The expression of exhaustivity and scalarity in Burmese[1]

Keely New and Michael Yoshitaka Erlewine, National University of Singapore

SALT 28, May 2018

1. Introducing *ṃa*

Colloquial Burmese has a particle *ṃa* which in some contexts expresses exhaustivity (1) and in some contexts expresses a scalar ('even'-like) meaning (2). Okell's 1969 reference grammar describes these two uses simply as "*hma*$_A$" 'even' and "*hma*$_B$" 'only' (pp. 284–286) but we argue that the use in (1) is a cleft.

(1) **Exhaustive *ṃa* (cleft):**
Aung-gɑ ye-ko-***ṃa*** θɑuʔ-kɛ-dɛ.
Aung-NOM water-ACC-MA drink-PAST-REAL
'It's WATER that Aung drank.'

(2) **Scalar *ṃa* ('even'-like):**
Aung-gɑ ye-ko-***ṃa*** **mə**-θɑuʔ-kɛ-**dɑr**.
Aung-NOM water-ACC-MA NEG-drink-PAST-DAR
≈ 'Aung didn't even drink WATER.'

We will show that the scalar use of *ṃa* (2) requires local negation and the *-dar* mood ending.

In addition, *ṃa* can form NPIs with *wh*-phrases:

(3) ***Wh-ṃa* NPI:**
ŋɑ **bɛ**-pɑnθi-ko-***ṃa*** **mə**-yu-kɛ-bu.
1 which-apple-ACC-MA NEG-take-PAST- NEG
'I didn't take any apple(s).'

Preview:

- We propose a **unified semantics for *ṃa***
  - *ṃa* is a not-at-issue **scalar exhaustive**, with semantics similar to Velleman et al 2012's proposal for *it*-clefts.
  - *ṃa* references likelihood, but does not require the prejacent to be low or high on the scale, unlike *even*. The "scalar" reading comes about indirectly, when *ṃa* scopes under negation. Wide scope *ṃa* is always grammatical with cleft semantics.
- We propose that **sentence-final *–dar*** marks clauses as having a particular discourse status. This indirectly enforces *ṃa* taking scope under negation, as in (1), leading to the "scalar" reading of *ṃa*.

[1] We thank our Burmese speakers and teachers, Phyo Thi Han, Chit Thiri Maung, and Saw Ohnmar Oo, as well as Chris Davis, Hadas Kotek, and E. McCready for helpful comments and discussion.

2. Data

2.1. Background

Burmese (Tibeto-Burman) has many typological properties common to head-final languages: canonical SOV word order, pro-drop, scrambling, and *wh*-in-situ. One point which will be of interest is the mood suffix in the Burmese verbal complex:

(4) **Verbal complex template:**

(negation) – stem – (past/prog) – mood – (Q)

Mood suffixes include:

-dɛ	realis/nonfuture	*-bu*	negative	*-dar*	DAR (to be discussed below)
-mɛ	irrealis/future				

(5) **Sentential negation *mə-* is incompatible with *-dɛ/mɛ*, instead triggering *-bu*:**

a. Aung-gɑ ye-ko θɑuʔ-kɛ-**dɛ**.
Aung-NOM water-ACC drink-PAST-REAL
'Aung drank water.'

b. Aung-gɑ ye-ko mə-θɑuʔ-kɛ-{**bu**/*dɛ}.
Aung-NOM water-ACC NEG-drink-PAST-NEG
'Aung didn't drink water.'

2.2. The two uses of *ɱa*

(6) **Exhaustive *ɱa* (cleft):**

A: Aung-gɑ ye-dɔməhouʔ-biyɑ-ko θɑuʔ-kɛ-lɑr?
Aung-NOM water-or-beer-ACC drink-PAST-Q
'Did Aung drink water or beer?'

B: Aung-gɑ ye-ko-***ɱa*** θɑuʔ-kɛ-dɛ. (repeated from (1))
Aung-NOM Water-ACC-MA drink-PAST-REAL
'It's WATER that Aung drank.'

Aung-gɑ biyɑ-ko-lɛ θɑuʔ-kɛ-dɛ.
Aung-NOM beer-ACC-also drink-PAST-REAL
'Aung also drank beer.'

