Minimal sufficiency and scalar concord in German, English and Chinese

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1 Introduction

A. Minimal Sufficiency (MS) was first described and analyzed by Jacobs (1983!:225). The technical term "minimal sufficiency" (MS) was coined much later.

(1) ***Nur*** *10 bewaffnete Bauern könnten die Banditen in die Flucht schlagen.*
'A mere 10 farmers in arms could drive the bandits away.'

He points out

(i) the local, not clause-level, scope of *nur* 'only, merely'
(ii) the truth-conditional inactivity of *nur* at the sentence level
(iii) the survival of the scalar component of *nur* within the PP (10 farmers are few).

(2) a. *With **only** 3 people present, **we can** have a party already.* (MS, no inversion; Büring 2004)
b. ***Only** with 6 people present **can we** have a party.* (no MS, inversion; Büring 2004)

B. König (1991) comes up with a first semantic generalization as to when such conditions hold.

(3) KÖNIG'S (1991:102) SUFFICIENCY GENERALIZATION (our wording)
Effects (i) through (iii) occur if the main predicate is paraphrasable with the help of 'sufficient/enough'-predicates.

This generalization was later on elaborated upon by Berends & Kaufmann (2009), Grosz (2011), Coppock & Lindahl (2014), or Panizza & Sudo (2020).

It seems fair to say that the inherent nature of the sufficiency at stake here has, as of yet, not been fully clarified.

C. The term MS was coined by Grosz (2011), who looked at biclausal cases as in (4). As concerns our topic for today, he adds one new observation: the scalar particle *schon* 'already' may occur left-peripherally, or in the consequent, as in (4)/(4′).

(4) *Wenn **nur** zwei Leute kommen, spielen wir **schon** Siedler.*
'If **only** two people come, we'll **already** play Settlers.

(4′) ***Schon** wenn **nur** zwei Leute kommen, spielen wir Siedler.*
'[=(4)]'

This will become important later on in this talk.

D. Our plan for today is summarized in (5). Our main concern will lie with the highlighted portions of (5).

(5) a. Discuss and analyze cases of the doubling of scalar particles
b. Account for the behavior of 'only' words in the antecedent

c. Establish, and implement, the major dividing line between **event-internal and event-external MS**
d. Contribute to the discussion about the nature of the **upward inference with MS**
e. Propose a solution to **an old syntax-semantics riddle** in the domain of Chinese MS
f. Allot **correlatives** a place in the analysis of some MS constructions
g. Wrap everything up in a syntax-and-semantics of MS

2 Some key observations

A. Doubling of scalar particles

Across languages, scalar particles may (or must) double. One occurs at the edge of the antecedent, the other one in the TP area of the consequent clause. This is a new observation. (Grosz 2011: 6.2.4.2/6.2.4.3, who coined the term, never talks about the possibility of combining both *schon*s 'already' in a single sentence, even though he mentions both structural options.)

(6) English
***Even** if the weather is just okay, I go hiking **already**.*

(7) German
***Schon** wenn das Wetter nur okay ist, gehe ich **schon** wandern.*
lit.: '***Already** if the weather is just okay, I go hiking **already**.'

(8) Chinese

Zhiyao	*tianqi*	*shangke,*	*wo*	****(jiu)***	*qu*	*tubu.*
if.only	weather	okay	I	SCAL	go	hiking

'Even if the weather is just okay, I go hiking already.'

Note the ungrammaticality that results if *jiu* is dropped from (8) (Hole 2004). Its obligatory use is triggered by ***zhiyao*** 'preliminarily: if only'. There's morphosyntax going on here.

The English and the German examples remain good if either particle is dropped.

Languages allow, some require scalar doubling.

B. An 'only' word in the antecedent

To arrive at the minimal sufficiency semantics, an 'only' word is required, or strongly favored, in the antecedent. Consider the slightly modified (6′) without the 'only' word.

(6) *Even if the weather is **just** okay, I go hiking already.*

(6′) *Even if the weather is okay, I go hiking.*

What is lost in (6′), compared with (6), is the feeling that weather conditions are ranked on a scale from bad to good, and my hiking sets in at a low point on the scale.

As we are in the antecedent of a conditional, the exclusive entailment of 'only' is lost, and only the pre-suppositional component remains: 'as little as/as few as'.

Outright scalar 'only' words like *just* or *merely* in English, or *bloß* in German, make for particularly good choices in MS antecedents.

