Aspectual operators:
Temporality, evaluativity, and polarity sensitivity

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Outline

The puzzle, existing literature, today's talk

Beck (2020) and Beck (2020)-style solution

Mihoc (2021a)-style update of the Beck (2020)(-style) solution

Conclusion and open issues

The puzzle

	still
POL1	Jo ✓is / isn't #**still** asleep.
	Jo is **still** asleep.
CURR	asleep now
OTH	not asleep later
CONT	also asleep earlier
EVAL	asleep later than expected
POL2	Jo is **still** ✓young / #old.

The puzzle

	still
POL1	Jo ✓is / #isn't **still** asleep.
	Jo is **still** asleep.
CURR	asleep now
OTH	not asleep later
CONT	also asleep earlier
EVAL	asleep later than expected
POL2	Jo is **still** ✓young / #old.

The puzzle

	still	**anymore**
POL1	Jo ✓is / #isn't **still** asleep.	Jo #is / ✓isn't asleep **anymore**.
	Jo is **still** asleep.	Jo isn't asleep **anymore**.
CURR	asleep now	not asleep now
OTH	not asleep later	asleep earlier
CONT	also asleep earlier	also not asleep later
EVAL	asleep later than expected	not-asleep earlier than expected
POL2	Jo is **still** ✓young / #old.	Jo isn't ✓young / #old **anymore**.

The puzzle

	still	**anymore**	**already**
POL1	Jo ✓is / #isn't **still** asleep.	Jo #is / ✓isn't asleep **anymore**.	Jo ✓is / #isn't **already** asleep.
	Jo is **still** asleep.	Jo isn't asleep **anymore**.	Jo is **already** asleep.
CURR	asleep now	not asleep now	asleep now
OTH	not asleep later	asleep earlier	not asleep earlier
CONT	also asleep earlier	also not asleep later	also asleep later
EVAL	asleep later than expected	not-asleep earlier than expected	asleep earlier than expected
POL2	Jo is **still** ✓young / #old.	Jo isn't ✓young / #old **anymore**.	Jo is **already** #young / ✓old.

The puzzle

	still	**anymore**	**already**	**yet**
POL1	Jo ✓is / #isn't **still** asleep.	Jo #is / ✓isn't asleep **anymore**.	Jo ✓is / #isn't **already** asleep.	Jo #is / ✓isn't asleep **yet**.
	Jo is **still** asleep.	Jo isn't asleep **anymore**.	Jo is **already** asleep.	Jo isn't asleep **yet**.
CURR	asleep now	not asleep now	asleep now	not asleep now
OTH	not asleep later	asleep earlier	not asleep earlier	asleep later
CONT	also asleep earlier	also not asleep later	also asleep later	also not asleep earlier
EVAL	asleep later than expected	not-asleep earlier than expected	asleep earlier than expected	not-asleep later than expected
POL2	Jo is **still** ✓young / #old.	Jo isn't ✓young / #old **anymore**.	Jo is **already** #young / ✓old.	Jo isn't #young / ✓old **already**.

The puzzle

	aspectual operators [☞]			
	still	**anymore**	**already**	**yet**
POL1	✓	✓	✓	✓
scalar inferences	✓	✓	✓	✓
POL2	✓	✓	✓	✓

The puzzle

	aspectual operators [👉]				*disjunction* [👉]
	still	**anymore**	**already**	**yet**	**ou, or, ...**
POL1	✓	✓	✓	✓	✓
scalar inferences	✓	✓	✓	✓	✓
POL2	✓	✓	✓	✓	

The puzzle

	aspectual operators [☞]				*disjunction [☞]*	*indefinites [☞]*
	still	**anymore**	**already**	**yet**	**ou, or, ...**	**some, irgendein, any, ...**
POL1	✓	✓	✓	✓	✓	✓
scalar inferences	✓	✓	✓	✓	✓	✓
POL2	✓	✓	✓	✓		✓

The puzzle

	aspectual operators [☞]				*disjunction* [☞]	*indefinites* [☞]	*minimizers* [☞]
	still	**anymore**	**already**	**yet**	**ou, or, ...**	**some, irgendein, any, ...**	**lift a finger, sleep a wink, ...**
POL1	✓	✓	✓	✓	✓	✓	✓
scalar inferences	✓	✓	✓	✓	✓	✓	✓
POL2	✓	✓	✓	✓		✓	✓