(6B) expresses (a) that Aung drank water and (b) that Aung drank nothing else, disallowing the continuation that 'Aung also drank beer.'

(7) **Scalar *m̥a*:**
Context: There were many drinks offered at the party and out of all the drinks, it is expected that Aung will drink water; it is less likely or more noteworthy for Aung to drink beer.

a. Aung-gɑ ye-ko-***m̥a*** **mə**-θɑuʔ-kɛ-**dɑr**. (repeated from (2))
Aung-NOM water-ACC-MA NEG-drink-PAST-DAR
≈ 'Aung didn't even drink WATER.'

b. #Aung-gɑ biyɑ-ko-***m̥a*** **mə**-θɑuʔ-kɛ-**dɑr**.
Aung-NOM beer-ACC-MA NEG-drink-PAST-DAR
Intended: ≈ # 'Aung didn't even drink BEER.'

The example in (7) is "scalar" in the sense that its grammatical/felicitous use is scale-sensitive: intuitively, *m̥a* cannot be used with a prejacent which is *less likely* compared to its alternatives. In such contexts, speakers often use English 'even' in translations of sentences with *m̥a.*

Q: When is *m̥a* interpreted as exhaustive vs scalar?

A: "Scalar" uses of *m̥a* require both local sentential negation *mə-* and the *-dar* mood morpheme.

Without the *-dar* mood ending, *m̥a* with sentential negation yields exhaustive *m̥a* scoping over negation. We return to the function of *-dar* in section 4.

(8) **Negation without *-dar*: exhaustive *m̥a* scoping over negation**
Aung-gɑ ye-ko-***m̥a*** **mə**-θɑuʔ-kɛ-**bu**.
Aung-NOM water-ACC-MA NEG-drink-PAST-NEG
'It is WATER that Aung didn't drink.'

M̥a with non-local negation does not yield a scalar reading; instead, it is interpreted as an embedded exhaustive expression:

(9) ***m̥a* with non-local negation: embedded exhaustive *m̥a*, not scalar *m̥a***
[Aung-gɑ ye-ko-***m̥a*** θɑuʔ-kɛ-dɛ/dɑr-lo] Su-gɑ **mə**-pyɔ-kɛ-bu
Aung-NOM water-ACC-MA drink-PAST-REAL/DAR-C Su-NOM NEG-say-PAST-NEG
'Su didn't say that it is WATER that Aung drank.'
'Su didn't {even} say that Aung {even} drank WATER.'

Example (9) expresses (a) that Su didn't say that Aung drank water, and (b) "Aung drank water" is a maximal answer to the question "What did Aung drink?".

→ The interpretation of embedded exhaustive *m̥a* in (9) reflects a cleft-like semantics, rather than 'only'-like semantics (Horn 1969 a.o.).

2.3. *Wh-ɱa* NPIs

→ *Wh*-phrases with *-ɱa* form NPIs: *bɛ* (*wh*) – (NP) – *ɱa*

(10) ***Wh-ɱa* is an NPI:**

a. *ŋɑ-gɑ **bɛ**-pɑnθi-ko-***ɱa*** yu-kɛ-dɛ.
1-NOM which-apple-ACC-MA take-PAST-REALIS

b. ŋɑ-gɑ **bɛ**-pɑnθi-ko-***ɱa*** **mə**-yu-kɛ-bu. (repeated from (3))
1-NOM which-apple-ACC-MA NEG-take-PAST-NEG
'I didn't take any apple(s).'

→ *Wh-ɱa* requires a <u>local negation</u>. It is not generally licensed in downward-entailing environments.

(11) ***Wh-ɱa* requires a local negation:**

* [Aung-gɑ **bɛ**-pɑnθi-ko-***ɱa*** yu-kɛ-dɛ-lo] Su-gɑ **mə**-pyɔ-kɛ-bu.
Aung-NOM which-apple-ACC-MA take-PAST-REALIS-C Su-NOM NEG-say-PAST-NEG
Intended: 'Su didn't say that Aung took any apples.'

(12) ***Wh-ɱa* is not licensed in a conditional clause:**

* [Aung-gɑ **bɛ**-pɑnθi-ko-***ɱa*** sɑr-yin] θe-lɑiʔ-mɛ.
Aung-NOM which-apple-ACC-MA eat-if die-follow-IRR
Intended: 'If Aung eats any apple, he will die.'

