A crosslinguistic syntax of scalar and non-scalar focus particle sentences: the view from Vietnamese and Chinese

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Abstract: The article proposes a distributed syntax for Vietnamese and Chinese focus particle sentences. It disentangles syntactically the inclusion and exclusion of alternatives typical of focus particle uses from scalar components of meaning that many focus particle sentences convey. Vietnamese and Chinese are shown to have highly elaborate lexical paradigms that map plausibly onto the postulated syntactic and semantic functions. The article then turns to very similar phenomena from German and Dutch. It concludes with the hunch that the system as it unfolds in Vietnamese and Chinese is, in fact, simply an explicit instantiation of a pattern underlying focus particle sentences at a much more general level.

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1 Introduction and main claims

In this paper, I take the data patterns from Hole's (2004, 2008, 2013) work on multiple occurrences of lexically distinct focus-sensitive particles in Vietnamese and Mandarin Chinese and propose (i) a more finegrained analysis of their syntax and (ii), for the first time, a detailed analysis of their different functions. Both points are finally related to a crosslinguistic claim first proposed for German and Dutch by Hole (2015). The kind of data that we will look at is illustrated by the example in (1).

(1) *Nam* ***chỉ*** [***mỗi*** *thịt bò*]ᵢ ***mới*** *ăn* tᵢ ***thôi***.
     Nam   ONLY   ONLY beef   ONLY eat   ONLY
     'Only beef does Nam eat.'

Upon superficial inspection, each of the four words glossed as ONLY can be translated as *only*, but, taken together, they do not add up to the stacked 'only' meaning as in *Only Nam eats only beef*. Instead, sentences as in (1) express a single focus-background partition with *thịt bò* 'beef' as the focus, and the rest as its background. The investigation to follow will focus on 'only' sentences and 'even' sentences. I will argue that particles like the adverbial *chỉ* 'only' in (1) contribute the exclusion or inclusion of alternatives typical of focus particles. I argue moreover that particles like *mỗi* are ad-focus particles whose immediately dominating nodes stand in a spec-head relationship (or in an Agreement relationship) with a head category. In (1), *mới* spells out this head category. I assume that *mới* is the head of a scalarity phrase, and it signals that for Nam to eat nothing but beef counts as little. With 'even' foci, a different scalarity head is used, one which signals a 'much' presupposition. Like this, I disentangle meaning components that are usually taken to co-exist in focus particles and assign them separate syntactic positions. On this account, the ad-focus particles are semantically void. They just regulate the relationship across a distance with the scalarity heads. This theory makes stronger predictions and is more easily falsifiable than what Hole (2008, 2013) proposes. In Hole's previous studies, a "partition pattern" of focus-background marking (*mỗi–mới* in (1)) is opposed to adverbial focus marking (*chỉ* in (1)). The partition pattern typically involves movement, while adverbial focus marking does not. Other than that, and other than generalizing this classification to 'even' and 'also' foci, Hole (2008, 2013) proposes no further functions for the system of Vietnamese particles in this domain.

Section 2 of the present article will introduce basic notions of focus particle semantics. Section 3 will assemble the discriptive generalizations concerning the syntax and semantics of Vietnamese and Chinese that are to be captured by the analysis of section 4. Section 5 turns to some pertinent phenomena from Dutch and German which appear to be amenable to an analysis as proposed for Vietnamese and Chinese in section 4. Section 6 concludes.

2 Basics on the semantics of focus particles: alternatives and scalarity

Focus-sensitive expressions have long been known to exclude, include or relate to contextually relevant alternatives (Horn 1969, Jacobs 1983, König 1991, Rooth 1992 among many others). For instance, English *only*, and Vietnamese *chỉ* as in (2), both of them exclusive focus particles, entail that Nam did nothing (contextually relevant) apart from dancing. Researchers converge on the conclusion that this is an entailment of 'only'-sentences.

(2) a. *Nam only dánced*.
    b. *Nam **chỉ** nhảy   thôi.*
       Nam only dance   PRT
       'Nam only danced.'
       entailment: 'There is nothing apart from dancing (that is contextually relevant and) that Nam did.'

That part of a focus particle structure which varies in the set of contextually relevant alternative sentences is called its focus. That part of a focus particle sentence which remains stable in the set of contextually relevant alternatives is called its background. In (2a), *danced* is the focus and *Nam did something* (with *did something* employed as a place-holder for verbs denoting alternative actions like singing, shouting or waving) is its background.

   Also as in (3) with a nuclear accent on *danced* asserts that Nam danced, and it presupposes simultaneously that Nam did something in addition to dancing. Therefore, *also* has been classified as an additive, or inclusive, focus particle (König 1991). Researchers converge on the conclusion that the additive meaning component is a presupposition of 'also'-sentences.

(3) *Nam also dánced*.
    presupposition: 'There is something apart from dancing (that is contextually relevant and) that Nam did.'

In addition to presupposing that Nam did something apart from dancing, (2) may, depending on the context, also signal that Nam's dancing counts as a lot. A scalar focus particle like *even* or *thậm chí* in (4) has this scalar meaning component built into its lexical semantics. It relates to alternative actions that count as less significant or more likely.

(4) a. *Nam even dánced*.
    b. *Nam **thậm chí**   nhảy.*
       Nam even   dance
       'Nam even danced.'

   The assertion of an 'even' sentence must relate to a high, or the highest, point of a contextually determined scale of unlikelihood, surprise or similar notions (Karttunen & Peters 1979, Jacobs 1983, Eckardt 2001, Gast & van der Auwera 2011). It is not entirely clear if 'even'-sentences always presuppose alternative propositions in the way 'also'-sentences do (Karttunen & Peters 1979, Krifka 1992). In what follows, I will assume that 'even'-sentences presuppose the truth of alternative propositions that rank lower on the relevant scale, but nothing hinges on this.