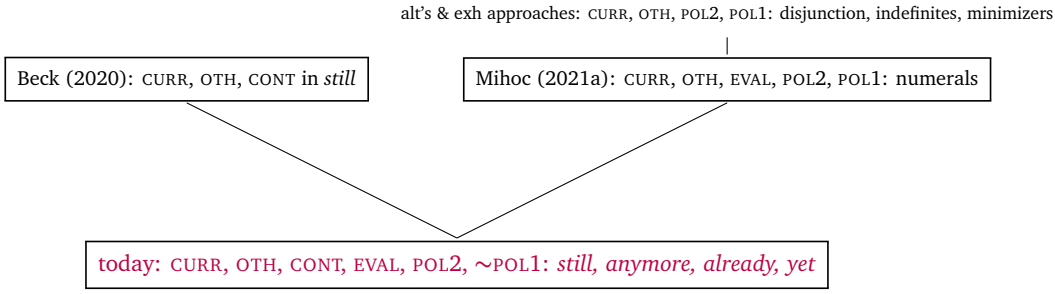
The puzzle

	aspectual operators [☞]				*disjunction* [☞]	*indefinites* [☞]	*minimizers* [☞]		*numerals* [☞]	
	still	**anymore**	**already**	**yet**	**ou, or, ...**	**some, irgendein, any, ...**	**lift a finger, sleep a wink, ...**	**n**	**(no) more/less than n**	**at least/most n**
POL1	✓	✓	✓	✓	✓	✓	✓		✓	✓
scalar inferences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
POL2	✓	✓	✓	✓		✓	✓		✓	✓

The puzzle

	superlative-modified numerals
POL1	Tim ✓slept / #didn't sleep **at least 3 hours**. Tim ✓slept / #didn't sleep **at most 3 hours**.
CURR	Tim slept **at least 3 hours**. Tim slept **at most 5 hours**.
OTH	he didn't sleep, e.g., at least 5 he didn't sleep, e.g., at most 1
CONT	
EVAL	that's many! that's few!
POL2	If Tim slept **at least 3** hours, he must be ✓(well) rested / #tired. If Tim slept **at most 3** hours, he must be #(well) rested / ✓tired.

Existing literature and today



proposal preview:

- *Still, anymore, already, yet* all point to a positive or a negative extent of time.
- This naturally activates scalar alternatives, SA, and subdomain alternatives, DA.
- This naturally triggers exhaustification via O(nly) and E(ven).
- This yields CURR–OTH—via O_{SA}; CONT–EVAL–POL2—via E_{SA}; and POL1—likely, via O_{DA}.

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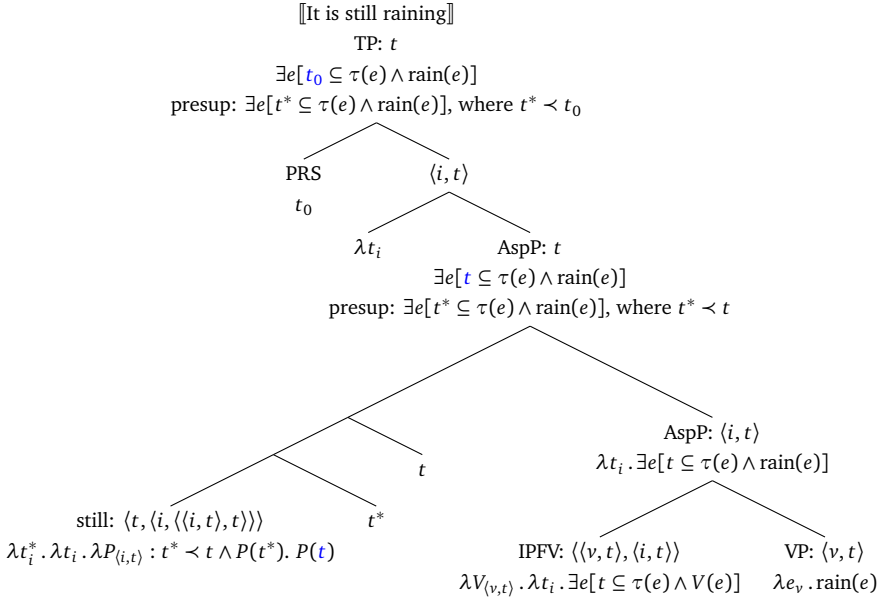
Beck (2020): Solution to CURR, OTH, CONT in *still*



Beck (2020): Solution to CURR, OTH, CONT in *still*

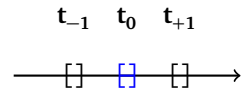
- Adopting Horn (1972) a.o.:

  Scalar alternatives, SA, are derived by replacing the scalar element with its scalemates.

