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Scalar evaluativity and other secondary meaning types in argument alternations *

1   Introduction

- We are interested in secondary meanings in argument alternations such as those in (1–2)
    - this talk will focus on the scalar meaning in the *swarm* alternation (1)

(1)   Mirativity and scalarity in *swarm* alternations
    a.   (Unsurprisingly,) alligators were swimming in the lake . . .   **base**
        but there weren't so many.
    b.   (#Unsurprisingly,) the lake was swimming with alligators . . .   **derived**
        #but there weren't so many.

(2)   Evidentiality in the *there*-insertion alternation
    a.   Basques marched through the square, . . . but I didn't see them.   **base**
    b.   There marched Basques through the square, . . . #but I didn't see them.   **derived**

Main claims today:

- We identify MUCH with the scalar predicate in (PPI) 'even' words (cp. Jakobs' 1983 VIEL).

- The phenomenon discussed here is different than the holistic effect.

- We locate this predicate in the low C domain (Hole 2015, 2017; Bross and Hole 2017), just like Horvath's (2010) EI-operator (Exhaustive Identification).

- We build on the not-at-issue hierarchy of Bross & Hole (2017)

    - and argue that scalarity is below both mirativity and GOOD-BAD evaluativity.

- This construction joins the discussion on structured partitions of meaning vs. associated focus, providing evidence for the former.

Past work // this talk's contribution

Despite intensive research—especially syntactic—on argument alternations over the past four decades (see Levin 1993, 2015 and references therein), the secondary meanings that we observe have gone unnoticed almost completely (see, e.g., Anderson 1970/1971; Dowty 2001; Salkoff 1983 on the swarm alternation, including the first observations of a holistic effect).

This talk aims to . . .

§2 determine the nature of scalar MUCH;

§3 propose an ontology, distinguishing between situation ABUNDANCE and event ABUNDANCE;

§4 present a fine-grained **cartographic proposal** that maps the observed secondary meaning to an independently-established syntactic C-level projection;

§5 describe the projective meaning and the locative subject's movement in terms of an **exhaustivity operator**.

§A analyze the interaction of negation and scalarity.

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2 Introducing and justifying the phenomenon

- This alternation's first observation is accredited to (Jespersen, 1933); it was described in more detail in (Salkoff, 1983; Dowty, 2001)

- Already established observations (mainly from Dowty):

  a) the alternation consists of a THEME and a LOCATION

      – cp. Hoeksema (2009), who argues against a locative subject analysis

  b) the *swarm* alternation only allows intransitive verbs

      – cp. the *spray/load* alternation, which only allows transitive verbs

  c) all participating predicates are activities or states. participating verb classes are

      – repetitive movement, sound or light emission, smell or taste, or abundance

      – note: contra Hoeksema (2006), this construction is not limited to "motion" eventualities; metaphorical repetition/abundance is also possible (3)

      (3)   The hills are alive with the sound of music.

  d) in the derived variant, the subject of the *with* phrase must be plural/mass (4)

      (4)   a.   The wall crawled with roaches.
             b. *The wall crawled with a roach.   (Salkoff 1983:292)
                  (cf.: A roach crawled on the wall.)

    – except when possible to interpret an indefinite number of events (5)

(5)   The whole school buzzed with the rumor about the librarian dating the principal.

<div align="right">[Dowty (2001: 173)]</div>

$\rightarrow$ Dowty's "Dynamic Texture Hypothesis" (pg. 177; emphasis/edits for brevity by kf): "L-subject sentences describe a kind of event is occurring simultaneously and repetitively throughout all parts of a place or space. These subregions of activity are so small, numerous, and homogeneous that the dominant perception they create together is a "texture of movement" in the surface as a whole [. . .] the [THEME] may not be readily distinguishable as individuals. **Rather the perception of a certain kind of movement-texture in the surface/space is more salient than the perception of the individuals** [. . .] individual light sources or sound sources are **less salient than the overall effect they produce**"

– we will return to this observation in §3

e) in the derived variant (Dowty's "L-Subject"), there is a strong inference that the **theme fills the locative subject to a high degree**

– in the literature, this has been called "total affectedness" or a "holistic effect"

– we propose that this is instead a scalar meaning, MUCH

2.1 Demonstrating scalarity

First, let's take a look at observation e) from above.