Use a (scalar) 'only' word.

C. Event-internal MS vs. event-external MS

There are two distinct kinds of MS, one event-internal, one event-external in the sense of Maienborn (2001).

(9) a. EVENT-INTERNAL MS/AGENTS
first merge within VoiceP
*A **mere** 10 farmers in arms can drive away the enemy **already**.*
b. EVENT-INTERNAL MS/INSTRUMENTS OR COMITATIVES
first merge within VoiceP
***Just** Tylenole **alone** will help **already**.*
c. EVENT-EXTERNAL MS/RESTRICTORS OF GENERIC STATEMENTS
first merge above VoiceP
***In case of just** okay weather, I go hiking **already**.*

Event-internal MS concerns entitities bearing theta-roles above CAUSE/vP; event-external MS involves entities bearing no theta-roles above VoiceP.

We appear to be the first ones to notice this clear-cut split. In D. through F. we will elucidate the crucial differences between these two MS types.

There's event-internal MS, and there's event-external MS.

D. The nature of the upward inference

In this subsection, we will, at first, not distinguish between event-internal and event-external MS. Towards the end, we will make this distinction.

Looking at examples as in (10), it would appear that Beck & Rullmann's (1999) Upward Scalarity can capture the scalar behavior of foci and their alternatives in minimal sufficiency antecedents.

(10) a. *If only 3 cats come, she's happy already.*
b. *If we have as few as 3 eggs, we can bake the cake already.*

(11) UPWARD SCALARITY (Beck & Rullmann 1999: 257; typo from B&R fixed)
A predicate P is upward scalar iff $\forall n, m[\ [P(n) \ \& \ n \leq m\ ] \rightarrow P(m)\ ]$

That means that if 3 eggs will do, 4 or 5 will, as well.

Note that this is not a stable property of antecedents in conditionals, it's construction-specific.

(12) *If we go there with 3 people, we can get the nice table by the window.*

(12) doesn't mean that if four or five people go, one can get the nice table by the window.

But there's a problem with Upward Scalarity. It's stated in terms of numbers, and predicates of numbers. Consider (13).

(13) *As long as there's just a small quantity of bread in the house, he'll be fine.*

Inferences invited by (13) are as in (14), but not quite as in (15).

(14) a. *If there's a small quantity of bread and some cheese in the house, he'll be fine.*
b. *If there's a small quantity of bread, cheese and a can of beer in the house, he'll be fine.*

(15) *If there are two small quantities of bread in the house, he'll be fine.*

The fact that Upward Scalarity is defined in terms of numbers is a problem.

Liu (2017) comes to our rescue. He assumes sum-based, or mereological alternative sets to be what is needed in Chinese minimal sufficiency constructions.

(16) UPWARD MEREOLOGY (our definition, Liu 2017 provides none)
A predicate P is upward mereological iff $\forall x_e, y_e[\ [P(x) \ \& \ x \sqsubset y\ ] \rightarrow P(y)\ ]$
'If proper parts x of a group referent y make a predicate true, then y likewise does.'

Note, again, that this is not a general property of predication; cf. (17).

(17) *A slice of bread is on his plate.*
does not entail: *A slice of bread and some cheese are on his plate.*

Here's a wrinkle: Upward Mereology works well with event-internal cases. It can't capture (predicates of) eventualities.

(18) *If it just drizzles, I may stay at home already.*

Drizzling is no proper part of down-pouring rain, or not in a straightforward sense.

Here's our way out.

(19) a. The upward inference of event-internal MS is always mereology-based.
b. The upward inference of event-external MS may be mereology-based, but is informativeness/likelihood-based in all cases.

(20) a. EVENT-INTERNAL MS/MEREOLOGIES
Just Tylenole alone will help already.
↝ Tylenole⊕chicken soup will help
b. EVENT-EXTERNAL MS/INFORMATIVENESS
In case of just okay weather, I go hiking already.
↝ In case of really good weather, I go hiking (the less informative/more likely case)
c. EVENT-EXTERNAL/INFORMATIVENESS (AND MEREOLOGY)
With as few as 3 people around, we'll have a party already.
↝ With 4 people around, we'll have a party (the less informative/more likely case)

The upward inference of event-internal MS is grounded in mereologies.
The upward inference of event-external MS is grounded in informativeness/likelihood.