   For 'only'-words, a scalar component of meaning has likewise been postulated (Lerner & Zimmermann 1981, Jacobs 1983, Klinedinst 2004). However, with 'only', the scalar predicate is not 'much', as with 'even' words, but rather 'little/few'.[2] Researchers are divided over

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[2] In the present article, I use the terms 'much' and 'little' in the same way as Jacobs (1983: 145) uses their German equivalents VIEL and WENIG as names of scalar operators. They relate to contextually-determined

the question whether this 'little/few' component of 'only' sentences is a constant lexical property of 'only' sentences (Klinedinst 2004, Beaver & Clark 2009) or should be derived pragmatically (Bayer 1996: 61-66). The present article is part of an endeavor to establish the view that all scalar uses of focus particles require designated functional structure which is different from the adverbs that are used in (2)-(4).

Table 1 assembles the assumptions about possible and necessary tie-ups between 'only', 'even' and 'also' that we have presented so far.[3]

	alternative(s)…	scalarity possible	scalarity necessary
'only'	…excluded	'little'	
'also'	…included	'much'	
'even'	…included		'much'

Table 1 Alternatives, scalarity and evaluation with some focus particles

3 Distributional classes of focus-sensitive expressions in Vietnamese and Chinese

The descriptive generalizations reported in the present section partly summarize results arrived at by Hole (2004, 2008, 2013). The genuine contribution of the present discussion is the descriptive generalizations involving scalarity.

3.1 Adverbial particles

(5) provides two simple examples of an 'only' and an 'even' sentence in Vietnamese. (Beginning from now, focus-sensitive expressions will be glossed by making use of a more finegrained nomenclature than before. This nomenclature will be justified as I move forward. Curly brackets are used to indicate that the sentences in which they occur are tested for grammaticality if the content of one of the brackets is present while the other is absent.)

(5) a. *Nam   {chǐ}   [vP ăn   {*chǐ }   thịt bò].*
         Nam   ADV$_{ONLY}$ eat   ADV$_{ONLY}$ beef
         'Nam only eats beef.'

     b. *Nam   {thậm chǐ} [vP ăn   {*thậm chǐ}   pho mát].*
         Nam   ADV$_{EVEN}$ eat   ADV$_{EVEN}$ cheese
         'Nam even eats cheese.'

As is evinced by (5), neither particle can attach inside the vP. However, it has been noted that *chǐ* and *thậm chǐ* behave differently vis-à-vis the anteriority and posteriority markers *đã* and *sẽ*. *Chǐ* adjoins to their right, and *thậm chǐ* to their left; cf. (6) (Hole 2013: 271).

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threshold values on contextually-determined scales. With 'much', the threshold value is surpassed; with 'little', it is not.

[3] I will only discuss 'even'-foci which are not embedded under negation, thereby evading the issue of whether structures with NPIs like *lift a finger* or with similar lexical non-NPI material like *a single thing* in (i) lead to 'much' or 'little' readings (but cf. König 1991, Gast & van der Auwera 2011).

(i)   *He didn't even lift a finger/do a single thing to help me.*

(6) a. Nam   {*chĭ}   sẽ/đã   {chĭ}   ăn   thịt bò.
       Nam   ADV_{ONLY} POST/ANT   ADV_{ONLY} eat   beef
       'Nam only ate beef.'/'Nam will only eat beef.'
    b. *Nam*   {**thậm chí**}   *sẽ/đã*   {***thậm chí**}   *ăn*   *pho mát.*
       Nam   ADV_{EVEN}   POST/ANT   ADV_{EVEN}   eat   cheese
       'Nam even ate cheese.'/'Nam will even eat cheese.'

An analogous data set for Chinese is provided in (7) and (8).

(7) a. *Ākiù* {**zhĭ**}   *chī* {***zhĭ**}   *niúròu.*
       Akiu ADV_{ONLY} eat   ADV_{ONLY} beef
       'Akiu only eats beef.'
    b. *Ākiù* {**shènzhì**} *chī*   {***shènzhì**}   *năilào.*
       Akiu ADV_{EVEN} eat   ADV_{EVEN}   cheese
       'Akiu even eats cheese.'
(8) a. *Tā*   **zhĭ/shènzhì**   *huì* [_v *chī* *niúròu*].
       (s)he ADV_{ONLY}/ADV_{EVEN}   will   eat   beef
       '(S)he will only/even eat beef.'
    b. *Tā*   (**shènzhì/zhĭ**)   *yīnggāi* (***shènzhì/zhĭ**)   [_v *chī* *niúròu*].
       (s)he ADV_{EVEN}/ADV_{ONLY} should ADV_{EVEN}/ADV_{ONLY} eat   beef.
       '(S)He should even/only eat beef.'

As in Vietnamese, adverbial *zhĭ* 'only' and adverbial *shènzhì* 'even' in (7) cannot attach inside the vP. The contrast between *zhĭ* 'only' and adverbial *shènzhì* 'even' in (8) replicates the contrast in (6), albeit in a modified fashion. Mandarin has no 'anterior' or 'posterior' tense markers. However, deontic *yīnggāi* 'should' as in (8b) can be used to make an analogous point for Chinese. While *zhĭ* 'only' may occur to the left or to the right of this modal element, *shènzhì* 'even' may only occur to its left. In section 4.1 below, I will tie these differences in adjunction height to a rather high position of the scalar category obligatorily involved in 'even'-sentences, in contradistinction to the lowest possible vP-level adjunction of the adverbial 'only' words *chĭ* and *zhĭ*.

3.2 Scalarity marking and ad-focus marking
Adverbial 'only' words in Vietnamese and Chinese are compatible with non-scalar readings. This is shown in (9) and (10).

(9) *Nam* **chĭ**   [_vP *ăn* *thịt bò*], *nhưng* *ăn thịt bò* *thì* *đã*   *là*   *nhiều.*
    Nam ADV_{ONLY} eat   beef   but   eat beef TOP   already is   much
    'Nam eats nothing but beef, but to eat beef is a lot already.'
(10) *Ākiù* **zhĭ**   *chī* *niúròu, dànshì chī niúròu jiù hěn lìhài   le.*
     Akiu ADV_{ONLY}   eat   beef   but   eat beef PRT very impressive   PRT
     'Akiu eats nothing but beef, but to eat beef is quite impressive already.'