- Anderson (1971): the variant with a direct object LOCATION is interpreted to be completely filled (*load*) or covered (*spray*), whereas the variant direct object LOCATUM is interpreted to have completely moved

  – examples (adapted) from Beavers (2006, pg. 48)

(6)   Direct object LOCATION interpreted as being completely filled $\rightarrow$ holistic effect
    a.   John loaded the wagon with the hay, but left some hay to fill the truck.
    b.   John loaded the wagon with the hay, moving every last straw.
    c. #John loaded the wagon with the hay, but left some space for the grain.

(7)   Direct object LOCATUM interpreted as being completely moved $\rightarrow$ holistic effect
    a.   John loaded the hay onto the wagon, but left some space for the grain.
    b.   John loaded the hay onto the wagon, filling the wagon all up.
    c. #John loaded the hay onto the wagon, but left some hay to fill the truck.

- Prediction: if there is something like a holistic effect in the *swarm* alternation, continuations with a 'filled up' interpretation, like in (6), should also be odd.

(8)   a.   Alligators were swimming in the lake,
             . . . but there was plenty of space for others.   **base**
        b.   The lake was swimming with alligators,
             . . . #but there was plenty of space for others.   **derived**

(9)   a.   Steaks are sizzling in the pan,
             . . . but there was plenty of space for some veggies.   **base**
        b.   The pan is sizzling with steaks,
             . . . #but there was plenty of space for some veggies. **derived**

→ patterns similarly, but we don't think this is the whole story

- Our idea: if the inference is that the location is filled to a high degree—and there is the integral interpretation of ABUNDANCE—then there should be a high degree of the THEME.

- Prediction: continuations with a high degree of the THEME should be odd.

(10)   a.   Alligators were swimming in the lake, . . . but there werent so many.   **base**
         b.   The lake was swimming with alligators, . . . #but there werent so many. **derived**

(11)   a.   Bees are swarming in the garden, ...but there arent so many.   **base**
         b.   The garden is swarming with bees,... #but there arent so many bees. **derived**

(12)   a.   Steaks are sizzling in the pan, ...but there arent so many.   **base**
         b.   The pan is sizzling with steaks,... #but there arent so many steaks. **derived**

(13)   a.   Stars are glittering in the sky, ...but there arent so many of them.   **base**
         b.   The sky is glittering with stars,... #but there arent so many stars. **derived**

→ as predicted, the THEME is read as existing to a high degree in the LOCATION in the *swarm* alternation

- Testing this 'high degree of the THEME'on the *spray/load* alternation:

(14)   a.   They were painting alligators on the wall, ...but not so many.
         b.   They were painting the wall with alligators,... but not with so many.

(15)   a.   They weren't even loading hay on the truck, let alone merchandise.
         b.   They werent even loading the truck with hay, let alone merchandise.

→ as the continuations are felicitous for the *spray/load* alternation, we take this to mean that the alternations have different meanings

- in other words, the *spray/load* alternation has a holistic effect, but the *swarm* has a more fine-grained meaning, which we liken to scalar MUCH

> The holistic effect is to be distinguished from scalar MUCH in the *swarm* alternation.

- If it's always a MUCH predicate that features in the non-base alternant, then 'not even' embeddings ought to be bad.

(16)   a.   The children weren't even swimming in the lake, let alone diving.
       b.   The lake wasnt (#even) swimming with alligators, let alone teeming.

(17)   a.   Bees arent even swarming in the garden, let alone moving into that hollow tree.
       b.   The garden isnt (#even) swarming with bees, let alone infested by them.

- Conversely, 'even' ought to be licensed generally in the non-base alternant (if it is assumed that 'even' features the same MUCH predicate; Jacobs 1983), and may be odd in individual cases in the base alternant.

(18)   MUCH scalarity in *swarm* alternations and 'even'
       a.   Stars were (#even) glittering in the sky.
       b.   The sky was (even) glittering with stars.

(19)   MUCH scalarity in *swarm* alternations and 'even'
       a.   The steaks were (#even) sizzling in the pan.
       b.   The pan was (even) sizzling with the steaks.

> These tests suggest that there is a MUCH predicate, in the sense of Jacobs (1983), in the derived alternant of the *swarm* alternation.

2.2   Diagnosing meaning types

An eclectic mix of tests. We will see the difference in behavior when the two alternants . . .