- Adopting Chierchia et al. (2012), Chierchia (2013):

(1) $[\![\mathrm{O}]\!](C_{\langle\langle s,t\rangle,t\rangle}, p_{\langle s,t\rangle}, w_s)$ true iff $p(w) \wedge \forall q \in C[q(w) \rightarrow p \subseteq q]$

Beck (2020): Solution to CURR, OTH, CONT in *still*



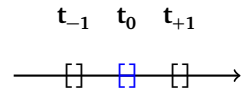
(2) It is **still** raining

a. *presupposes*:
$\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$
raining earlier (CONT)

b. *asserts:*
$\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$
raining now (CURR)

c. *via* O_{SA}, *implicates:*
$\neg\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$
not raining later (OTH)

Today: Extension to *already*, *anymore*, *yet*



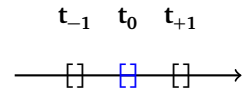
(3) It is **already** raining

a. *presupposes:*
$\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$
raining later (CONT)

b. *asserts:*
$\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$
raining now (CURR)

c. *via* O_{SA}, *implicates:*
$\neg\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$
not raining earlier (OTH)

Today: Extension to *already*, *anymore*, *yet*



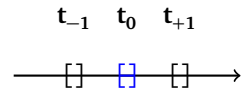
(4) It isn't raining **anymore**

a. *presupposes:*
$\neg\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (CONT)

b. *asserts:*
$\neg\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$
not raining now (CURR)

c. *via* O_{SA}, *implicates:*
$\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$
raining earlier (OTH)

Today: Extension to *already*, *anymore*, *yet*



(5) It isn't raining **yet**

a. *presupposes:*
$\neg\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$
not raining earlier (CONT)

b. *asserts:*
$\neg\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$
not raining now (CURR)

c. *via* O_{SA}*, implicates:*
$\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$
raining later (OTH)

Taking stock

- Advantages:
  - State-of-the-art analysis of *still*.
  - Straightforward proposal for *already*, *anymore*, *yet*.
- Limitations:
  - No solution for EVAL, POL2, POL1.
- Issues:
  - All four operators are defined in a way that makes them truth-conditionally equivalent.
    - Might be okay for *still-anymore* and *already-yet* (as they are suppletive pairs), but not for all.
  - The set of SA is not monotonic.
    - Requires further stipulations such as “O only excludes the ‘pragmatically open’ alternatives’. The stipulative status of such assumptions becomes more apparent as we have to adjust them from one operator to the next.
  - The presuppositions are stipulated.
    - Their stipulative status becomes even more apparent as we have to adjust them from one operator to the next.
  - The presuppositions for *anymore* and *yet* are negative.
    - This is unusual to say the least.

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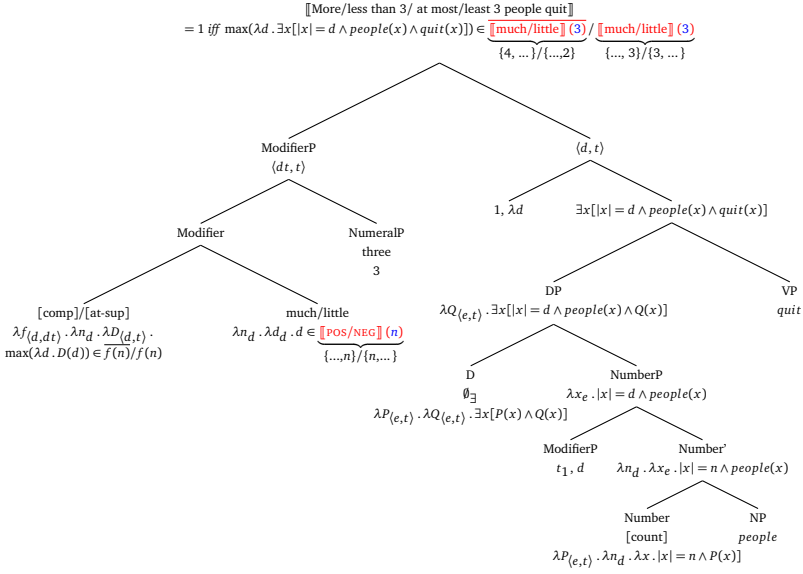
Mihoc (2021a): Solution to CURR, OTH, EVA, POL2, POL1 in numerals



Mihoc (2021a): Solution to CURR, OTH, EVA, POL2, POL1 in numerals

- Adopting Horn (1972), Chierchia (2013), a.o.:

  Scalar alternatives, SA, are derived by replacing the scalar element with its scalemates.
  Subdomain alternatives, DA, are derived by replacing the domain with its subsets.

