THE JANUS FACE OF ASPECT

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1. CLAIMS

We distinguish between morphological and semantic Tense/Aspect. There is no one-to-one correspondence between the morphology and semantics. Languages do it differently.

(1) **The Janus face of the Aspect:**
   a. Only marked aspects have fixed meanings. Unmarked aspects are privative oppositions, compatible with many interpretations.
   a. A marked aspect selects an **aspectual class** (one face looks downwards)
   b. It licenses one (or two) **aspectual relations** (one face looks upwards)

The meaning of an aspect is always a combination of an aspectual relation with an aspectual class. Claim (a) entails Bertinetto’s (2001) thesis that it is too simple to say that the perfective expresses telicity whereas the imperfective expresses atelicity. For unmarked aspects the claim is wrong in both directions.

2. T/A-ARCHITECTURE

(2)