- are embedded under *consider*, and what that suggests about **(scalar) evaluativity**

- include an extreme modifier like *downright*, and what that might tell us about **mirativity**

- go through some tests of non-truth-conditional meaning, and what that might tell us about **secondary or expressive** meaning here

2.2.1   Embedding under *consider*

The non-modified base variant is infelicitous with *consider*

(20)   a. #John considers bees to be swarming in the garden.   **base**
       b.   John considers many bees to be swarming in the garden.   **base'**
       c.   John considers the garden to be swarming with bees.   **derived**

Requirements of *consider* vs., e.g., *believe* (Lasersohn, 2009; Kennedy and Willer, 2016, a.o.)[1]

- *consider* is bad with "objective facts", whereas *believe* is okay with such clauses (21)

  – that Burgundy is in France is a fact → (21-b) is odd

  (21) a. Kim believes that Burgundy is a part of France.
        b. #Kim considers Burgundy part of France.   (Kennedy and Willer, 2016)

- *consider* wants a "some sort of evaluative judgment or decision on the part of anyone assessing them for truth" (Lasersohn, 2009, pg. 367).

  – *consider* is felicitous in (22-a), as the city's sovereignty is disputed, <u>not an objective fact</u>

  → Kim makes a decision

  – John's subjective evaluation in (22-b) licenses *consider*[2]

  (22) a. Kim considers Jerusalem part of Palestine.
        b. John considers Trump an awful president.

  (23) a. John considers Bill to be tall.
        b. #John considers Bill to be six feet, two inches tall.   (Lasersohn, 2009)

Returning to our sentences.

- in (24), it is odd regardless of whether John has been to the garden or not

  (24) #John considers bees to be swarming in the garden.

- in (25), what seems to be disputed is how many bees are in the garden

  – (⤳*John considers the amount of bees swarming in the garden to be many*)

  (25) John considers [many bees] to be swarming in the garden.
        ... Mary doesn't. She thinks there are only a few bees.

- similarly, in (26), the disputed content is how many bees are filling up the space

  (26) John considers [the garden to be swarming with bees].
        ... Mary doesn't. She thinks there are only a few bees.

→ unlike(25), (26) does not require the inclusion of lexical material like 'many'.

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[1]Lasersohn attributes the (first?) observations to Julia Staffel via Manfred Krifka, but I was unable to find her then "work-in-progress".

[2]Some people still consider the opposite of this clause to be true. Its content is sadly not an objective fact.

– we take this to mean that there is something else going on. We will return to this notion in §3.

2.2.2 Extreme modifiers

- In the context of extreme adjectives like *gorgeous*, Morzycki (2012) discusses a group of modifiers which can combine with them (27)

(27) Your shoes are $\left\{\begin{array}{c} downright \\ flat-out \\ positively \\ full-on \end{array}\right\} \left\{\begin{array}{c} gigantic \\ gorgeous \\ fantastic \\ \#big \\ \#pretty \\ \#okay \end{array}\right\}$!!

- he calls them "domain wideners", as they can enlarge the context C

- similar to the requirements for *consider*, it is weird to use these modifiers in (28-b)/(29)

(28) a. Clyde is tall.
      b. #Clyde is downright tall.

(29) #The door is downright closed.

- interestingly, he also connects these modifiers to expressive meaning Morzycki (2012: 35)
  - they are perspective-dependent they have difficult to articulate semantic content, and cannot embed under everything (cf. Potts 2007)
  - (although he sticks to a presupposition analysis)
- so for the *swarm* alternation, the idea would be that a successful combination with an extreme modifier is indicative of:
  - disputed or non-standard content, such as seen with *consider*
  - non-truth-conditional meaning (mirativity here on top of the scalarity)
- Prediction: the extreme modifiers are felicitous only with the derived variant

(30) Ants were $\left\{\begin{array}{c} \#flat-out \\ \#full-on \\ (\#)outright \\ straight-up \\ \#balls-out \end{array}\right\}$ crawling on the sidewalk.   **base**

- Improvement when something like *zillions of* prefaces the sentence:

(31) Zillions of rats were flat-out crawling in the garden!

(32) The sidewalk was $\left\{ \begin{array}{c} flat-out \\ full-on \\ outright \\ straight-up \\ balls-out \end{array} \right\}$ crawling with ants! **derived**

> The behavior of the derived variant both under *consider* and with extreme modifiers suggest that there is non-truth-conditional meaning present

2.2.3 Probing the non-truth conditionality of the scalar meaning

- Expressive meaning is characterised by a number of concepts (Potts, 2007). Here are three tests.

A. Scopelessness:
The Family-of-Sentences test is meant to demonstrate that the non-truth-conditional meaning projects above semantic operators such as negation, modals, questions, conditionals (Tonhauser et al., 2013).