With adverbial 'even' words, analogous continuations lead to infelicity both in Vietnamese and in Chinese.

(11) *Nam* **thậm chí** [vP *ăn* *pho mát*],#*nhưng ăn pho mát thì* *vẫn* *không* *nhiều.*
  Nam ADV$_{EVEN}$ eat cheese but eat cheese TOP still not much
  'Nam even eats cheese, #but to eat cheese is still not much.'

(12) *Ākiù* **shènzhì** *chī* *năilào,*#*dànshì zhè* *jiù* *méi* *shénme liăobùjǐ.*
  Akiu ADV$_{EVEN}$ eat cheese but this PRT not any significant
  'Akiu even eats cheese, #but this is no big deal.'

This behavior is obviously a consequence of the inherent scalarity of the adverbial *even* words in (11) and (12), in contradistinction to the adverbial 'only' words. The latter ones do have non-scalar, purely exclusive uses, and that is why the continuations in (9) and (10) are felicitous.
    Let us consider Vietnamese structures involving ad-focus marking next. (13a) features a Vietnamese in-situ ad-focus marked 'only' focus. (13b) is an example with a preposed ad-focus marked 'only' focus.

(13) a. *Nam* **chỉ** *ăn* [**mỗi/có** *thịt bò*].
    Nam ADV$_{ONLY}$ eat AdFoc beef
    'Nam eats only beef.'
  b. *Nam* **chỉ** [**mỗi/có** *thịt bò*]$_i$ $^?$*(**mới**) *ăn* t$_i$.
    Nam ADV$_{ONLY}$ AdFoc beef SCAL$_{LITTLE}$ eat
    'Only beef does Nam eat.'

The first 'only' word in (13b) is the adverbial particle *chỉ*. With movement of the 'only'-focus as in this case, *chỉ* is always attached higher than at the vP edge and c-commands the whole displacement configuration. With the ad-focus-marked focus in (13b), a particle must be used before the verb. As it has a bearing on grammaticality, the analysis below will assign it to a functional head category. It is glossed as SCAL$_{LITTLE}$, as its use goes along with a scalar interpretation. This is demonstrated in (14b). What (14a) shows is that, with an in-situ focus, ad-focus marking alone as in (13a) triggers a necessarily scalar interpretation, too.

(14) a. *Nam* **chỉ** *ăn* [**mỗi/có** *thịt bò*]*, *#nhưng ăn* *thịt bò thì* *đã* *là nhiều.*
    Nam ADV$_{ONLY}$ eat AdFoc beef but eat beef TOP already is much
    int.: 'Nam eats only beef, #but to eat beef is a lot already.'
  b. *Nam* **chỉ** [**mỗi/có** *thịt bò*]$_i$ *$^?$(**mới**) *ăn* t$_i$,
    Nam ADV$_{ONLY}$ AdFoc beef SCAL$_{LITTLE}$ eat
    # *nhưng ăn* *thịt bò thì* *đã* *là* *nhiều.*
      but eat beef TOP already is much
    int.: 'Only beef does Nam eat, #but to eat beef is a lot already.'

Contrasts parallel to the ones in (13) are provided for ad-focus-marked 'even' foci in (15). Note that, as evinced by (15b), *in-situ* ad-focus marking is not an option. (For reasons of

space, I dispense with those data that demonstrate the infelicity of non-scalar continuations for the 'even'-sentences which would be analogous to the 'only'-continuations in (14).)

(15) a. *Nam* (***thậm chí***) [***đến*** *pho mát*]ᵢ *(***cũng***) *ăn* tᵢ.
   Nam ADV$_{EVEN}$ AdFoc cheese SCAL$_{MUCH}$ like
   'Nam eats even cheese.'
  b.* *Nam* (***thậm chí***) ***cũng*** *ăn* [***đến*** *pho mát*].
   Nam ADV$_{EVEN}$ SCAL$_{MUCH}$ eat AdFoc cheese
   int.: 'Nam eats even cheese.'

Again, as the use of the scalarity marker *cũng* has a bearing on grammaticality in (15), it will be analyzed as a functional head below.[4]
  Similar data as in (13) through (15) for Chinese can be found in (16) through (18). (16a) introduces the SCAL$_{LITTLE}$ word *cái*, and (16b) demonstrates that it abides by the same linearization constraints vis-à-vis adverbial *zhǐ* as Vietnamese *mới* does vis-à-vis adverbial *chỉ* (Alleton 1972: 144).

(16) a. *Xiǎolǐ* ***cái***   *wǔ-suì.*
   Xiaoli SCAL$_{LITTLE}$ 5-year.of.life
   'Xiaoli is a mere five years old.'
  b. *Xiǎolǐ* (***zhǐ***) ***cái***   ($^{?}$***zhǐ***) *wǔ-suì.*
   Xiaoli ADV$_{ONLY}$ SCAL$_{LITTLE}$ ADV$_{ONLY}$ 5-year.of.life
   'Xiaoli is a mere five years old.'

vP-internal ad-focus-marked 'only' foci are ungrammatical in Mandarin, they behave just like ad-focus-marked 'even'-foci and must be preposed overtly; cf. (17)/(18). Recall that the ad-focus-marked 'only'-focus in (14a) was grammatical in Vietnamese.

(17) a.* *Ākiù* (***cái***)   *chī* [***zhǐyǒu*** *niúròu*].
   Akiu SCAL$_{LITTLE}$ eat AdFoc beef
   int.: 'Akiu only eats beef.'

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[4] Hole (2008, 2012) is not aware of the fact that *cũng* has a more basic use in which it functions like an additive adverbial focus particle much like English *also*. This use belongs in the adverbial class of *chỉ* 'only' and *thậm chí* 'even'. This use is illustrated in (i).

(i) *Lam* ***cũng*** *cho* *Nam* *tiền.*
  Lam also give Nam money
  'Lam also gave Nam money.'