(13) **But *wh-ɱa* is grammatical in a conditional clause with local negation:**

[Aung-gɑ **bɛ**-pɑnθi-ko-***ɱa*** **mə**-sɑr-yin] θe-lɑiʔ-mɛ.
Aung-NOM which-apple-ACC-MA NEG-eat-if die-follow-IRR
'If Aung doesn't eat any apple, he will die.'

(14) ***Wh-ɱa* is not licensed in polar questions:**

* Aung-gɑ **bɛ**-pɑnθi-ko-***ɱa*** sɑr-kɛ-lɛʔ
Aung-NOM which-apple-ACC-MA eat-PAST-Q
Intended: 'Did Aung eat any apple?'

(15) ***Wh-ɱa* is not licensed in *wh*-questions:**

* bɛ-θu-gɑ **bɛ**-pɑnθi-ko-***ɱa*** sɑr-kɛ-lɑrʔ
wh-3-NOM which-apple-ACC-MA eat-PAST-Q
Intended: 'Who has eaten any apple?'

3. Proposal

m̥a cliticizes to the focused constituent (or focus-containing constituent), but takes propositional scope at LF within the same clause.[2] Let *p* be its complement with focus alternatives *C*. *C* includes conjunctive alternatives and is partially ordered by $<_{likely}$.

→ *m̥a* introduces the presupposition that "no less likely alternatives are true."

(16) **Presupposition of *m̥a*$_C$(*p*)(*w**):**
$\forall q \in C\,[(q <_{likely} p) \rightarrow \neg\, q(w^*)]$ ($\approx$ MAX$_C$(*p*)(*w**) from Velleman et al 2012)

This meaning (16) is also similar to the at-issue meaning proposed for *only* under so-called scalar analyses: see e.g. Klinedinst 2005, Beaver & Clark 2008 and Coppock & Beaver 2014's MAX, Roberts 2011.

3.1. Wide-scope *m̥a* yields cleft semantics (exhaustive *m̥a*)

Consider a context with two atomic alternatives A and B and A∧B. Entailment gives us two orderings: A∧B $<_{likely}$ A and A∧B $<_{likely}$ B. Suppose further that A $>_{likely}$ B, but we will see that the relative likelihood of the prejacent is not important for deriving the exhaustive *m̥a* use.

A = 'that Aung drank water' $>_{likely}$ B = 'that Aung drank beer'
↘ likely ↙ likely
A∧B = 'that Aung drank water and beer'

(17) LF: [MA [Aung WATER$_F$ drank]] (example (1/6A))
assertion: A = 'that Aung drank water' presupposition (16): ¬(A∧B) ∧ ¬B

(18) LF: [MA [Aung BEER$_F$ drank]] (example (1/6A))
assertion: B = 'that Aung drank beer' presupposition (16): ¬(A∧B)

In both cases, *m̥a* ensures that the conjunctive alternative(s) are false, and therefore other alternatives (B in (17), A in (18)) are false.

→ *m̥a* here contributes cleft (exhaustive) semantics as in Velleman et al 2012.

---

[2] This can be thought of as *m̥a* moving from its pronounced position, in a clause-bound fashion, or as *m̥a* agreeing with a covert MA on the clausal spine, with this dependency being clause-bound.

In a clause with a local negation, *m̩a* can take scope above negation, again yielding a cleft:

(19) ***m̩a* scoping above negation yields cleft semantics > NEG:**

LF: [MA [NEG [Aung WATER$_F$ drank]]] (example (8))

C = {A, B, A∧B}, A = 'that Aung didn't drink water' and B = 'that A didn't drink beer'

Entailment gives us two orderings: A∧B $<_{likely}$ A and A∧B $<_{likely}$ B

assertion: A = 'that Aung didn't drink water' presupposition (16): ¬(A∧B)

3.2. *m̩a* under negation yields "scalar" *m̩a*

Again consider the following context, repeated from above:

A = 'that Aung drank water' $>_{likely}$ B = 'that Aung drank beer'

$\searrow_{likely}$ $\swarrow_{likely}$

A∧B = 'that Aung drank water and beer'

(20) ***m̩a* under negation, with less likely atomic alternatives:**

LF: [NEG [MA [Aung WATER$_F$ drank]]] (example (2/7a))

assertion: ¬A presupposition (16): ¬(A∧B) ∧ ¬B

The use of *m̩a* with 'water' (20) is grammatical and requires that less likely alternative(s) (i.e. Aung drank beer) are false.