(33) If that **bastard** John is here, we're gonna have to leave.
$\not\Rightarrow$ John is present
$\rightsquigarrow$ negative_attitude (j)

- Context: there are often a few rats in the metro. Animal control is an agency one calls when animals have gotten out of hand.

(34) a. If rats are crawling in the metro, #we should call animal control. **base**
       b. If the metro is crawling with rats, we should animal control. **derived**

$\rightarrow$ Scalar MUCH looks like it is scopeless.

B. Perspectival dependency:
Commitment to an evaluation from one perspective.[3]

(35) Sue believes that that bastard Kresge should be fired. #I think he's a good guy.
(Potts 2007: 170)

(36) a. Heather believes that alligators were swimming in the lake. **base**
          ##I don't think the lake was so full.
       b. Heather believes that the lake was swimming with alligators. **derived**
          (#)I don't think the lake was so full.

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[3]The double # is indicative of an attempt to negative meaning not in the discourse.

C. Immediacy/performativity: By virtue of being uttered, non-truth-conditional content has effect; cp. non-verbal communication.

(37)   That bastard Kresge was late for work yesterday.
       #But he's no bastard today, because today he was on time.   (Potts 2007: 171)

(38)   [Context: Joe is telling his out-of-town neighbor about the local lake.]
   a.   Kids were swimming in the lake.
        ##Today, I dont think that the lake was so crowded.
   b.   The lake was swimming with kids. Today, I dont think that the lake was so crowded.

→ the perspectival and immediacy effects are not super strong, but there is a subtle difference between (a) and (b). This probably indicates that we are not dealing with expressive meaning, as it is known in the literature.

<div style="border:1px solid">

Scalar MUCH is a type of secondary meaning.

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2.3   Additional related observations

2.3.1   Prosody

- The default prosody in non-base alternants of alternations involving scalarity tends to be richer in focus accents than the default prosody in base alternants of the swarm alternation.

(39)   What's the matter?
   a.   Bees are swarming in the GARden.   **base**
   b.   The garden is SWARming with BEES.   **derived**
   c. #The garden is swarming with BEES.   **derived**

2.3.2   Facial gesturing

- Scalarity-induced extra foci tend to be accompanied by increased eye aperture.

(40)   �
       The garden is SWARming with BEES.

- Not doing the eye thing (or the extra focusing) leads to a special reading that may be paraphrased as 'not having realized to a full extent what it means to have the garden swarming with bees' etc.

(41)   # �
       The garden is swarming with BEES.

> Non-base alternants of the swarm alternation feature an additional layer of #-obligatory prosody and facial gesturing on the lexical verb.

3 A short digression on ontology

- this section will propose that the difference between alternants has to do with a difference between eventive [+ABUNDANCE] and situational [+ABUNDANCE]

- some assumptions (based mostly on Kratzer 2017; Barwise and Perry 1983; Ginzburg 2005)

    – events are minimal situations and concern only their participants

    – situations, being encoded higher in the structure, concern more material

    – a proposition is a set of situations; its components are situations + situation types

    – situation types are structured objects representing the properties of a situation

3.1 Anaphoric uptake

- The idea that there is a difference in the ontology came from sentences like (42)

    – we were (intending to be) testing event intensity vs. individual abundance

    – then noticed that maybe we are not just dealing with events, but something higher

(42)   The metro was crawling with rats, ##but it [= rats-crawling event] wasn't so intense.

(43)   a. Rats were crawling in the metro,   **base**
            but it [= situation/the experience] wasn't so intense.
        b. The metro was crawling with rats,   **derived**
            # but it [= situation/the experience] wasn't so intense.

- the difference between (a/b) in (43) shows that there is meaning (which we take to be non-truth-conditional) unique to the non-base variant

    – this meaning encodes a property of a situation: triggered by the perception of a high number of the THEME, the situation is evaluated as being an 'intense' one

    → the additional mirativity flavour

3.2 Some more data : *nur so*

- *nur so* is a German expression that describes irrational/excessive abundance
  - It's similar to 'like crazy', but is also translateable as 'just + V (and V)'
  - (the semantic restrictions are a bit stronger in German)

(44) a. *Der Weihnachtsbaum am Schlossplatz hat nur so geglitzert*!
           'The Christmas tree on the Schlossplatz just sparkled (and sparkled)!'
      b. #*Die Scheibe hat nur so reflektiert*! (on relevant reading)
           intended: 'The glass pane just reflected (and reflected)!'

(45) a. *Es hat nur so geschüttet*!
           'It just poured (and poured)!'
      b. #*Es hat nur so geregnet*!
           intended: 'It just rained (and rained)!'

