Aspect as eventuality centering: English & Polish

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Abstract
Bittner (2012, Ch. 4) proposes the following centering universals about grammatical tense (TNS), grammatical aspect (ASP), grammatical mood (MOOD), and grammatical person (PRN), jointly referred to as TAMP.

Figure 1 Centering TAMP-universals
(1) TNS fills, or pushes down, the verb’s time argument with a dref anchored to a top-ranked time and/or event (Tσ, ⊥, e, ⊥e).
(2) ASP fills, or pushes down, the verb’s eventuality argument with a dref anchored to a top-ranked state and/or event (Tσ, ⊥, e, ⊥e).
(3) Mood fills, or pushes down, the verb’s world argument with a dref anchored to a top-ranked world and/or event (Tσo, ⊥, o, ⊥e).
(4) PRN fills the verb’s subject or object argument with a dref anchored to a top-ranked individual and/or event (Tσi, ⊥, i, ⊥e).

For any TAMP-category X, a language is classified as X-prominent iff it has argument-filling X-markers or X-features. These always form a grammatical paradigm, because λ-bound arguments must be saturated and can only be saturated once. In Ch. 2–3, evidence was presented that Mandarin, Kalaallisut, and Polish are all X-prominent (subject and/or object arguments are filled by PRN features in Mandarin, (·), (·), (·), (·), PRN inflections in Kalaallisut and Polish, -3SG, -3SG, …), whereas English is not. Moreover, Polish and English are T-prominent (reference time arguments filled by TNS inflections or auxiliaries, -PRσ, -PSTσ, ⊥e, …), whereas Mandarin and Kalaallisut are not. Chapter 4 extends the story to grammatical aspect. Today, we present evidence that Polish is A-prominent (eventuality arg’s filled by ASP features \( \downarrow \), \( \nabla \), \( \searrow \), \( \swarrow \)), whereas English is not. Next time, we argue that Mandarin too is A-prominent (arg-filling ASP-features \( \downarrow \), \( \nabla \), \( \searrow \), \( \swarrow \)).

Outline
1. Background: Algebra of things & eventualities
2. TNS-based temporality in English
3. Centering TAMP-universals
4. Aspectual pairing in Polish
5. TNS-based temporality in Polish
6. Conclusions and conjectures

1 BACKGROUND: ALGEBRA OF THINGS & EVENTUALITIES

Figure 2. Bach 1986 event algebra: \( \langle \mathcal{D}_e \cup \mathcal{D}_p, \sqcup, \sqcap, \times, \ldots \rangle \)

<table>
<thead>
<tr>
<th>Input</th>
<th>Operation</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>( e )</td>
<td>( \vee e = f )</td>
<td>ground ( e ) = process ( f )</td>
</tr>
<tr>
<td>( e' )</td>
<td>( \triangle e = e' )</td>
<td>packaged ( e ) = atomic event ( e' )</td>
</tr>
</tbody>
</table>

(1) a. Al is working.
   \( s \subseteq \vee e \)
   \( y \subseteq \vee x \)

b. Al put some apple in the salad.
   \( e'' = \triangle e' \)

(2) a. Al did a bit of work’ *leaving’.
   \( e' = \triangle e \)
   \( x' = \vee x \)

b. Al ate a portion of nuts *a nut’

Figure 3. Moens & Steedman 1988 aspectual algebra: \( \langle \mathcal{D}_e \cup \mathcal{D}_p \cup \mathcal{D}_p, \langle, \rangle \rangle \)

<table>
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<th>Input</th>
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</tr>
</thead>
<tbody>
<tr>
<td>( e )</td>
<td>( \uparrow e = s )</td>
<td>consequent state ( s )</td>
</tr>
<tr>
<td>( e' )</td>
<td>( e = f )</td>
<td>preparatory process ( f )</td>
</tr>
</tbody>
</table>

(3) i. Al went (PST \( \text{go}\ )) into a florist shop.
   \( \text{Narration (i–ii)} \)
   \( \text{He bought (PST \( \text{go}\ )) a bunch of roses.} \)
   \( \text{\( \psi \delta_2 \subseteq \psi_1 \subseteq \psi_1 \epsilon_1 \)} \)

ii. He promised (PST \( \text{go}\ )) to buy some roses.
   \( \text{\( \psi \delta_2 \subseteq \psi_1 \subseteq \psi_1 \epsilon_1 \)} \)

(4) i. Al went (PST \( \text{go}\ )) into a florist shop.
   \( \text{Explanation (i–ii)} \)
   \( \text{He promised (PST \( \text{go}\ )) to buy some roses.} \)
   \( \text{\( \psi \delta_2 \subseteq \psi_1 \subseteq \psi_1 \epsilon_1 \)} \)