Thuan Tran and Malte Zimmermann (p.c.) made me become aware of this use. I would like to point out that this replicates a pattern of polysemy found with Mandarin *yě* 'also' (Hole 2004: 37-44). What is important in our context is that adverbial *cũng* and the scalarity head *cũng* of the main text may easily be distinguished. Dropping *cũng* in the structures of the main text leads to ungrammaticality. Dropping adverbial *cũng* in examples like (i) may lead to infelicity, but never to ungrammaticality. A second difference concerns stress. Adverbial *cũng* may be stressed, whereas the scalarity head may not be stressed.

b.* *Ākiù* (***shènzhì***) ***yě***   *chī* [***lián***   *năilào*].
    Akiu ADV$_{EVEN}$ SCAL$_{MUCH}$ eat   AdFoc cheese
    int.: 'Akiu even eats cheese.'

(18) a. *Ākiù* (****zhĭ***) [***zhĭyǒu*** *niúròu*]$_i$ $^?$*(***cái***)   *chī*   t$_i$.
        Akiu ADV$_{ONLY}$ AdFoc   beef   SCAL$_{LITTLE}$ eat
        'Akiu only eats beef.'

     b. *Ākiù* (***shènzhì***) [***lián***   *năilào*]$_i$ *(***yě***)   *chī*   t$_i$.
        Akiu ADV$_{EVEN}$ AdFoc cheese   SCAL$_{MUCH}$ eat
        'Akiu even eats cheese.'

(18) shows, moreover, that with preposed ad-focus-marked foci, the SCAL words *cái* and *yě* are (near-)obligatory.[5] This replicates the Vietnamese pattern of (13b) and (15a).

    (19) adds the scalarity tests for ad-focus-marked Chinese structures with scalar particles. Note that Paris (1981) and Lai (1999) are early proponents of a scalar analysis of *cái*, but none of them discusses the concurring effects in the syntax.

(19) a. *Ākiù* (****zhĭ***) [***zhĭyǒu*** *niúròu*]$_i$ $^?$*(***cái***)   *chī* t$_i$, #*dànshì chī*   *niúròu* *jiù*
        Akiu ADV$_{ONLY}$ AdFoc   beef   SCAL$_{LITTLE}$ eat   but   eat   beef   PRT
        hěn   *lìhài le.*
        very   PRT
        int.: 'Only beef does Akiu eat, but this is not little.'

     b. *Ākiù* (***shènzhì***) [***lián***   *năilào*]$_i$ *(***yě***)   *chī*   t$_i$. # *dànshì zhè*   *jiù*
        Akiu ADV$_{EVEN}$ AdFoc cheese   SCAL$_{MUCH}$ eat   but   this   PRT
        méi *shénme* *liăobùjĭ.*
        not   any
        int.: 'Akiu even eats cheese, but to eat cheese is no big deal.'

Mandarin has long been known to have an ad-focus marking system with movement to designated syntactic projections which couples up with an adverbial system of focus marking (Shyu 1995, Hole 2004, Erlewine 2014). The literature on the *lián…yě* of (19b) construction is vast (cf. Hole 2004, Xiang 2008 or Badan & Del Gobbo 2011), while research dealing with the *zhĭyǒu…cái* construction of (19a) is sparser (cf. Hole 2004). What has, to the best of my knowledge, never been proposed for Mandarin is the conditional link from ad-focus marking structures to scalarity that I claim in the present article.

    The overall similarity of the Vietnamese and the Mandarin data patterns is quite remarkable. The minor differences include the following two. First, in Vietnamese the adverbial 'only' particle precedes the displacement configuration if it is used at all. This is ungrammatical in Chinese ((14b) vs. (19a)). Note that the Mandarin adverbial particle for 'only' is *zhĭ*, and this is also the phonological form of the first syllable of the ad-focus particle. One might therefore suppose that we are dealing with a case of haplology. It does not appear to be an

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option, though, to analyze the first syllable of what is glossed as the ad-focus particle in (19a), for instance, as the adverbial 'only' particle; *zhǐyǒu* behaves as a clear lexical item and is treated as such by Chinese lexicographers without exception (e.g. Hou 1998: 755, or Lü 1995: 681; Erlewine 2014, a theoretical contribution, defends a different view). The second difference between Mandarin and Vietnamese concerns the option to have ad-focus-marked in-situ 'only' foci as documented in (13a). Analogous structures in Mandarin are ungrammatical; cf. (17a).

Tables 2 and 3 summarize the descriptive generalizations that were arrived at in the present section.

	ADVERBIAL PARTICLES	AD-FOCUS MARKERS (invariably scalar)	SCALARITY MARKERS
'even'	*thậm chí*	*đến*	*cũng*
'only'	*chỉ*	*mỗi/có*	*mới*

Table 2 Vietnamese focus-sensitive expressions with 'even' and 'only' foci

	ADVERBIAL PARTICLES	AD-FOCUS MARKERS (invariably scalar)	SCALARITY MARKERS
'even'	*shènzhì*	*lián*	*yě*
'only'	*zhǐ*	*zhǐyǒu*	*cái*

Table 3 Mandarin focus-sensitive expressions with 'even' and 'only' foci

4 Syntactic analysis

4.1 Laying out the proposal

As noted in section 3.1, adverbial 'only' particles have their normal position at the edge of the vP/VoiceP (Chomsky 1995, Kratzer 1996). If non-epistemic modal verbs are used, adverbial 'only' predes them. It was likewise noted that adverbial 'even' adjoins to the left of the temporal markers of Vietnamese and to the left of future-oriented *huì* 'will' in Mandarin. I take this to imply that adverbial 'even' particles are syntactically higher than adverbial 'only' particles (in their lowest positions).[6] This gives us the hierarchy in (20).

(20) $ADV_{EVEN} > T > ADV_{ONLY} > Voice/v$

Recall that the Vietnamese adverbial 'only' word precedes preposed ad-focus-marked structures as in (13b), an option that is unavailable for Mandarin, as shown by (18a).

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[6] An anonymous reviewer objects to drawing such conclusions. I agree with the reviewer that such conclusions may be premature in OV languages like German, which abound with scrambling. However, in strict VO language like Vietnamese and Chinese, one can draw much more confident conclusions from the surface positions of particles on the clausal spine, at least this is common practice in work on these languages (Duffield 2013, Stepanov & Tsai 2008, Tsai 2008.