(46) a. *Er hat das Bier nur so gebechert*!
           'He just guzzled (and guzzled) the beer!'
      b. #*Er hat nur so getrunken*!
           intended: 'He just drank (and drank) the beer!'

- Idea: if a variant of the alternation is felicitous with *nur so*, it is indicative of [abundance]

- Prediction: the derived variant will be felicitous, but not the base variant.[4]

- Context: there are normally a few fish swimming in the pond.

(47) a. #*Fischen wimmelten nur so im Teich*!
      b. #Fish were just swimming (and swimming) in the pond!

(48) a. *Der Teich wimmelte nur so vor Fischen*!
      b. The pond was just swimming (and swimming) with fish!

> MUCH is a property of a situation accessible via the perceived LOC subject
> in the non-base variant of the *swarm* alternation.

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[4]It is important to control for abundance in the lexical meaning of the predicate, as in the case of *swarm*.

4 Analysis

Things to be accounted for:
1. syntax-and-semantics of the non-base alternant
2. the order of the not-at-issue hierarchy

4.1 At the syntax-semantics interface

A summary of the alternation:

- LOCATION as surface subject + THEME

- the non-base alternant requires 'abundance' for felicity, either from the verbal lexical semantics—or a coercion into an 'abundance' interpretation

  - we take this to be indicative of a scalar operator MUCH

Where is the scalar operator ?

- Being non-truth-conditional (§2.2.3), this scalar operator probably sits in the low C domain

- Some data, to be sure:

  - Temporal adverbials such as *früher* 'earlier'/'used to' are located in T

- Idea: if MUCH is in T, it should be possible (in German) to have this adverbial after the locative subject

(49)   a.   ... *dass früher Bienen im Garten summten*   **base**
       b. #... *dass Bienen* früher *im Garten summten.*
          '(that) bees used to swarm in the garden.'

(50)   a.   ... *dass früher$_i$ der Garten t$_i$ vor Bienen summte*   **derived**
       b.   ... *dass der Garten früher vor Bienen summte*
          '(that) the garden used to swarm with bees.'

- The infelicity of (49-b) and felicity of (50-b) shows that the scalar meaning is above T

→ It selects TPs with the [+ABUNDANCE] feature, which we take to be a formal feature.

- In the case of the *swarm* alternation, it triggers the coercion facts observed above.

- We assume movement of the locative subject to the specifier of Scalarity$_{LOC}$, a scalarity head which may only host locative subjects of [+ABUNDANCE]-marked predications.

  - See also Horvath (2010)

- Here's a very first attempt at putting this into a lexical entry for an appropriate scalarity head. For the sake of concreteness and in line with Hole (2015, 2017), we assume a structured proposition, instead of a theory of associated focus.
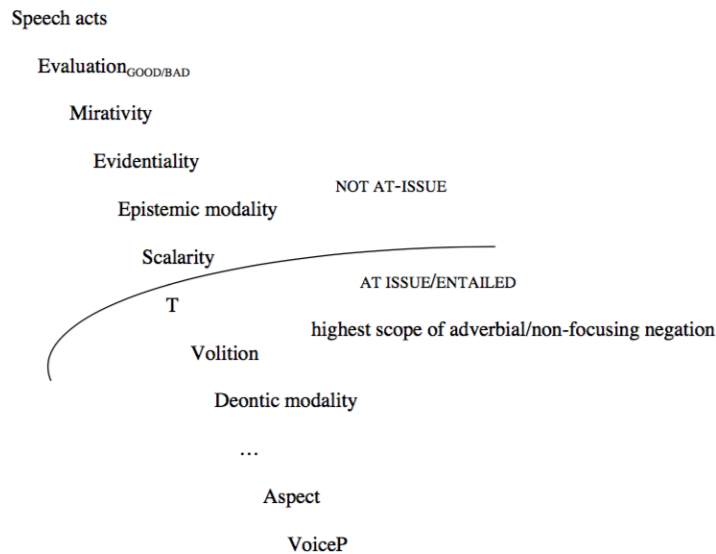
(51)   ⟦ SCALARITY$_{\text{LOC}}$: MUCH ⟧ = λP : P is [+ABUNDANCE]-marked . λx : x is a location & the speaker judges x to have the P property to a degree d which is bigger than the contextually determined high threshold value d' . P(x)

- It's the identity function which takes as its first argument the TP, and the locative subject as its second argument.

- Everything it does is done in its two domain restrictions.