Figure 4. Bittner 2012 aspectual algebra: \( \langle \mathcal{D}_e \cup \mathcal{D}_p, \langle, \rangle \rangle \)

| Terminology: point = 1-atom event, process = 2-atom event (causal chain) |
|------------------|------------------|------------------|
| Input | Operation | Output |
| \( e \) | \( \uparrow e = s \) | consequent state \( s \) |
| \( e' \) | \( \downarrow e = e' \) | preparatory process \( e' \) |
| \( e'' \) | \( \downarrow e = s' \) | state-equivalent \( s' \) |
| \( e''' \) | \( \downarrow e = e'' \) | start-point \( e'' \) |
| \( e'''' \) | \( \downarrow e = e''' \) | culmination-point \( e'''' \) |

(5) i. Al played chess (PST \( \text{play}\chess\ )) yesterday.
   \( \text{He won (PST \( \text{win}\chess\ ))} \)
   \( \text{\( \epsilon_2 = \downarrow \epsilon_1 \)} \)

ii. He won (PST \( \text{win}\chess\ )) yesterday.
   \( \text{\( \epsilon_2 = \downarrow \epsilon_1 \)} \)

(6) Al began to sing (PST \( \text{begin}\song\ ));
   \( \text{\( \epsilon_2 = \downarrow \epsilon_1 \)} \)
2 TNS-BASED TEMPORALITY IN ENGLISH

ABBREVIATIONS: c = culminating/culmination, prog = progress, con = consequent

(7) asp-type & anaphoric TNS, [M&S]

When Al came (PST, 'come') to Paris he...

a. wrote (PST, 'write') a book.
   c-process e' de' ∈ t' t' ∈ d'e
b. finished (PST, 'finish') writing 'his bk.
   c-point e' de' ∈ t' t' ∈ d'e
c. had (PST, 'have') a book in press.
   state s de' = t' de' ∈ t'
d. was (PST, 'be') writing 'a book.
   prog-state s de' = t' de' ∈ t'
e. was (PST, 'be') dying.
   prog-state s de' = t' de' ∈ t'
f. was going (PST, 'be going') to write 'a bk.
   pre-state s de' = t' de' ∈ t'
g. had (PST, 'have') just written 'a book.
   con-state s de' = t' de' ∈ t'

(8) asp-type, ASE & anaphoric TNS, [Smith]

When Al came (PST, 'come') to Paris he...

a. wrote (PST, 'write') a book.
   c-process e' de' ∈ t' t' = d'e
b. finished (PST, 'finish') writing 'his bk.
   c-point e' de' ∈ t' t' = d'e
c. had (PST, 'have') a book in press.
   state s de' ∈ t' t' = de
d. was (PST, 'be') writing 'a book.
   c-process e' de' ∈ t' t' = de
e. was (PST, 'be') dying.
   c-point e' t' < de' t' = de
f. was going to (PST, 'pre') write 'a bk.
   c-process e' t' < de' t' = de
g. had (PST, 'pre') just written 'a book.
   c-process e' de' < t' t' = de

(9) asp-type & anaphoric TNS, (& ASP) [Bittner]

When Al came (PST, 'come') to Paris he...

a. wrote (PST, 'write') a book.
   c-process e' de' ∈ t' t' ∈ d'e
b. finished (PST, 'finish') writing 'his bk.
   c-point e' de' ∈ t' t' ∈ d'e
b'. began (PST, 'begin') to write 'a book.
   e' = e de' ∈ t' t' ∈ d'e
c. had (PST, 'have') a book in press.
   state s t' ∈ de t' ∈ de
d. was (PST, 'be') busy.
   state s t' ∈ de t' ∈ de
e. was (PST, 'be') dying.
   state s t' ∈ de t' ∈ de
f. was going to (PST, 'pre') write 'a bk.
   s = e de' ∈ t' t' ∈ de
g. had (PST, 'pre') just written 'a book.
   s = e de' ∈ t' t' ∈ de

3 CENTERING TAMP-UNIVERSALS

Figure 1. Centering TAMP-universals [Bittner 2012]

(7) TNS fills, or pushes down, the verb’s time argument with a dref anchored to a top-ranked time and/or event (T, t, T, t, t, t).

(A) ASP fills, or pushes down, the verb’s eventuality argument with a dref anchored to a top-ranked state and/or event (T, t, t, T, t, T).

(M) MOOD fills, or pushes down, the verb’s world argument with a dref anchored to a top-ranked world and/or event (T, t, t, T, t, t).

(P) PRN fills the verb’s subject or object argument with a top-ranked individual and/or event (T, t, t, T, t, t).