I take both preposing patterns with 'only' and 'even' foci in both languages to be indicative of movement of foci to the specifiers of the scalarity heads. This analysis is spelled out for Vietnamese in (21) and (22), and for Mandarin in (23) and (24).
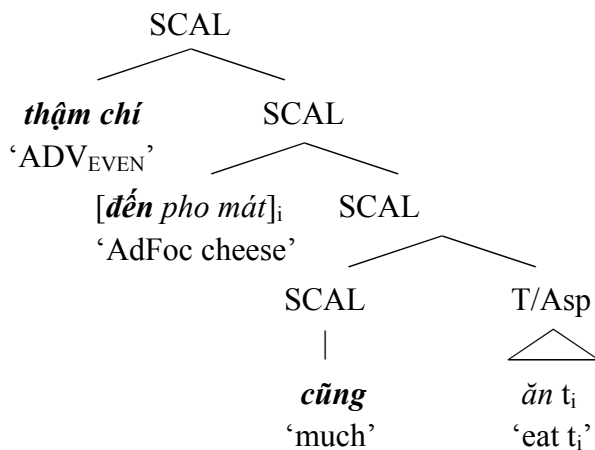
(21) a. *Nam*   **_chỉ_**   [**_mỗi/có_**   *thịt bò*]$_i$ **(**mới**)*   *ăn*   t$_i$ *thôi.*
      Nam   ADV$_{ONLY}$ AdFoc   beef   SCAL$_{LITTLE}$ eat   PRT
      'Only beef does Nam eat.'

     b.
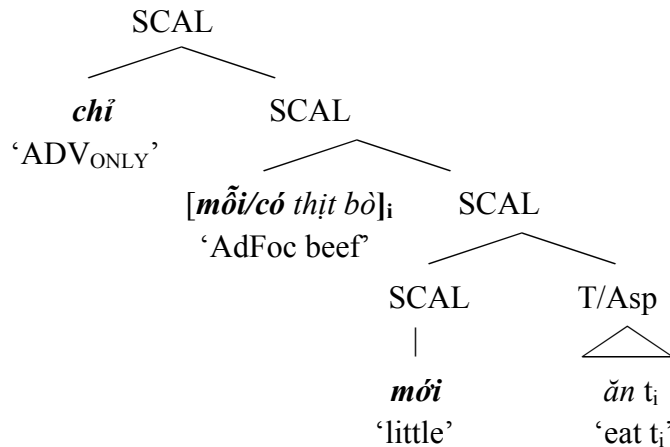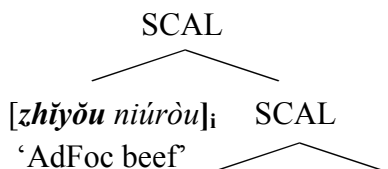

(22) a. *Nam*   (**_thậm chí_**)   [**_đến_**   *pho mát*]$_i$ **(**cũng**)*   *ăn*   t$_i$.
      Nam   ADV$_{EVEN}$ AdFoc   cheese   SCAL$_{MUCH}$ like
      'Nam eats even cheese.'
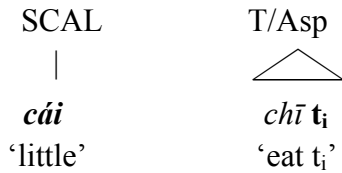
     b.

(23) a. *Ākiù*   [**_zhǐyǒu_**   *niúròu*]$_i$ $^?$*(**_cái_**)   *chī*   t$_i$
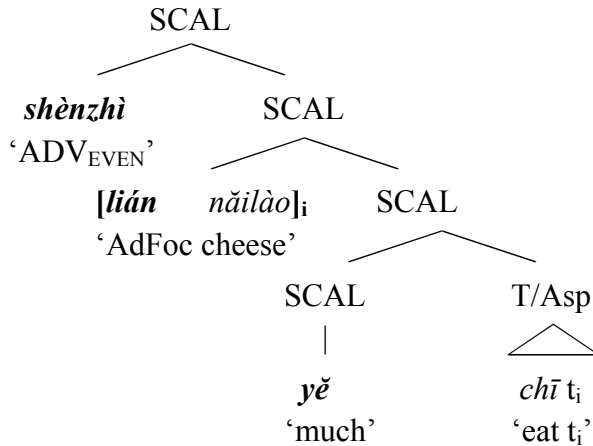   Akiu   AdFoc   beef   SCAL$_{LITTLE}$ eat
      'Only beef does Akiu eat.'

     b.

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        SCAL              T/Asp
         |                 ◿◺
        cái              chī  tᵢ
      'little'          'eat tᵢ'
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(24) a. *Ākiù* (***shènzhì***) [***lián   năilào***]ᵢ   *(***yě***)   *chī*   tᵢ
          Akiu   ADV_EVEN   AdFoc cheese   SCAL_MUCH   eat
          'Akiu eats even cheese.'

     b.