(21) ***m̩a* under negation, with no less likely atomic alternatives:**

LF: [NEG [MA [Aung BEER$_F$ drank]]] (example (7b))

assertion: ¬B presupposition (16): ¬(A∧B)

→ Notice that the presupposition of (21) is strictly weaker than the asserted content, therefore its use is ungrammatical, ruled out for example by Crnič's (2011) Principle of Non-Vacuity.

(22) **The Principle of Non-Vacuity (Crnič 2011: 110):**
The meaning of a lexical item used in the discourse must affect the meaning of its host sentence (either its truth-conditions or its presuppositions).

m̩a under negation is ungrammatical if the prejacent is lowest on the scale of likelihood (as in (21)), but grammatical with more likely alternatives. This makes *m̩a* appear to be "scalar," and explains the use of (scale-reversed) *even* in English translations of examples such as (2/7a) in (20).

3.3. *Wh-m̥a* NPIs

We follow Ramchand (1996) and Beck (2006) a.o. in taking *wh*-phrases to have no ordinary semantic value:

(23) a. ⟦which apple⟧^{o} undefined

b. ⟦which apple⟧^{f} = {*x* : *x* is an apple}

(24) a. ⟦Aung which apple ate⟧^{o} undefined

b. ⟦Aung which apple ate⟧^{f} = {that Aung ate *x* : *x* is an apple}

m̥a requires a defined ordinary (prejacent) value, so it cannot combine with [[Aung ate which apple]] in (24). We adopt the null existential closure operator in (25):

(25) **Existential operator as in Erlewine 2017:**[3]

a. ⟦∃ α⟧^{o} = ∃*p* ⟦α⟧^{f} . *p*

b. ⟦∃ α⟧^{f} = ⟦α⟧^{f}

(26) a. ⟦∃ [Aung which apple ate] ⟧^{o} = that Aung ate some apple

b. ⟦∃ [Aung which apple ate]⟧^{f} = {that Aung ate *x* : *x* is an apple}

Suppose the apples in the domain are 1, 2, and 3:

that Aung ate some apple $>_{likely}$ that Aung ate 1, that Aung ate 2, that Aung ate 3

(27) ***m̥a* on (26) yields a systematic contradiction:**

LF: [MA [∃ [Aung which apple ate]]] (example (10a))

assertion: 1 ∨ 2 ∨ 3 presupposition (16): ¬1 ∧ ¬2 ∧ ¬3

→ This systematic contradiction is judged as ungrammaticality (e.g. Gajewski 2002, 2009).

(27) ***m̥a* under local negation makes the *wh*-NPI grammatical:**

LF: [NEG [MA [∃ [Aung which apple ate]]]] (example (3/10b))

assertion: ¬(1 ∨ 2 ∨ 3) presupposition (16): ¬1 ∧ ¬2 ∧ ¬3

[3] Existential operators over Rooth-Hamblin alternatives are also invoked by Kratzer & Shimoyama (2002), Biezma & Rawlins (2012), and Uegaki (2017). However, the operators proposed by these authors also redefines the focus-semantic value; Erlewine's (2017) formulation does not.

4. *–dar*

Recall that sentences with *m̥a* and sentential negation have two different meanings, which correlate with the choice of the final mood suffix on the verb:

- *-bu* (regular NEG) ending: exhaustive *m̥a* > NEG (8) LF in (19): MA > NEG
- *-dar* ending: scalar *m̥a* (2/7) LF in (20, 21): NEG > MA

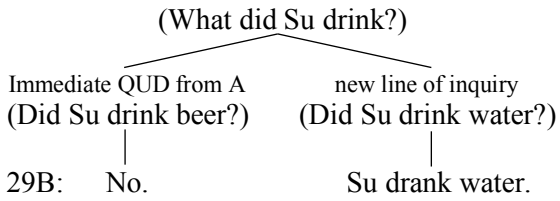
The *–dar* ending is not limited to examples with *m̥a*. Kato (1998: 88–89) notes that utterances with *–dar* are similar to Japanese *–no-da* propositional clefts; Andrew Simpson (p.c.) notes that it is similar to Mandarin *shì…de* propositional clefts.