E. Sufficiency as expandability of minimal situations or subsethood of situations

Recall that all MS sentences can be paraphrased using predicates like *suffice* (König 1991).

(21) EVENT-INTERNAL MS
   a. *Just Tylenole alone will help already.*
   b. *Just Tylenole alone suffices to help already.*

(22) EVENT-EXTERNAL MS
   a. *With as few as 3 people around, we'll have a party already.*
   b. *As few as 3 people suffice for us to have a party.*

However, we submit that the underlying semantic cause for this paraphrasability is twofold.

(23) THE INTUITIONS CONCERNING THE SUFFICIENCIES INVOLVED IN A NUTSHELL
   a. Event-internal MS is **expandability of minimal situations** s towards minimal causing events e.
   b. Event-external MS is based on **subsethood/universal quantification/genericity**.

(24) a. EVENT-INTERNAL MS/Tylenole
   A situation s with just Tylenole in it is expandable to an event e in which Tylenole is the sole instrumentally effective individual, and e is a situation of e causing remedy.
   b. EVENT-EXTERNAL MS/Hiking
   A set of situations of merely mediocre weather (and with all the other context conditions fulfilled) is a subset of the set of situations in which I go hiking.

Note that our every-day reasoning often mistakes correlations/subsethood for causation, so it may come as no surprise that languages categorize them under the sole roof of MS constructions.

F. Scalar lowness in event-internal vs. event-external MS

(25) a. EVENT-INTERNAL MS
   Scalar lowness here is about literally smallest elements of sum-based alternative sets surprisingly being causers already.
   b. EVENT-EXTERNAL MS
   Scalar lowness here is about restrictor sets of universal quantification having truth-conditions that are satisfied surprisingly easily.

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Table 1 provides an overview of the properties of the two kinds of MS.

	EVENT-INTERNAL MS	EVENT-EXTERNAL MS
upward inference grounded in …	mereology	informativeness/likelihood
sufficiency based on …	expandability of situations and causation	subsethood of sets of situations
scalar lowness in the guise of …	the smallest element of a sum-based alternative set which is, surprisingly, enough to cause something	restrictor sets of universal quantification having truth-conditions that are satisfied surprisingly easily

Table 1: Some properties of event-internal MS vs. event-external MS

G. A nasty syntax-semantics problem with Chinese minimal sufficiency conditionals

Recall that Chinese canonical MS conditionals involve the functional elements ***zhiyao*** 'if, if only' and ***jiu*** 'SCAL'.

(26) ***Zhiyao*** *tianqi* *shangke,* *wo* ****(jiu)*** *qu* *tubu.*
if.only weather okay I SCAL go hiking
'Even if the weather is just okay, I go hiking already.'

Zhiyao turned out early on to be a real trouble-maker (Hole 2004, 2006).

Intuition of the most robust kind has it that the antecedent of (26) comprises something as in (27).

(27) *It only takes okay weather.*
only IS *zhi*, which is the most general 'only' marker in Chinese.
takes IS *yao*, a necessity modal (super robust intuition)

But now see what happens if you put everything together.

(28) *If it only takes okay weather, I go hiking already.*

That's not what (26) means, it rather means (29).

(29) *It only takes okay weather for me to go hiking already.*

But (29) doesn't respect the fact that the consequent should be the matrix clause.

Another reformulation preserves syntax, but has to let go of the necessity modal.

(30) *If the weather is just okay, I go hiking already.*

That's when Wimmer (2022) came to everybody's (preliminary) rescue.

(31) *zhi-yao* 'only-require'
is not: 'it only requires' (ONLY > □)
but is: 'If only' (∀ > ONLY),

where the modal has been bleached to become a universal quantifier over worlds holding together the antecedent and the consequent, but is no longer a verb.

But this would predict, then, that (32) and (33) should mean the same … which they don't.

(32) MINIMAL SUFFICIENCY CONDITIONAL

Zhiyao	*xia-dian*	*yu*	*wo*	*jiu*	*liu-zai*	*jia.*
"if.only"	fall-a.little	rain	I	SCAL	stay-at	home

'[I stay at home for the most insignificant reasons:] If it just rains a little I stay at home already.'

⇝ I'll stay at home if it rains more heavily, or other bad things come on top.

(33) CANONICAL *YAOSHI*-CONDITIONAL

Yaoshi	*zhi*	*xia-dian*	*yu*	*wo*	*hui*	*liu-zai*	*jia.*
standard.if	only	fall-a.bit	rain	I	will	stay-at	home

'If it only rains a little I stay at home.'