- What it achieves:

  (i) it implements the interplay of ABUNDANCE OF PARALLEL SUBEVENTS and scalarity;

  (ii) it ensures argument structures with locative subjects (if it attracts its specifier from within the TP, and if it has to abide by a shortest-move constraint);

  (iii) it derives the fact that MUCH scopes underneath evidentiality; cp. (11c) and (22)

4.2   The not-at-issue hierarchy

Following recent literature, we are not only assuming that non-truth-conditional meaning is above T, but there is a hierarchy to this type of meaning (52)

(52)   Cartography of clausal categories (partial representation; cf. Cinque 1999, Hole 2015, Bross & Hole 2017)

Speech acts

Evaluation$_{\text{GOOD/BAD}}$

Mirativity

Evidentiality

Epistemic modality   NOT AT-ISSUE

Scalarity

T   AT ISSUE/ENTAILED

Volition   highest scope of adverbial/non-focusing negation

Deontic modality

...

Aspect

VoiceP

- This can be seen in a construction with two types of non-truth-conditional meaning, such as the *swarm* alternation (53-b)

    – Context: there are usually a few fish in the pond.

- as nothing about the situation of (53-a) is unusual, *unsurprisingly* in felicitous

- in contrast, the situational abundance seen in (53-b) provides a prerequisite for mirativity

(53)   a.   (Unsurprisingly,) fish were swimming in the lake,   **base**
         . . . but there weren't so many
     b.   (#Unsurprisingly,) the lake was swimming with fish,   **derived**
         . . . #but there weren't so many.

5   Outlook

- We have demonstrated secondary meaning in the *swarm* alternation

    – first, lower: scalarity; second, higher: mirativity

- The non-base variant of this alternation takes as an argument lexical ABUNDANCE → situational ABUNDANCE

- Scalar MUCH, like other not-at-issue meaning, is above T

- The locative subject moves to the specifier of a scalarity head which only hosts locative subjects

For the future:

- Return to other argument alternations that we think have secondary meaning, like *there*-insertion and systematically test them.

- An empirical study to substantiate our claims on these meanings.

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A   Scalarity, negation and a parallel with 'only'

- Theres nothing scalar in examples like (54). No increased eye aperture, no extra accent on crawling (unless its a jeering echo utterance).

(54)   **Negation and** MUCH **scalarity**
       The metro wasn't crawling with rats

- We think this can be made to follow if we take into account the monotonicity behavior of the involved categories.

(55)   **Negation and** MUCH **scalarity**
       The metro wasn't crawling with rats.
       a.   predicted here:
            MUCH > NOT > CRAWL
            #'Rats not crawling there is considered a lot.' (on the relevant reading of *a lot*)

       b.   way out:
            MUCH isn't there to begin with in these cases, or NOT rejects an assertion that had all its presuppositions fulfilled.

       c.   tasks for the future:
            Why is it so easy to discard this conventional component of meaning?

- Interestingly, a somewhat parallel effect is attested for 'only' and scalarity (Hole 2015, 2017).

(56)   **Negation and LITTLE scalarity with 'only'**
       *Er ist nur [VIERter geworden]*_F.
       he is only fourth become
       'He only [came in FOURTH]_F.'
       <u>scalar interpretation dominant:</u> 'That he reached no higher rank is considered little.'
       → LITTLE > EXCL > 4th

(57)   Er ist nicht nur [VIERter geworden]_F
       he is not only fourth become
       'He not only [came in FOURTH]_F, …'
       (<u>scalar interpretation blocked</u>: *'That he reached no higher rank is considered little')

   a. predicted here:
       LITTLE > NOT > EXCL > 4th
       'That he reached a higher rank than 4th is considered little./'That he didn't reach no more than the 4th rank is considered little.'

   b. way out:
       LITTLE isn't there to begin with in these cases.

- Chinese features a similar effect; cf. Hole (2017).

- An important difference between the *swarm* effect and the *nur* effect: The *nur* effect obtains iff theres default prosody with no contrastive accent on *nur*. The *swarm* effect obtains iff theres a corrective focus on wasn't in (55).

- We have to look into this in greater detail.

> **Conclusions about negation and the canceling of much/little**
> (i) Negation is a scale-reversing operator.
> (ii) If it intervenes between MUCH and the TP, it disrupts the harmony between entailment patterns of the lower categories and those of the MUCH predicate.
> (iii) To avoid this conflict, MUCH doesnt project in these cases.
> (iv) The same effect obtains with scalar 'only' and LITTLE.