→ **We analyze *–dar* as a propositional cleft.** Sheil (2016) proposes that propositional clefts are utterances where a new "line of inquiry" is created, e.g. an implicit sister/sub-question to the immediate Question Under Discussion.

(28) ***–dar* is inappropriate for direct answers to questions:**
A: What did Su drink?
B: Su-ga biya-ko θɑuʔ-kɛ-**dɛ/*dɑr**.
Su-NOM beer-ACC drink-PAST-REAL/DAR
'Su drank beer.'

(29) ***–dar* is appropriate for corrections:**
A: Su drank beer.
B: mə-houʔ-bu, Su-ga yɛ-ko θɑuʔ-kɛ-***dɛ/dɑr**.
NEG-right-NEG Su-NOM water-ACC drink-PAST-REAL/DAR
'No, Su drank water.'

Discussing propositional clefts in Scottish Gaelic, Sheil (2016) proposes that in examples such as (29), the propositional cleft in B addresses a question ("Did Su drink water?") which is a sister question to the discourse's immediate question "Did Su drink beer?" that A was congruent to.



How does the (non-)use of *–dar* correlate with the different uses of *m̥a*?

- **Scalar *m̥a*** is felicitous in cases where the immediate QUD is a super-question (e.g. "What did Aung drink?" or "Did Aung drink anything?) or a sister question (e.g. "Did Aung drink beer?"). (2/7) answers a new "line of inquiry" ("Did Aung drink water?"), therefore *–dar* is used.
- **Exhaustive *m̥a* (a cleft)** resolves an existing QUD (Velleman et al 2012), therefore *–dar* is ungrammatical.

References:

Beaver, David Ian, and Brady Clark. 2008. *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.

Beck, Sigrid. 2006. Intervention effects follow from focus interpretation. Natural Language Semantics 14:1–56.

Biezma, Maria, and Kyle Rawlins. 2012. Responding to polar and alternative questions. Linguistics and Philosophy 35:361–406.

Coppock, Elizabeth, and David Ian Beaver. 2014. Principles of the exclusive muddle. Journal of Semantics 31:371–432.

Crnič, Luka. 2011. *Getting even*. Doctoral Dissertation, Massachusetts Institute of Technology.

Erlewine, Michael Yoshitaka. 2017. Quantifying over alternatives with Toba Batak manang. Presented at AFLA 24, Triple A 4.

Gajewski, Jon. 2002. On analyticity in natural language. Manuscript, Massachusetts Institute of Technology.

Gajewski, Jon. 2009. L-triviality and grammar. Handout, UConn Logic Group.

Horn, Laurence Robert. 1969. A presuppositional analysis of only and even. In *Papers from the Fifth Regional Meeting*, ed. Robert I. Binnick, Alice Davison, Georgia M. Green, and Jerry L. Morgan, 98–107. Chicago Linguistic Society.

Kato, Atsuhiko. 1998. *Ekusupuresu Birumago [Express Burmese]*. Tokyo: Hakusuisha.

Klinedinst, Nathan. 2005. Scales and only. Manuscript, UCLA.

Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: the view from Japanese. In *The Proceedings of the Third Tokyo Conference on Psycholinguistics (TCP 2002)*, ed. Yuko Otsuka, 1–25. Tokyo: Hitsuji Syobo. Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. Natural Language Semantics 6:57–123.

Okell, John. 1969. *A reference grammar of Colloquial Burmese*. Oxford University Press.

Ramchand, Gillian Catriona. 1996. Questions, polarity and alternative semantics. Manuscript, Oxford University.

Roberts, Craige. 1996/2012. Information structure in discourse: Towards an integrated formal theory of pragmatics. In *Papers in semantics*, ed. Jae-Hak Yoon and Andreas Kathol, volume 49 of OSU Working Papers in Linguistics. Reprinted in *Semantics & Pragmatics* 5(6), 1–69, 2012.

Roberts, Craige. 2011. *Only*: A case study in projective meaning. In *Formal semantics and pragmatics: Discourse, context, and models*, 1–59.