⇝ I might go out, though, if it rains more heavily, or if a thunderstorm develops.

This is rather detrimental to Wimmer (2022), even though he manages to derive the upward inference of (32).

And the robust necessity modal verb intuition for *zhiyao* was not captured by Wimmer (2022) to begin with.

Zhiyao-conditionals are the canonical MS conditionals of Chinese, but their syntax and semantics poses serious problems.

H. How all comes together in *jiu* 'ALREADY.THEN' and correlatives: *jiu* is anaphoric to the antecedent situation (minus the modal)

Recall our old example, repeated here as (34).

(34)

Zhiyao	*tianqi*	*shangke,*	*wo*	****(jiu)***	*qu*	*tubu.*
only.must	weather	okay	I	SCAL.CORR	go	hiking

'Even if the weather is just okay, I go hiking already.'/

'The weather just has to be okay for me to go hiking already.'

Hole (2004, 2006) points to the following way out of the dilemma. (We will return to how the "&" in (35b) relates to "conditional *and*"; von Fintel & Iatridou 2017, Keshet 2013, Kaufmann & Whitman 2022).

(35) a. *The weather only has to be okay, and then I go hiking already.*

b. ONLY (□ ([The weather is okay]$_i$)) & ALREADY-THEN$_i$(I go hiking)

Then in (35) relates back anaphorically – in a sense to be made more precise below – to the proposition underneath the necessity modal from the antecedent. Hole (2004, 2006) doesn't develop this into a full-blown analysis.

It comes as a rather welcome fact that anaphoricity for *jiu* has been on the market since Li & Thompson's (1981: 331 and elsewhere) seminal reference grammar. These authors gloss *jiu* in conditionals as 'then'.

At the same time, ever since Hole (2004: 163–164) it has been known that temporal *jiu*-uses come in two guises, one scalar, and one (mostly) anaphoric.

(36) [Context 1: Old Wang always arrives late for work. Sometimes he doesn't show up until 11 o'clock. Today was different, …
Context 2: Old Wang got up at 6, took the bus at 6.30, and…]

ta	*qi*$_{F/CT}$-*dian*	*jiu*	*zai*	*bangongshi*$_{(F)}$	*le.*
he	7-o'clock	JIU	at	office	CRS

Context 1: ' … he was in his office at seven$_F$ o'clock **already**.' (last event in a succession of events)
Context 2: ' … at seven$_{CT}$ o'clock he [was in his office]$_F$, **then**.'

MS constructions are always scalar.

We hence feel justified in assuming that *jiu* in MS conditionals is 'already.then'.

This puts us within the landscape of **correlatives** (cf. 3.3; Dayal 1995, 1996, Brasoveanu 2012, among many others).

Our working hypothesis is that *zhiyao*-MS conditionals in Chinese are "combinations" of necessity-modalized antecedents □p/topics and consequents/comments q that anaphorically relate back to p (not □p), with an obligatory scalarity uptake via anaphoric *jiu*.

3 Some key instruments for modeling MS

3.1 The easy part: (scalar) 'only' words

A. Truth-conditional ineffability of 'only' words in biclausal MS follows because antecedents of conditionals, unless of the *if-indeed* kind, don't entail anything.

B. (Local) Truth-conditional ineffability of 'only' words in monoclausal MS is an illusion. A minimal situation that has nothing but the minimally sufficient referent in it, in actual effect, conforms to the truth conditions of 'only'. (We see no need for Liu's (2017) 'weak *only*'.)

C. Scalar lowness ('as little/few as FOC'), as it is presuppositional, survives in both cases, and it has to. Therefore the use of strongly scalar 'only' words (*just*, *bloß* etc.) is encouraged in MS constructions.

3.2 Syntax

3.2.1 Bipartite focus particle syntax

A. For languages like Chinese and Vietnamese, a bipartite focus particle syntax has long been established (Shyu 1995, Hole 2004, Hole 2013).

(37) a.

Akiu	[[***lian***	*cha*]	*(***ye**)	*bu*	*he*].	(Chinese)
Akiu	even	tea	SCAL	not	drink	

'Akiu doesn't even drink tea.'

b. [[***Đến*** *Nam*$_{F}$] *(***cũng***) *ăn* *thịt bò*]. (Vietnamese)
even$_{AD\text{-}FOC}$ Nam SCAL eat beef
'Even Nam ate beef.'