• For any language L and TAMP-category X, L is X-prominent, iff L has argument-filling X-markers or X-features

• ENGLISH (T-prominent)

a. Verbs have an argument slot for a reference time, filled by TNS-marker (e.g. inflection -ed 'PST' or -Ø 'PRS', auxiliary will 'FUT', particle to ~ Ø 'INF')

b. English TNS-markers are obligatory & form a grammatical paradigm (i.e. set of forms such that one and only is required by the grammar, on pain of *)

c. Eventuality of Eng. verb is NOT a λ-bound arg. at any point in the derivation. Instead, [x[...]] or [x[...]] is introduced by event-verbs (ν) and state-verbs (ν'), respectively.

d. English ASP-markers instantiate push-down ASP—i.e. introduce an eventuality of their own (e.g. con-state of PRE, prog-state of PRG) on top of evt. a of ν.

e. English ASP-markers are gramm. optional & do not form a gramm. paradigm (e.g. PRF and PRG can co-occur: he has been running (PRS PRF PRG run))

f. English verbs have λ-bound args. for subjects and objects, but these are filled syntactically (obligatory argument NP's), not by PRN-markers or PRN-features

• POLISH (T-PROMINENT)

a. Verbs have λ-bound arguments for an eventuality, reference time, and subject, filled, in order, by ASP-feature (perfective i or imperfective t), TNS-marker (PST or PRS inflection, FUT inflection or auxiliary) & PRN-inflection (e.g. -3st)

b. Polish ASP-features, TNS-markers, and PRN-inflections are all obligatory & for each category, the members form a grammatical paradigm.
4 ASPECTUAL PAIRING IN POLISH

Figure 5  Push-down ASP test for Polish ASP-features

\[ \text{\textit{v-DUR (jqc) v-PRF (wszy)}} \]

\( \langle \text{\textit{p}} \rangle \) \( \langle \text{\textit{m}} \rangle \) \( \langle \text{\textit{s}} \rangle \)

(10) a. \textit{Zasnę-l-em ogląda-jqc obejrzeć-wszy} dziennik.  
fall.asleep\textit{/P-PST.1STM} \{watch\textit{/V-DUR} | watch\textit{/V-PRF} \} news\textit{/ACC}
I fell asleep |watching| having seen) the news.

b. \textit{Zasypanie-l-em ogląda-jqc obejrzeć-wszy} dziennik.  
fall.asleep\textit{/P-PST.1STM} \{watch\textit{/V-DUR} | watch\textit{/V-PRF} \} news\textit{/ACC}
I was falling asleep |watching| having seen) the news.

- Młynarczyk 2004: Ch. 4  
Aspects: paired bases of Polish verb-bases  
based on secondary (im)perfectivization tests

- Bittner 2012: Ch. 4  
Induced semantic classes  
Aspects as eventuality centering: English & Polish

- Młynarczyk 2004: Ch. 5  
Induced semantic classes  
- The \( \langle \text{\textit{v}} \rangle \) or \( \langle \text{\textit{vP}} \rangle \) introduce a \textit{state} or a \textit{point} (atomic event), respectively  
- relation btw base & derived eventuality involves \{\textit{\&}, \textit{\&\&}, \textit{\&\&\&}, \textit{\&\&\&\&} \}

- Bittner 2012: Ch. 4  
Induced semantic classes  
- The \( \langle \text{\textit{v}} \rangle \) or \( \langle \text{\textit{vP}} \rangle \) introduce a \textit{state} or a \textit{point} (atomic event), respectively  
- relation btw base & derived eventuality involves \{\textit{\&}, \textit{\&\&}, \textit{\&\&\&}, \textit{\&\&\&\&} \}
5 TA-BASED TEMPORALITY IN POLISH

(11) Gdy Jan przyjechał do Paryża ...
when Jan came to Paris ...

Model for (11) Topic-setting when-clause with 'l'-comment

\[ \text{when} \quad \text{Jan came} \quad \text{in} \quad \text{Paris} \quad \text{...} \]

\[ \text{Jan} \quad \text{was} \quad \text{working/had worked} \quad \text{on} \quad \text{a} \quad \text{book} \quad \text{in} \quad \text{Paris} \quad \text{...} \]

6 CONCLUSIONS AND CONJECTURES

Based on English (T-prominent), Polish (TAP-prominent), Mandarin Chinese (AP-prominent), and Kalaallisut (MP-prominent), Bittner (2012) conjectures that every language has at least one prominent TAMP-feature, most languages have more than one, and no TAMP-feature is universally prominent.

In an X-prominent language, verbs have a \( \lambda \)-bound argument of type \( a \in f(X) \), where \( f(T) = \{ T \} \) (times), \( f(A) = \{ \epsilon, \sigma \} \) (events, states), \( f(M) = \{ \emptyset \} \) (worlds), and \( f(P) = \{ \delta \} \) (individuals). This argument is filled by a member of a grammatical paradigm of X-features or X-markers (i.e. TNS, ASP, MOOD, or PRN) interpreted as discourse reference to a type a-entity with a top-level anchor (i.e. linked to one or more top-ranked antecedents in \( \{ T, a, \lambda \epsilon, T \epsilon, \lambda \epsilon \} \)).