- Adopting (Chierchia 2013):

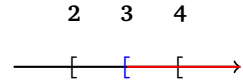
  (6) $[\![\mathrm{O}]\!](C_{\langle\langle s,t\rangle,t\rangle}, p_{\langle s,t\rangle}, w_s)$ true iff $p(w) \wedge \forall q \in C[q(w) \rightarrow p \subseteq q]$

- Adapting Crnič (2011, 2012), Chierchia (2013):

  (7) $[\![\mathrm{E}]\!](C_{\langle\langle s,t\rangle,t\rangle}, p_{\langle s,t\rangle}, w_s)$
  a. true iff $p(w)$
  b. defined iff $\exists q \in C[q \neq p \wedge q(w)]$
  c. defined iff $\forall q \in C[\mathbf{p} \subseteq \mathbf{q} \rightarrow p \prec q]$

  For E, it is assumed that the prejacent and the alternatives are always used in a non-monotonic form, as if prefixed at some level with O_{SA}.

Mihoc (2021a): Solution to CURR, OTH, EVA, POL2, POL1 in numerals



(8) **At least 3** people quit

a. *presupposes on its own:*
nothing

b. *asserts:*
$\max(\lambda d\,.\,\exists x[|x| = d \wedge people(x) \wedge quit(x)]) \in [\![\text{little}]\!]$ (3)

c. *implicates, via* O_{SA}*:*
$^{\#}\neg \max(\lambda d\,.\,\exists x[|x| = d \wedge people(x) \wedge quit(x)]) \in [\![\text{little}]\!]$ (4) (not 4 or more; OTH)
$^{\#} \Rightarrow \max(\lambda d\,.\,\exists x[|x| = d \wedge people(x) \wedge quit(x)]) \in \{3\}$ ($^{\#}$exactly 3; blocked by IG; no CURR)
$^{\checkmark}$e.g., $\neg \max(\lambda d\,.\,\exists x[|x| = d \wedge people(x) \wedge quit(x)]) \in [\![\text{little}]\!]$ (5) (not 5 or more; OTH)

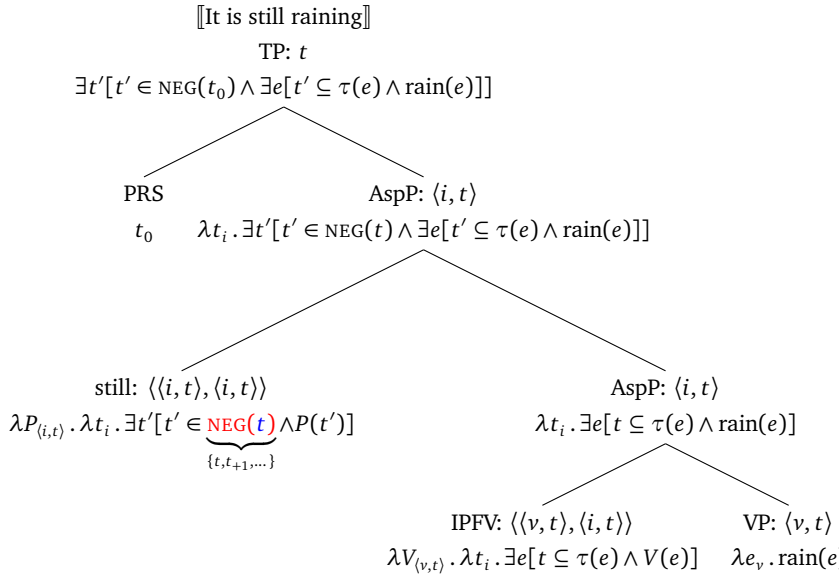
(8) *presupposes, via* E_{SA}*:*
$O_{SA}(-3-) \prec_{\mu} O_{SA}(-2-)$ (3 less expected than 2; 'that's many!'; EVAL)
Note: For *If* O_{SA}*(Tim slept at least 3 hours), he is* $^{\checkmark}$*well rested* / $^{\#}$*tired*:
defined iff $O_{SA}(-3-) \rightarrow P \prec_{\mu} O_{SA}(-4-) \rightarrow P$ (P = *well rested* ✓, P = *tired* ✗; POL2)