B. Recently, this kind of analysis has seen wide-spread application to western and other languages, too, often with an emphasis on the implementation of scalarity with focus particles (Hole 2015, 2017, Quek & Hirsch 2016, Yip 2023, 2024, 2025, Liao & Jheng 2025, Aremu 2025, Phan & Liao 2025).

C. The generalizations in (38) emerge from the most recent literature.

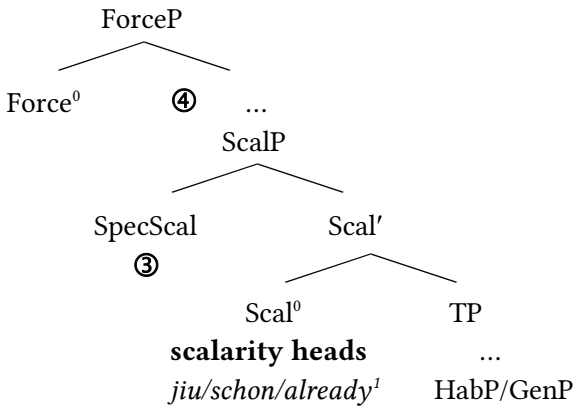
(38) SCALAR FOCUS PARTICLE SYNTAX (Hole 2015, 2017, Yip 2025, Phan & Liao 2025)
a. An **ad-focus-phrase particle** morphosyntactically **agrees with** a corresponding **head** on the clausal spine right above T.
b. The pure **exclusion or inclusion of alternatives** is in principle syntactically **independent** of this mechanism.
c. It is probably the **ad-focus-phrase particle** that determines the precise **subkind of scalarity** at stake. (Would Ka Fai agree?)

3.2.2 MS syntax/First take

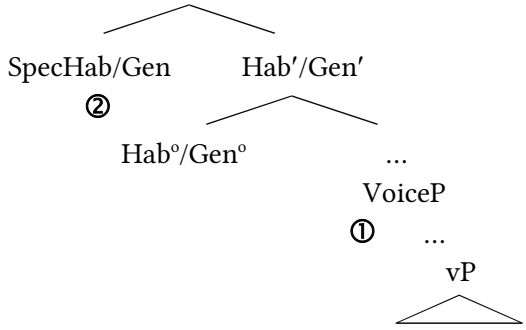
A. Recall the two broad semantic classes of MS. (As all can be reformulated as conditionals, we'll only give the details for monoclausal MS.)

(39) a. EVENT-INTERNAL/AGENTS
A ***mere*** *10 farmers in arms can drive away the enemy* ***already****.*
b. EVENT-INTERNAL MS/INSTRUMENTS OR COMITATIVES
Just *Tylenole* ***alone*** *will help* ***already****.*
c. EVENT-EXTERNAL/HABITUAL (GENERIC)
In case of just *okay weather, I go hiking* ***already****.*

B. We assume the overall syntactic structure in (40) for our three languages, abstracting away from German's rightheadedness up to TP, and the postposing of English matrix *already* (Kratzer 1996, 2005, Rizzi 1997, Cinque 1999, Bhatt 1999, Alexiadou 2014).

(40)


[1] *Already* has a decidedly phrasal behavior and feel to it. We'll leave this wrinkle unexplored here.



(41) ① First Merge of EVENT-INTERNAL components (θ-justified)
② First Merge of EVENT-EXTERNAL components (aspectually justified)
③ Obligatory move-to/move-through position for everything first merged in ① or ②
④ Preferred (PF) positions in the left periphery for many antecedents

- To be honest, we have something that adds a bit of complexity.

(42) [$_{Scal}$ *Schon* [$_{DP}$ *Tylenole*] *allein*] *kann* *hier* *schon* *helfen.*
already Tylenole alone can here already help
lit.: 'Already Tylenole alone can help here already.'

- The initial merge position of the subject, unless merge here was entirely type-driven, will want to see the DP features in (42).
- The move-to/move-through position in SpecScal will want to see the Scal features of the *schon*-augmented subject.
- We hence need some form of feature percolation (Cole et al. 1993, Neeleman & van de Koot 2006).

3.3 Syntax-semantics

A. We need to flesh out the correlatives components. Recall that we submit that many MS structures can be given an analysis in terms of correlatives, as in (43a). In other cases, this analysis is less promising, as in (43b).