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                SCAL
              ╱      ╲
        shènzhì        SCAL
        'ADV_EVEN'    ╱    ╲
              [lián  năilào]ᵢ    SCAL
              'AdFoc cheese'   ╱      ╲
                          SCAL        T/Asp
                           |           ◿◺
                          yě         chī tᵢ
                        'much'      'eat tᵢ'
```

Note again the ungrammaticality that results if the scalarity heads are dropped. If, however, the ad-focus marking particles are dropped, the structures come out grammatical, and with the same meaning as if the particles were present. I take this to corroborate my claim about the functional nature of the four scalarity markers.

This syntactic proposal features the same tree geometry that has been standard for Mandarin ever since Shyu (1995), Zhang (1997) or Hole (2004), and for Vietnamese ever since Hole (2008, 2013). New to the present proposal is the function that it identifies for the scalarity heads, a function that goes beyond licensing the preposing of the foci. The analysis put forward here claims a link between the presence of a scalarity head and the scalar interpretation of the preposed foci in (21) through (24). This may sound trivial in the case of 'even' foci, but it is not for 'only' foci, as shown in great detail in section 3.3. We saw there that *mới* and *cái*, the SCAL_LITTLE heads of Chinese and Vietname, always go hand in hand with a scalar interpretation of their co-occurring 'only' foci. Hence, the proposal made here will be falsified if a structure involving one of the scalarity markers assumed here occurs in a clause whose focus receives a non-scalar reading (i.e. if it allows for a felicitous continuation of the type … *but this was not much/little*).

Vietnamese, but not Chinese, has *in-situ* ad-focus marked 'only' foci (but no 'even' foci of this kind). This was discussed in section 3.2, too. For these cases I assume an empty variant of the SCAL_LITTLE head. It is used if and only if its feature valuation is performed across a distance, i.e. via Agree, as depicted in (25), and if ad-focus-marking is employed.

(25)   *Nam*   ***chỉ***   ∅***mới***   *ăn*   [***mỗi/có***   *thịt bò*].
         Nam   ADV_ONLY   SCAL_LITTLE   eat   AdFoc   beef
                              └──────────────────────┘

Agree

Note that, for Chinese, it will not be correct to postulate a biconditional link between empty SCAL_{LITTLE} and *in-situ* foci irrespective of ad-focus marking, as overt SCAL_{LITTLE} heads may co-occur with *in-situ* foci, but without ad-focus marking. (26) repeats, in a slightly simplified fashion, the Mandarin example of this kind from section 3.2.

(26) *Xiǎolǐ* **cái**   *wǔ-suì.*
    Xiaoli SCAL_{LITTLE}   5-year.of.life
    'Xiaoli is a mere five years old.'

Such examples do not exist in Vietnamese, as *mới*, if it is pronounced, may only interact with a focus that has moved to (or through) its specifier.

These complications and differences between the two languages aside, the overall pattern is clear. Ad-focus marking and the scalarity heads in Vietnamese and Chinese belong to one and the same domain in terms of morphosyntax. In the prototypical cases, ad-focus marked foci move to the specifiers of the scalarity heads. With moved foci and if a scalar interpretation is to be arrived at, the scalarity heads are obligatory but the ad-focus marking devices may be null. With in-situ foci, there is some variation, and typically only one of the two elements (scalarity head [Chinese] or ad-focus marking [Vietnamese]) is pronounced.

So far, my justification of the proposal for the syntax of scalarity with focus particles has rested on pure co-occurrence and linearization facts and on the exploitation of the test with 'much'/'little'-continuations. In the following subsection, I want to present a slightly more involved argument which combines reordering and interpretive facts under the conditions of clausal negation. Its scope is limited to Chinese.

4.2 Supporting the proposal: intervening scale reversing negation

Alleton (1972: 143) reports a puzzling restriction concerning the use of what I analyze as the Mandarin SCAL_{LITTLE} head *cái* here. Negation intervening between *cái* and its in-situ focus leads to a strong kind of deviance; cf. (27).

(27) *Ākiù píngcháng*   **cái**   (*bù)   *hē*   *liǎng-bēi   jiǔ.*
    Akiu usually   SCAL_{LITTLE}   not   drink   2-cup   wine
    w/o negation: ˇ'Akiu usually drinks as little as/only two glasses of wine.'
    int. with negation: *'He usually doesn't only drink two glasses of wine.'

If the focus precedes SCAL_{LITTLE}, the effect doesn't obtain. (I use an indefinite in (28) as opposed to the measure phrase of (27), as 'only' focus measure phrase predicates cannot be preposed in Chinese; cf. Hole 2004: 53-58.)

(28) *Ākiù*   [**zhǐyǒu** *niúròu*]_i   **cái**   *bù   chī*   t_i.
    Akiu   AdFoc beef   SCAL_{LITTLE}   not   eat
    'Only beef does Akiu not eat.'

No analogous pattern recurs in Vietnamese. This is shown in (29).

(29) *Nam* ***mới*** (*không*) *ăn thịt bò.*
    Nam   SCAL$_{\text{LITTLE}}$ not   eat   beef
    w/o negation: 'Only Nam ate beef.'
    with negation: 'Only Nam didn't eat beef.'

The reason for this is that foci interacting with (pronounced) *mới* must occur to the left of *mới* at the surface. Therefore, a sentence like (29) only allows for subject focus readings.

    Returning to (27), I would like to argue that the pattern is only puzzling for those accounts which assume that scalarity and the exclusion of alternatives are encapsulated in a single lexical entry and hence take scope more or less at the same level. As I would like to demonstrate now, the distributed account defended here actually predicts the observed pattern.

    Following Ernst (1995), I will assume that clausal negation in Chinese is an adverb at the edge of T/AspP (which I take to coincide with Ernst (1995)'s AuxP in all those cases in which no modal verb is used).This yields the structure in (30) for the deviant variant of (27a).

(30)   * *Ākiù píngcháng*   [$_{\text{SCAL}}$ ***cái***   [$_{\text{T/Asp}}$ *bù hē liǎng-bēi jiǔ*]].
       Akiu usually   SCAL$_{\text{LITTLE}}$ not   drink   2-cup   wine
       int.: 'He usually doesn't only drink two glasses of wine.'