(8) *implicates, via* O_{ExhDA}*:*

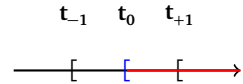
a. in plain negative contexts, nothing (assume SMNs don't tolerate this for O_{DA} ⇒POL1-NEG)

b. in positive contexts, ignorance: the speaker is not sure whether 3 or 4 or … (POL1-POS)

Today: Extension to *still*, *already*, *anymore*, *yet*



Today: Extension to *still*, *already*, *anymore*, *yet*



(9) It is **still** raining

a. *on its own, presupposes:*
nothing

b. *asserts:*
$\exists t'[t' \in \text{NEG}(t_0) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$

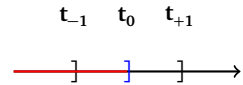
c. *via O_{SA}, implicates:*
$\neg\exists t'[t' \in \text{NEG}(t_{+1}) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$ (not raining later; OTH)
in combination with the assertion, yields:
$\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining now; CURR)

d. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_{-1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \Rightarrow \exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining earlier; CONT)

e. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_0)) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \prec \exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_{-1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
$\Rightarrow \exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)] \prec \exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$ ('rain now less expected than rain earlier'; EVAL)
Note: For *Tim is still* ✓*young* / #*old*:
defined iff $P(t_0) \prec_\mu P(t_{-1})$ (P = *young* ✓, P = *old* ✗; POL2)

f. *via O_{DA}, implicates:*
(i) in plain negative contexts, nothing (assume *still* doesn't tolerate this for O_{DA} ⇒POL1-NEG)
(ii) in positive contexts, ??? ignorance … (??? POL1-POS)

Today: Extension to *still*, *already*, *anymore*, *yet*



(10) It is **already** raining

a. *on its own, presupposes:*
nothing

b. *asserts:*
$\exists t'[t' \in \text{POS}(t_0) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$

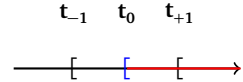
c. *via O_{SA}, implicates:*
$\neg\exists t'[t' \in \text{POS}(t_{-1}) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$ (not raining earlier; OTH)
in combination with the assertion, yields:
$\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining now; CURR)

d. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{POS}(t_{+1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \Rightarrow \exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining later; CONT)

e. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{POS}(t_0)) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \prec \exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_{+1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
$\Rightarrow \exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)] \prec \exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ ('rain now less expected than rain later'; EVAL)
Note: For *Tim is already #young / ✓old*:
defined iff $P(t_0) \prec_\mu P(t_{+1})$ (P = *young* ✗, P = *old* ✓; POL2)

f. *via O_{DA}, implicates:*
(i) in plain negative contexts, nothing (assume *already* doesn't tolerate this for O_{DA} ⇒POL1-NEG)
(ii) in positive contexts, ??? ignorance … (??? POL1-POS)

Today: Extension to *still*, *already*, *anymore*, *yet*



(11) It isn't raining **anymore**

a. *on its own, presupposes:*
nothing

b. *asserts:*
$\neg\exists t'[t' \in \text{NEG}(t_0) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$ (not raining now; CURR)

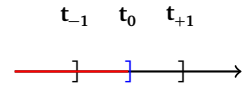
c. *via O_{SA}, implicates:*
$\neg\neg\exists t'[t' \in \text{NEG}(t_{-1}) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
in combination with the assertion, yields:
$\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining earlier; OTH)

d. *via E_{SA}, presupposes:*
$\neg\exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_{+1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \Rightarrow \neg\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (not-R later; CONT)

e. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_0)) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \prec \exists t'[\text{O}_{\text{SA}}(t' \in \text{NEG}(t_{+1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
$\Rightarrow \neg\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)] \prec \exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ ('not-R now less exp. than not-R later'; EVAL)
Note: For *Tim isn't ✓young / #old anymore*:
defined iff $P(t_0) \prec_\mu P(t_{+1})$ (P = *young* ✓, P = *old* ✗; POL2)

f. *via O_{DA}, implicates:*
(i) in plain negative contexts, nothing (assume *anymore* does tolerate this for O_{DA} ⇒POL1-NEG)
(ii) in positive contexts, ??? … (??? POL1-POS)