(43) a. *If/When it snows,* ***then*** *I stay at home.*
b. *When it snowed yesterday, I stayed at home* [$^{??}$***at that time*** (*when it snowed yesterday*)].

(44) lists some properties of correlatives (Dayal 1995, 1996, Bittner 2001, Lipták 2009, Brasoveanu 2012).

(44) a. Correlatives involve left-peripheral topics (or contrastive topics) with an anaphoric uptake in the comment main clause. (In our case they must, by definition, be contrastive topics, as all our antecedents contain an 'only' focus: [… [XP$_{FOC}$] …]$_{TOP}$; Büring 2003)
b. The topics may be referential or quantificational.
c. Topics and comments are glued together via aboutness (Reinhart 1981) .
d. The anaphoric uptake often involves a donkey-mechanism/an E-type pronoun (Cooper 1979, Evans 1980, Kamp 1981, Heim 1982, Heim & Kratzer 1998, among many others).

Let's return to our thorny MS case from Chinese.

(45) IMPLEMENTATION WITH CORRELATE (cf. (34))

Zhiyao	*tianqi*	*shangke,*	*wo*	****(jiu)***	*qu*	*tubu.*
only.must	weather	okay	I	SCAL	go	hiking

'The weather **need** be **just** okay, and **then** I go hiking **already**.'

then: 'on the condition **that the weather is just okay in s**' (λ-abstract over the weather condition minus the antecedent modal)

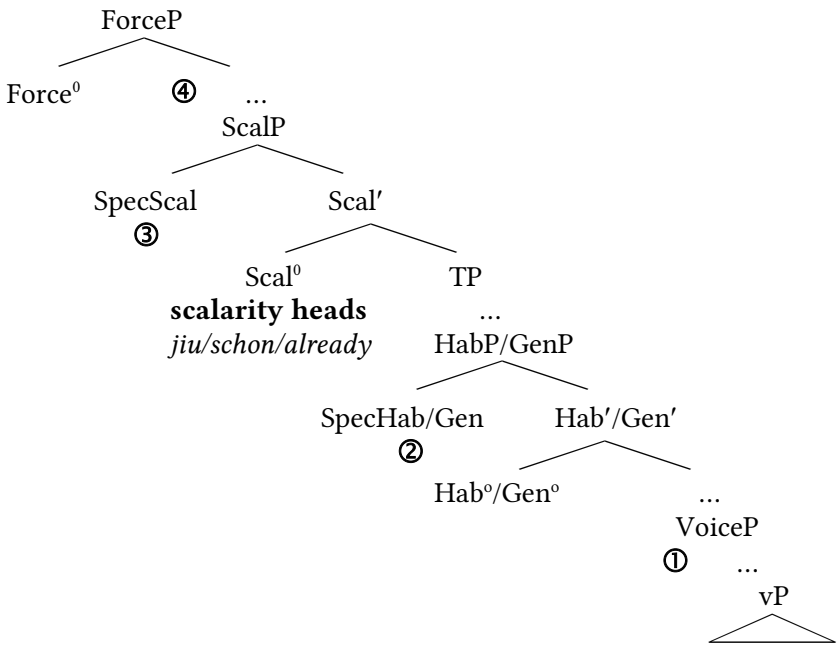
NOTE: We are truly in the realm of E-type pronouns here. The **situation s variable** of the λ-abstract will come out **universally bound** in a full-blown interpretation, as we need as many situations s as are in the domain of the universal quantifier.

B. Correlatives and MS sometimes make for a perfect fit. (The literature on MS does not appear to be aware of this.)

4 Analytical detail

4.1 Syntax revisited for the correlative implementation

(46)



(47) ① First Merge of EVENT-INTERNAL **resumptive**
② First Merge of EVENT-EXTERNAL **resumptive** (aspectually justified)
③ Obligatory move-to position for the **resumptives** in ① or ②
④ Position for the (Contrastive) Topic

In 4.3 we will, for the sake of simplicity, interpret the resumptives in their lower position. That saves us the trouble of dealing with traces.

4.2 Event-internal MS/correlate-free variant

A. We assume with Kratzer (2006) and many others that only situations (events or states) cause other eventualities. Agents are thus acting maximal individuals of causing events. What is commonly called "(inanimate) causers" are causally effective, typically inanimate, maximal individuals of causing eventualities.