Sheil, Christine M. 2016. Scottish Gaelic clefts: Syntax, semantics, and pragmatics. Doctoral Dissertation, University of California, Berkeley.

Uegaki, Wataru. to appear. A unified semantics for the Japanese Q-particle *ka* in indefinites, questions, and disjunctions. Glossa 3:14.

Velleman, Leah, David Ian Beaver, Emilie Destruel, Dylan Bumford, Edgar Onea, and Liz Coppock. 2012. *It*-clefts are IT (inquiry terminating) constructions. In Proceedings of SALT 22, 441–460.

The expression of exhaustivity and scalarity in Burmese

Keely New & Michael Yoshitaka Erlewine
National University of Singapore

Colloquial Burmese *ṃa* appears to have an **exhaustive** and **scalar** use. *ṃa* also forms ***wh*-NPIs**.
John Okell's 1969 grammar gives two entries for *ṃa*, translated as English 'only' and 'even,' with no description of their distribution.

Exhaustive *ṃa*

(1) ***ṃa* expresses exhaustivity:**
Context: Did Aung drink water or beer?
Aung-gɑ ye-ko-***ṃa*** θɑuʔ-kɛ-dɛ.
Aung-NOM water-ACC-MA drink-PAST-REAL
'It's WATER that Aung drank.' # '…Aung (also) drank beer.'

Negation is expressed through ***mə***- and a matching mood ending, -***bu***.

(2) **Exhaustive *ṃa* scopes over local negation with *mə-…-bu*:**
Aung-gɑ ye/biyɑ-ko-***ṃa*** **mə**-θɑuʔ-kɛ-**bu**.
Aung-NOM water/beer-ACC-MA NEG-drink-PAST-NEG
'It is WATER/BEER that Aung didn't drink.'

(3) **Non-local negation shows that exhaustive *ṃa* has cleft semantics:**
[Aung-gɑ ye-ko-***ṃa*** θɑuʔ-kɛ-dɛ/dɑr-lo] Su-gɑ **mə**-pyɔ-kɛ-bu.
Aung-NOM water-ACC-MA drink-PAST-REAL/DAR-C Su-NOM NEG-say-PAST-REAL
'Su didn't say that it is WATER that Aung drank.'
The exhaustivity of *ṃa* is not-at-issue; *ṃa* is not an 'only.'

Scalar *ṃa*

ṃa has a scalar use reflecting the relative likelihood of the prejacent:

(4) Context: There were many drinks offered at the party and out of all the drinks, it is expected that Aung will drink water; it is less likely for Aung to drink beer.
Aung-gɑ ye/#biyɑ-ko-***ṃa*** **mə**-θɑuʔ-kɛ-**dɑr**.
Aung-NOM water/beer-ACC-MA NEG-drink-PAST-DAR
≈ 'Aung didn't even drink WATER.'

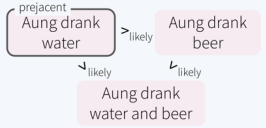
→ ***ṃa* in (4) requires a relatively likely prejacent:**
- Cf exhaustive *ṃa* (2), ok with both less and more likely alternatives.

→ **Scalar *ṃa* requires both local negation and the *–dar* ending.**
- (4) differs from (2) only in the verbal mood ending: **–dar in (4)** but the default negative ending *–bu* in (2).
- (3) without local negation is exhaustive, even with *–dar*.

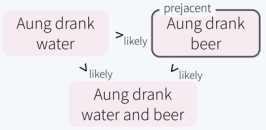
A unified semantics for *ṃa*: *ṃa* is a scalar exhaustive, presupposing that "All less likely alternatives are false"

ṃa takes propositional scope at LF and does not affect the at-issue content.
For prejacent p and alternatives C, including conjunctive alternatives, $ṃa_C(p)(w^*) \rightsquigarrow \forall q \in C\ [q <_{\text{likely}} p \rightarrow \neg q(w^*)]$
(≈ Velleman et al 2012's semantics for English *it*-clefts; see also scalar *only*s as in Klinedinst 2005, Beaver & Clark 2008 and Coppock & Beaver 2014's MAX, Roberts 2011)

Wide scope *ṃa* yields exhaustive (cleft) semantics, regardless of the likelihood of the prejacent:

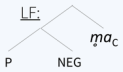


(1) with 'water':
$ṃa_C(p) \rightsquigarrow \neg$beer $\wedge \neg$(water $\wedge$ beer)
Together with p = water, $\Rightarrow \neg$beer
Exhaustive: 'It's water that A. drank.'