Today: Extension to *still*, *already*, *anymore*, *yet*



(12) It isn't raining **yet**

a. *on its own, presupposes:*
nothing

b. *asserts:*
$\neg\exists t'[t' \in \text{POS}(t_0) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$ (not raining now; CURR)

c. *via O_{SA}, implicates:*
$\neg\neg\exists t'[t' \in \text{POS}(t_{+1}) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
in combination with the assertion, yields:
$\exists e[t_{+1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (raining later; OTH)

d. *via E_{SA}, presupposes:*
$\neg\exists t'[\text{O}_{\text{SA}}(t' \in \text{POS}(t_{-1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \Rightarrow \neg\exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$ (not-R earlier; CONT)

e. *via E_{SA}, presupposes:*
$\exists t'[\text{O}_{\text{SA}}(t' \in \text{POS}(t_0)) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]] \prec \exists t'[\text{O}_{\text{SA}}(t' \in \text{POS}(t_{-1})) \wedge \exists e[t' \subseteq \tau(e) \wedge \text{rain}(e)]]$
$\Rightarrow \neg\exists e[t_0 \subseteq \tau(e) \wedge \text{rain}(e)] \prec \exists e[t_{-1} \subseteq \tau(e) \wedge \text{rain}(e)]$ ('not-R now less exp. th. not-R earlier'; EVAL)
Note: For *Tim isn't #young /✓old yet*:
defined iff $P(t_0) \prec_\mu P(t_{-1})$ (P = *young* ✓, P = *old* ✗; POL2)

f. *via O_{DA}, implicates:*
(i) in plain negative contexts, nothing (assume *yet* does tolerate this for O_{DA} ⇒POL1-NEG)
(ii) in positive contexts, ??? … (??? POL1-POS)

Taking stock

- Advantages:
  - Comprehensive proposal for *still*, *already*, *anymore*, *yet*.
  - Unifies a rich set of phenomena within item, between item, and between categories.
- Limitations:
  - No solution for POL1-POS.
- Open issues:
  - The status of CURR–OTH changes between *still–already* and *anymore–yet*. Is this a problem?
  - How can we justify the use of O_{SA} in the prejacent and alternatives used by E?
  - Is the solution sketched for POL1-POS on the right track?
  - How does this analysis fit with other empirical data and theoretical analyses related to aspectual operators?
  - What is the overarching lesson about scalarity, evaluativity, polarity sensitivity, free choice?
  - What is the overarching lesson about positive and negative extents, SA, DA, O, and E?

Outline

The puzzle, existing literature, today's talk

Beck (2020) and Beck (2020)-style solution

Mihoc (2021a)-style update of the Beck (2020)(-style) solution

Conclusion and open issues

Conclusion and open issues

- We built on Beck (2020) and Mihoc (2021a) to propose a solution for temporality, evaluativity, and polarity sensitivity in *still*, *already*, *anymore*, and *yet* unified within item, within category, and between categories.

- Many open issues still remain:
- related to the relationship between CURR-OTH
  - related to expectations for POL1-POS in aspectual operators
  - related to E

Thank you!

Appendix: Background: Aspectual operators

For previous discusison of *still, anymore, already*, and/or *yet*, usually excluding POL, see Horn (1970), Ladusaw (1980:Ch. 5), Löbner (1989), Michaelis (1992), Michaelis (1993), Mittwoch (1993), Israel (1997), Löbner (1999), Krifka (2000), Klein (2007), Ippolito (2007), Umbach (2012), Zimmermann (2018), Thomas (2018), Beck (2020).

For discussions including POL, see Israel (1997).
Also see Chierchia (2013) for discussion of POL in phrases such as *in weeks*.

Appendix: Background: Indefinites

For recent extensive discussion of POL1 in indefinites see Chierchia (2013) and refs. therein. For suggestions of POL2 in indefinites see Cohen and Krifka (2014:77) and refs. therein, also copied here:

Interestingly, NPIs behave in a way that is exactly the opposite of that of superlative quantifiers—they are fine if the consequent is "bad", but ruled out if the consequent is "good" (Lakoff 1969)[41]:

(121) a. If you eat { some / *any } spinach I will give you $10

b. If you eat { *some / any } candy I will whip you.