(48) a. [*Schon* *Tylenole*$_F$ *allein*] *hilft* *hier* *schon.*
already Tylenole alone helps here already
'Tylenole alone can help here already.'

b. EVENT-INTERNAL MS/Tylenole
A situation s with just Tylenole in it is expandable to an event e in which Tylenole is the sole instrumentally effective individual, and e causes a state s of there being remedy

C. We use the term **"situation"** broadly as that ontological category that comprises **worlds, eventualities** in the Davidsonian sense, and **situations in a narrower sense**. Situations in the narrow sense may be smaller or bigger than eventualities, but, crucially, they don't lexicalize as V, N, P, or A.

D. The scalar particle at the left edge contributes, at the presuppositional level, mirativity concerning the easiness with which sufficiency obtains (De Lancey 2001).

E. (49) defines an instrumental theta-head as needed here.

(49) a. $[\![\theta_{INST}]\!] = \lambda f_{\langle s,t\rangle} . \lambda g_{\langle s,t\rangle} . \lambda e . \exists s_{SITUATION}[f(e) \wedge g(s) \wedge$ s is the (maximal) instrumentally effective subsituation of e],
defined iff e is a causing eventuality

b. θ_{INST} takes the causative vP as its first argument, and the *schon*-phrase as its second argument, and it states that the overall causing event e has as its (maximal) instrumentally effective subsituation the g-situation.

Note that the content of the parentheses is, in actual effect, not needed, as theta-roles in event semantics come with a maximality requirement (Kratzer 2023; that's the Stanford Encyclopedia entry).

(50) a. [[*Schon* *Tylenole*$_F$ *allein*] [θ_{INST} [$_{vP}$ *hilft* *hier* *schon*]]].]
already Tylenole alone helps here already
'Tylenole alone can help here already.'

b. $[\![$*Tylenole* ***allein***$]\!]$ = λs . s is a situation with **nothing but** Tylenole in it

c. $[\![$***schon*** *Tylenole allein*$]\!]$ = λs . s is a situation with **as surprisingly little as** nothing but Tylenole in it

d. $[\![$*hilft hier schon*$]\!]$ = λe. e is an eventuality that causes a state of remedy here

/**schon*, agreeing with the instrument phrase, is assumed to be semantically empty here*/

f. $[\![\theta_{INST}]\!] = \lambda f_{\langle s,t\rangle} . \lambda g_{\langle s,t\rangle} . \lambda e . \exists s_{SITUATION}[f(e) \wedge g(s) \wedge$ s is the (maximal) instrumentally effective subsituation of e],
defined iff e is a causing eventuality

g. $[\![\theta_{INST}]\!]([\![$*hilft hier schon*$]\!])([\![$*schon Tylenole*$_F$ *allein*$]\!])$ =
λe . ∃s[e is an eventuality that causes a state of remedy here ∧ s is the instrumentally effective subsituation of e ∧ s is a situation with as surprisingly little as nothing but Tylenole in it]

Our old "expandability" of minimal Tylenole situations comes out for free, as the minimal Tylenole situation, by virtue of the instrumental semantics and standard neo-Davidsonian event semantics assumptions about maximality of event participants, is a proper part of the causing eventuality.

4.3 Event-external MS with correlates/quantificational

A. Recall that for some Chinese cases, we absolutely need correlates.

B. Recall, moreover, that we gloss over the complications of antecedent-contained deletion here (cf. the box underneath (45)).

C. The notation that we employ for the denotation of the resumptive is Heim & Kratzer's (1998).

(51) CASES WITH A MODAL IN THE WAY (cf. (34))

[[***Zhiyao***	[*tianqi*	*shangke*]$_i$],	[TOP^0	[*wo*	***jiu***$_i$	*qu*	*tubu*]$_{COMMENT}$]].
only.must	weather	okay		I	SCAL.then	go	hiking

'The weather **only needs** to be okay, **then** I go hiking **already**.'