The reason for the deviance becomes obvious when we take the linear order of the involved scope-taking elements at face value and observe the contradictory or nonsensical meaning that arises with negation. (31) illustrates this for (28).

(31) SCAL$_{\text{LITTLE}}$ > NEG > EXCL > Akiu drinks two glasses of wine
     entailment: 'It's not the case that Akiu drinks no more than two glasses of wine.'
     scalarity: [#]'That it is not the case that Akiu drinks no more than two glasses is considered little.'/'That Akiu drinks more than two glasses is considered little.'

It is contradictory or nonsensical to state that drinking more than two glasses counts as little. Ultimately the deviance is a consequence of the scale-reversing nature of negation. No such problem arises with preposed foci as in (28), repeated here as (32a) and paraphrased as in (32b), and if one acknowledges that with preposing EXCL takes scope above negation, as can be seen from the meaning that (32a) actually has.

(32) a.   *Ākiù*   [***zhǐyǒu*** *niúròu*]$_i$ ***cái***   *méi chī-guo*   t$_i$.
          Akiu   AdFoc   beef   SCAL$_{\text{LITTLE}}$ not   eat-ASP
          'Only beef has Akiu not eaten before.'
     b.   SCAL$_{\text{LITTLE}}$ > EXCL > NEG > Akiu ate beef$_F$
        entailment: 'There's nothing apart from beef that Nam didn't eat.'
        scalarity: 'That there's nothing apart from beef that Nam didn't eat is considered little'/'That Nam refused no more than beef is considered little.'
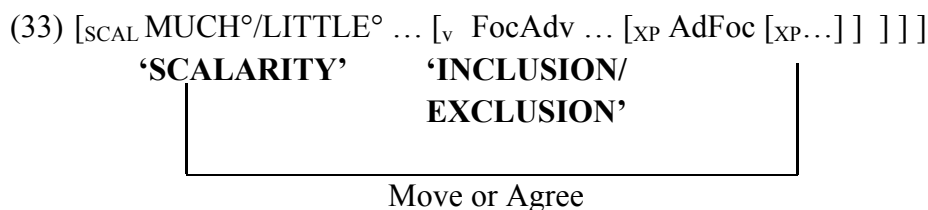
At the more general level of this section, the data discussed here supports the claim of a scalarity projection with 'only' foci which scopes higher than the exclusion of alternatives, and higher than negation. The scale-reversing nature of negation leads to nonsensical or contradictory readings with the syntax assumed here. In a syntax in which the exclusion of alternatives and scalarity take scope at (roughly) the same level, the intervention effects discussed here are not predicted.

5 Beyond Vietnamese and Chinese

5.1 A parallel proposal for German and Dutch

Quite a few influential contributions to the theory of focus particles have been published using German as their language of exemplification. This tradition starts with Altmann (1978), reaches peaks of importance with Jacobs (1983) and Büring & Hartmann (2001) and continues up to the present with works such as Reis (2005), Sudhoff (2010), or Hole (2015). Jacobs (1983) and Büring & Hartmann (2001) are strong proponents of a theory of German focus particles that insists on an adverbial syntax-and-semantics for all occurrences of German focus particles. Using the terminology proposed here, these authors argue that what looks like ad-focus particles in German are, in most cases, really instances of adverbial focus particles. Büring & Hartmann's (2001) article, in particular, has dominated the field, because the arguments that it develops are generally assessed to be of a very strong kind.

Now, Hole (2015) takes another look at the data and comes up with a proposal that appears to be somewhat proliferative at first sight if only German is considered. He hypothesizes that German (and, in fact, Dutch, too) has a system of scalar focus particle uses which has at least three positions interact: (i) an adverbial position at the edge of vP/VoiceP; (ii) a scalar head position in the higher IP/TP domain; and (iii) ad-focus uses of focus particles. Those latter ad-focus uses are only licensed with scalar uses of focus particles, and these uses interact via Move or Agree with the scalar head in the higher IP domain. This is depicted in (33) (cf. Hole 2015: 53, 62).

(33) [$_{SCAL}$ MUCH°/LITTLE° … [$_v$ FocAdv … [$_{XP}$ AdFoc [$_{XP}$…]]]]]

        'SCALARITY'   **'INCLUSION/**
                              EXCLUSION'

                         Move or Agree

Hole (2015) claims that, in German, the scalarity heads are zero, and that both the adverbial particle and the ad-focus particle typically have the same spell-out *nur*. However, German clauses usually feature only one occurrence of *nur*. Hole (2015: 59) proposes the principle in (34) to regulate the pronunciation of the adverbial particle and the ad-focus particle.

(34) First Come, First Spell-Out
    From among EXCL and AD-FOC in a single focus-background structure, the linearly first operator will be pronounced.

While these assumptions work out well when confronted with the German data, the obvious concern of overgeneration by this proposal must be tackled. Hole (2015) devotes quite a few

arguments to demonstrate that the three positions as argued for in that contribution are really needed and that they allow for a coverage of old and novel data which competing analyses do not reach.

In what follows, I will briefly summarize two arguments that Hole proposes, and I select them in such a way that the parallels with Vietnamese and Chinese become obvious.

5.2 Particle doubling

German and Dutch feature doubling with 'only' words under specific, though different conditions. Looking at these cases from the perspective of the Vietnamese and the Chinese cases, the situation presents itself in a suggestive light. In German, both the adverbial particle and the ad-focus particle may be pronounced in a single clause. In Dutch, the ad-focus particle and the scalarity head may be pronounced in a spec-head configuration after movement.

In German, if two *nur*s are pronounced, the meaning usually adds up, or the sentence becomes ungrammatical; cf. (35).

(35) a. *Paul   hat   **nur** eine Kugel **nur** gegessen.*
　　　 Paul   has   only one   scoop   only eaten
　　　 'Paul only ate only one scoop (with all the other scoops he did more things in addition to eating them).'
　 b.* *Paul   hat   **nur nur** eine Kugel   gegessen.*
　　　 Paul   has   only only one   scoop   eaten

Now, after the stressed polar particle *doch* 'contrary to what you think…', glossed as VERUM below, this effect disappears and a single focus-background structure is arrived at; cf. (36).

(36)　　 [First he said he's going to eat at least three scoops of ice-cream.]
　　　　 *Aber dann hat   er DOCH   (**nur**)   [**nur**   eíne_F Kugel] gegessen.*
　　　　 but   then has   he VERUM   only   only   one   scoop   eaten
　　　　　　　　　　　　　　　　　 ADV_ONLY AdFoc
　　　　 'But then he only had one_F scoop in the end (where eating one scoop and no more is considered little).'