Regine Eckardt (pc) shows that the effect is even more pronounced with strong NPIs:

(122) If you budge an inch, I will { kill / *thank } you.

Appendix: Background: Disjunction

For recent discussion and analyses of POL1 in disjunction see Spector (2014), Nicolae (2017), Mihoc (2020). There is no mention of POL2 here, though it doesn't mean the effect is logically impossible—felicitous examples with overt *even* show the contrary—but merely that disjunction doesn't take a silent E. This, of course, still begs the question why, and if we can find any counterexamples.

Appendix: Background: Minimizers

For recent discussion and analysis of POL1 and, resp., POL1 and POL2 in minimizers see Chierchia (2013) and, resp., Crnič (2011), and refs. therein, and also Cohen and Krifka (2014) earlier [☞] . Excerpt from Crnič (2011:49ff) below:

(83) a. Everyone that lifted a finger to help was rewarded
b. #Everyone that lifted a finger to help was wearing blue jeans

(85) a. **[EVEN C_1] [everyone that [lifted a finger]$_F$ to help was rewarded]**
b. ∃q {that everyone that has done x work to help was rewarded | x is an amount}: that everyone that has lifted a finger to help was rewarded $\lhd_c$ q

(86) a. **[even C_1] [everyone that [lifted a finger]$_F$ to help was wearing blue j.]**
b. #∃q {that everyone that has done x work was wearing blue jeans | x is an amount}: that everyone that has lifted a finger to help was wearing blue jeans $\lhd_c$ q

Appendix: Background: Modified numerals

For recent discussion of POL1 and POL2 in modified numerals see Cohen and Krifka (2014), Mihoc (2021a,b), Mihoc and Davidson (2021). From Cohen and Krifka (2014:77ff.):

b. Everybody who uses { more than / #at least } three exclamation marks is a fool.

For recent discussion of EVAL, which I argue is the source for POL2, in negative comparison see Nouwen (2008), Mihoc (2021b). From Nouwen (2008:277):

> I am not the first person to notice such data.[5] Jespersen (1966), for instance, remarks that "*no less than 30* means exactly 30, implying surprise or wonder at the high number" (p. 83). Elsewhere (Jespersen 1949, entry 16.842 on p. 434), he equates *no more than* to *as little as* and explores the full range of uses of the *no more* construction (entries 16.83–16.86). Jespersen notes that there is a difference between *no* and *not* in combinations with comparatives. This contrast, he notes, had already been observed by Stoffel (1894), who for instance discussed the quote "The victorious emperor remained at Rome not more than three months." Stoffel comments on it in the following way: "This means that he remained three months *at most*; if the author had written 'no more than three months', this form of expression would have implied that the author thought this a brief period, and 'no more than three months' would be equivalent to 'three months *only*'" (Jespersen 1949, p. 435).

Appendix: Some patterns in parallel []

	disjunction	**indefinites**	**minimizers**
POL1	Tim ✓a dormi / #n'a pas dormi ici ou là.	Tim ✓got / #didn't get **some** sleep.	Tim #slept / ✓didn't sleep **a wink**.
	Tim slept here or there.	Tim got **some** sleep.	
CURR			
OTH	not in both places	not a lot	
CONT			
EVAL			
POL2		If Tim got **some** sleep, he must be ✓(well) rested / #tired.	?If you slept **a wink** last night, you're #admitted / ✓disqualified.

	bare numerals	**comparative-modified numerals**	**superlative-modified numerals**
POL1	NA	Tim ✓slept / #didn't sleep **no more than 3**	Tim ✓slept / #didn't sleep **at least 3 hours**. Tim ✓slept / #didn't sleep **at most 3 hours**.
	Tim slept 3 hours.	Tim slept **no more than 3 hours**.	Tim slept **at least 3 hours**. Tim slept **at most 5 hours**.
CURR	slept 3		
OTH	didn't sleep 4 or more	NOT he slept no more than 2	he didn't sleep, e.g., at least 5 he didn't sleep, e.g., at most 3
CONT			
EVAL		that's little!	that's many! that's few!
POL2	Jo isn't #young / ✓old **already**.	If Tim slept no more than 3 hours, he must be #(well) rested / ✓tired.	If Tim slept **at least 3** hours, he must be ✓(well) rested / #tired. If Tim slept **at most 3** hours, he must be #(well) rested / ✓tired.