(52) a. $[\![$TOPIC$]\!]^C$ = ONLY$_{SCAL}$ (□ (the weather is okay$_F$)) =
λs . as little as no more than [that the weather is okay] is required in s
/*the weather needn't be any better than okay*/

b. $[\![\text{then}_i]\!]^{C,\,a}$ = $\lambda f_{\langle s,t\rangle}$. λs . ∀s′[**s′ is an a(i) situation** → f(s′)]
= $\lambda f_{\langle s,t\rangle}$. λs . ∀s′[**s′ is a situation of the weather being okay** → f(s′)]

c. $[\![\text{SCAL.then}_i]\!]^{C,\,a}$ = $\lambda f_{\langle s,t\rangle}$. λs . ∀s′[s′ is **as little**$_C$ **as** a situation of the weather being okay → f(s′)]

d. [[I SCAL.then$_i$ go hiking]]$^{C,\,a}$ = λs . ∀s′[s′ is as little$_C$ as a situation of the weather being okay → **I go hiking(s′)**],

Now the topic and the comment can simply be conjoined, with whatever presupposition defines the aboutness relation (Reinhart 1981).

[Note that the modal in the antecedent seems to pick up part of its restriction from the consequent, something that confused Hole (2006) very much. But this can be argued to be just an illusion. The larger QUD here should be something like *What leisure activities do you do under what weather condition?*, and (51) may well answer the inplicit subquestion *Under what conditions do you go hiking?*, rendering the consequent of (51) available from context.]

4.4 A hypothesis about when the correlative construal is needed or favored

A. Table 1 summarizes a reasoning that, mostly probabilistically, predicts when the correlate construal is applied, and when the correlate-free construal is applied.

B. The intuition motivating Table 1 is that there are two end-points of a scale. At one end-point, we find topic-comment structures where the topic and the comment are each speech-acts of their own, with a fitting bipartite prosody. Here correlatives are required.

The other end-point features prosodically integrated, phonetically light event-internal causers. They disfavor a construal in terms of correlatives.

And there's the blurry area in between these two end-points.

	CORRELATES NEEDED		CORRELATES UNLIKELY
event-external MS	biclausal with modal in the way	biclausal without modal in the way	monoclausal with light MS antecedents
event-internal MS	heavy left-peripheral constituents with CLLD	heavy left-peripheral constituents without CLLD	monoclausal with light MS antecedents

Table 2: Probabilities of construals with and without correlates for different kinds of MS
(CLLD: Clitic Left Dislocation; no shade: 100% construal with correlates; the darker the shades, the more likely construals without correlates become)

5 A prediction borne out

A. So far, we've discussed generics/habituals, agents and causers/instruments. That appears to be the coverage arrived at in the MS literature, too.

B. Our syntax-semantics implementation targets portions of higher event-building syntax (event-internal MS) and genericity/habitualis projections (event-external MS). The upper limit appears to be ScalP/TP.

C. Shouldn't other positions within the larger stretch of IP/aspectual projections qualify, too? And indeed, they do.

(53) 'AFTER' VS. 'BEFORE' ADJUNCTS
  a. *After a mere two minutes, Akiu was sleeping already.* (MS)
  b. *A mere two minutes before, Akiu was* (*still*) *sleeping.* (no MS)

(54) IMPERFECTIVE TOPIC VS. PERFECTIVE TOPIC
  a. *While Akiu was merely dozing, his toddler already began playing with his phone.* (MS)
  b. *When Akiu merely fell in a doze, his toddler was playing with his phone already.* (no MS)

(55) CIRCUMSTANTIAL POSSIBILITY VS. NECESSITY
  a. *With just € 30,000 saved up, he could already begin to build his house.* (MS)
  b. *With just € 30,000 saved up, he already had to stop building his house.* (no MS)

D. The a-versions of (54) through (55) are cases of MS, whereas the b-versions are not. Bingo!

E. The details remain to be worked out, but we seem to have come up with a recipe to construct new aspectual and modal data types.

6 Conclusions

A. In this talk, we have developed a first multidimensional classification of MS phenomena. Its dimensions are enumerated in (56).

(56) a. Event-internal MS vs. event-external MS, each with slightly diverging subnotions of sufficiency and different kinds of inferences
b. Event-internal MS licenses mereological upward inferences. Event-external MS licenses inferences in terms of informativeness/likelihood.
c. MS cases that require a correlative construal vs. MS cases that favor correlative construals to varying lesser degrees
d. MS effects appear to have their structural base in a syntactic stretch between vP and ScalP/TP, provided the categories in question allow for upward inferences.

B. On top of that, (57) holds.

(57) MS constructions provide further support for a bipartite (morpho)syntax of scalar focus phenomena.

C. It remains to be seen if this classification is complete. Probably it is not.

***

Thank you!

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