(36) means exactly the same thing no matter if one or two *nur*s are pronounced. Hole (2015) cannot provide a reason why double *nur* is licensed after *doch*. However, he uses the perfect acceptability of (36) and similar examples to support his claim that German has ad-focus uses of *nur* alongside adverbial uses. In (36), the first *nur* is said to be the adverbial particle, and the second *nur* forms a constituent with *eine Kugel* 'one scoop'. What is more, all examples in which double *nur* is licensed involve scalarity. Recall that in Vietnamese and Chinese, too, ad-focus particles require licensing scalarity heads. Thus, (36) is similar to examples such as (25), repeated here as (37).

(37) *Nam* ***chỉ*** *∅ₘới* *ăn* [***mỗi/có*** *thịt bò*]. (Vietnamese)
      Nam ADV$_{ONLY}$ SCAL$_{LITTLE}$ eat AdFoc beef
      'Nam ate only beef.'

The situation is slightly different in Dutch. Dutch licences two 'only' words per clause if the scalar focus has been preposed as in (38) (Barbiers 2010).

(38) *Hej* *is* [***alleen*** *op* *één* *jongen*]ᵢ ***maar*** *boos* tᵢ *gewest.*
    he is only at one boy only angry been
        AdFoc   SCAL$_{LITTLE}$
    'Only at ONE boy was he angry.'

Barbiers (2010) states explicitly that preposing of 'only' foci as in (38) and the concurring use of *maar* always leads to a scalar reading. Hence Dutch 'only' doubling is similar to the canonical movement cases of Vietnamese and Chinese as illustrated in (23a) and repeated in (39).

(39) *Ākiù* [***zhǐyǒu*** *niúròu*]ᵢ ᵗ*(***cái***) *chī-guo* tᵢ (Chinese)
    Akiu AdFoc beef SCAL$_{LITTLE}$ eat-ASP
    'Only beef has Akiu eaten before.'

It appears to be the case that the doubling data reported from Dutch and German are compatible with the same theory of focus-related projections that I have developed in the present paper for Vietnamese and Chinese.

5.3 Scale-reversing negation

Hole (2015: 65) reports an effect that occurs with adverbial negation and scalar predicates in 'only' sentences. In contexts that generally trigger scalar *nur* readings, adverbial negation leads to the complete blocking of scalar readings. This is shown in (40). (The effect does not obtain in the English translations.)

(40) a. *Er* *ist* ***nur*** [*Vierter* *geworden*]F.
      he is only fourth become
      'He only [came in fourth]F.'
      scalar interpretation dominant:
      'that he reached no higher rank is considered little'
   b. *Er* *ist* *nicht* ***nur*** [*Vierter* *geworden*]F,
      he is not only fourth become
      'He didn't only [come in fourth]F, …'
      (scalar interpretation blocked:
      *'that he reached no higher rank is considered little')

(40a) may be used to express disappointment about the fourth rank. Coming in fourth is considered little. (40b), with a single nuclear accent on *VIERter* 'fourth', simply cannot be understood to mean that coming in fourth is considered little. The only reading that (40b) has is that

apart from coming in fourth, something else held true of the subject referent, as well. A possible continuation of (40b) would be ...*he also took the lead in the world ranking list.*

These contrasts are similar to the data discussed for Chinese and Vietnamese in section 4.2. The pertinent Chinese example (27) is repeated here as (41).

(41) *Ākiù   píngcháng   **cái**   (*bù)   hē   liăng-bēi   jiŭ.*
    Akiu   usually   SCAL_{LITTLE}   not   drink   2-cup   wine
    w/o negation: [✓]'Akiu usually drinks as little as/only two glasses of wine.'
    int. with negation: *'He usually doesn't only drink two glasses of wine.'

Recall that *cái*, according to the analysis defended here, is the 'little' scalarity head of Chinese. The scalar import of *cái* in the good version of (41) may be rendered explicit by 'That Akiu has nothing but/no more than 5 Kuai is considered little by the speaker'. The sentence is deviant with negation added because the scalar component would come out nonsensical or contradictory with it: [#]'That Akiu has more (=not no more) than 5 Kuai is considered little.' As Chinese spells out the SCAL_{LITTLE} head, the scalarity cannot be canceled, and adding negation leads to the deviance observed in (41). German has no spell-out for the scalarity head, but it may spell out the adverbial particle or the ad-focus particle. Abiding by First Come, First Spell-Out (cf. (34)), adverbial *nur* is pronounced in this case. In principle, adverbial *nur* is compatible with scalar and non-scalar readings. However, together with the scale reversal brought about by negation in (40b), that version of (40b) with an empty SCAL_{LITTLE} head to the left of negation is not available, as this would yield the nonsensical scalar reading [#]'That he reached a higher rank than fourth is considered little. Therefore, (40b) has no scalar reading.

In a nutshell, German and Chinese behave alike with regard to scale-reversing negation in 'only' sentences. Both languages bar negation from scoping between SCAL_{LITTLE} and adverbial 'only' for semantic reasons. The differences in patterns arise from the fact that Chinese has an overt spell-out of SCAL_{LITTLE}, *cái*, a morpheme for which German does not have a phonological form. In the German case of negated 'only'-predicates, no deviance arises, because the empty SCAL_{LITTLE} is, in the case of (40b), simply not projected, thereby escaping deviance and leading to the complete absence of scalar readings in these cases.

6 Summary and outlook

Combining the findings from Vietnamese and Chinese with those from German and Dutch, I arrive at the conclusion that the system as it unfolds in Vietnamese and Chinese is probably just a very clear example of a structure that may underlie natural language quite generally. The main hypotheses that I defended are summarized in (42).

(42) The syntactic inventory and mechanics of focus-sensitive marking devices
    (i) **FocAdv**
        All languages under scrutiny have adverbial focus particles that adjoin no lower
        than at the v/Voice level. The function of these adverbial particles is to exclude, in-
        clude, or relate to alternatives.
    (ii) **AdFoc**

All languages under scrutiny have ad-focus particles which form constituents together with their focus phrases.

(iii) **Move/Agree**

The ad-focus particles are dependent upon scalar projections MUCH/LITTLE in the high I domain to which they move, or with which they Agree.

More cross-linguistic research is needed to determine the general applicability of my proposal. My hunch is that we are dealing with universal phenomena here.

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