References I

Beck, S. (2020). Readings of scalar particles: *noch/still*. *Linguistics and Philosophy*, 43(1):1–67.

Chierchia, G. (2013). *Logic in grammar: Polarity, free choice, and intervention*. Oxford University Press, Oxford, UK.

Chierchia, G., Fox, D., and Spector, B. (2012). Scalar implicature as a grammatical phenomenon. In *Semantics: An international handbook of natural language meaning*, volume 3, pages 2297–2331. Berlin & Boston: de Gruyter.

Cohen, A. and Krifka, M. (2014). Superlative quantifiers and meta-speech acts. *Linguistics and Philosophy*, 37(1):41–90.

Crnič, L. (2011). *Getting even*. PhD thesis, Massachusetts Institute of Technology.

Crnič, L. (2012). Focus particles and embedded exhaustification. *Journal of Semantics*, 30(4):533–558.

Horn, L. (1972). *On the semantic properties of logical operators in English*. University Linguistics Club.

Horn, L. R. (1970). Ain't it hard (anymore). *Proceedings of CLS*, 6:318–327.

Ippolito, M. (2007). On the meaning of some focus-sensitive particles. *Natural Language Semantics*, 15(1):1–34.

References II

Israel, M. (1997). The scalar model of polarity sensitivity: The case of the aspectual operators. *Amsterdam Studies in the Theory and History of Linguistic Science Series 4*, pages 209–230.

Klein, W. (2007). About the German particles *schon* and *noch*. Ms.

Krifka, M. (2000). Alternatives for aspectual particles: Semantics of *still* and *already*. In *Annual Meeting of the Berkeley Linguistics Society (BLS)*, volume 26, pages 401–412.

Ladusaw, W. A. (1980). *Polarity sensitivity as inherent scope relations.*

Löbner, S. (1989). German *schon-erst-noch*: An integrated analysis. *Linguistics and Philosophy*, 12(2):167–212.

Löbner, S. (1999). Why german *schon* and *noch* are still duals: A reply to van der Auwera. *Linguistics and Philosophy*, 22(1):45–107.

Michaelis, L. A. (1992). Aspect and the semantics-pragmatics interface: The case of *already*. *Lingua*, 87(4):321–339.

Michaelis, L. A. (1993). 'continuity'within three scalar models: The polysemy of adverbial still. *Journal of Semantics*, 10(3):193–237.

Mihoc, T. (2020). Ignorance and anti-negativity in the grammar: *or/some* and modified numerals. In *Proceedings of the Annual Meeting of the North East Linguistic Society (NELS) 50*.

References III

Mihoc, T. (2021a). Modified numerals and polarity sensitivity: Between O(nly)$_{DA}$ and E(ven)$_{SA}$. In *To appear in Proceedings of Sinn und Bedeutung (SuB) 25*, page TBA.

Mihoc, T. (2021b). Negative comparison between exactness, ignorance, and evaluativity. Talk at the Penn Linguistics Conference (PLC) 45, University of Pennsylvania (online), Mar 19-21, 2021.

Mihoc, T. and Davidson, K. (2021). Superlative-modified numerals and negation: A multiply negotiable cost. In Beltrama, A., editor, *Proceedings of Experiments in Linguistic Meaning (ELM) 1*.

Mittwoch, A. (1993). The relationship between *schon/already* and *noch/still*: A reply to Löbner. *Natural Language Semantics*, 2(1):71–82.

Nicolae, A. (2017). Deriving the positive polarity behavior of plain disjunction. *Semantics & Pragmatics*, 10.

Nouwen, R. (2008). Upper-bounded no more: The exhaustive interpretation of non-strict comparison. *Natural Language Semantics*, 16(4):271–295.

Spector, B. (2014). Global positive polarity items and obligatory exhaustivity. *Semantics & Pragmatics*, 7(11):1–61.

Thomas, G. (2018). Underspecification in degree operators. *Journal of Semantics*, 35(1):43–93.

References IV

Umbach, C. (2012). Strategies of additivity: German additive *noch* compared to *auch*. *Lingua*, 122(15):1843–1863.

Zimmermann, M. (2018). Wird schon stimmen! A degree operator analysis of *schon*. *Journal of Semantics*, 35(4):687–739.