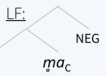


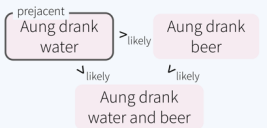
(1), but with 'beer':
$ṃa_C(p) \rightsquigarrow \neg$(water $\wedge$ beer)
Together with p = beer, $\Rightarrow \neg$water
Exhaustive: 'It's beer that A. drank.'

ṃa can take scope over local negation, giving (2):

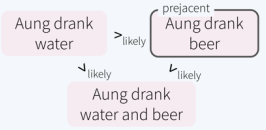


ṃa taking scope under negation yields the scalar use:





(4) with 'water' (more likely):
NEG($ṃa_C$(p)) at-issue: $\neg$water
$ṃa_C(p) \rightsquigarrow \neg$beer $\wedge \neg$(water $\wedge$ beer)
Together, $\Rightarrow \neg$beer



(4) with 'beer' (less likely):
NEG($ṃa_C$(p)) at-issue: $\neg$beer
$ṃa_C(p) \rightsquigarrow \neg$(water $\wedge$ beer)
Here, $ṃa_C$ contributes nothing!
→ Ungrammatical by Non-Vacuity
(Črnic 2011)

→ Under negation, *ṃa* is only grammatical if there are less likely, false alternatives. Contexts that support *ṃa* under negation support *even* in English.

wh-*ṃa* NPIs

(5) ŋɑ-gɑ **bɛ**-pɑnθi-ko-***ṃa*** **mə**-yu-kɛ-bu / *yu-kɛ-dal.
1-NOM which-apple-ACC-MA NEG-take-PAST-NEG / take-PAST-REAL
'I didn't take any apple(s).' / *'I took any apple(s).'

Wh-*ṃa* NPIs require **local negation** and are not licensed in other downward-entailing environments (see handout).

Wh-phrases lack an ordinary semantic value (Ramchand 1996, Beck 2006). **An existential ∃ supplies an ordinary value.**

(6) TP = Aung which apple ate; suppose 1, 2, 3 are apples
a. $[\![\exists\ \text{TP}]\!]^f = [\![\text{TP}]\!]^f$ = {that A ate 1, that A ate 2, that A ate 3}
b. $[\![\exists\ \text{TP}]\!]^o$ = that Aung ate some apple = 1 ∨ 2 ∨ 3

Note that "that Aung ate some apple" (6b) $>_{\text{likely}}$ each alt. in (6a).

(7) ***Wh*-*ṃa* without negation gives unsatisfiable presup.:**
ṃa($[\![\exists\ \text{TP}]\!]$) $\rightsquigarrow \neg 1 \wedge \neg 2 \wedge \neg 3$; contradicts at-issue $[\![\exists\ \text{TP}]\!]$ (6b)

(8) **Higher negation makes the presupposition satisfied:**
$[\![\text{NEG}\ [\exists\ \text{TP}]]\!]^o = \neg\ (1 \vee 2 \vee 3)$, compatible with *ṃa*($[\![\exists\ \text{TP}]\!]$)

Sentence-final *–dar*

–dar clauses are **propositional clefts**, similar to Japanese *–no–da* (Kato 1998) or Mandarin *shì…de* (Andrew Simpson p.c.).

→ Sheil (2016) argues that **propositional clefts are utterances where a new "line of inquiry" is created**, e.g. an implicit sister/sub-question to the immediate QUD.
(See handout on the distribution of *–dar*.)

- **Scalar *ṃa*** is felicitous in cases where the immediate QUD is a super-question (e.g. "What did Aung drink?" or "Did Aung drink anything?) or a sister question (e.g. "Did Aung drink beer?"). **(4) answers a new "line of inquiry"** ("Did Aung drink water?"), therefore ***–dar* is used.**
- **Exhaustive *ṃa* (a cleft)** resolves an existing QUD (Velleman et al 2012), therefore ***–dar* is ungrammatical.**

Selected references: Crnič, Luka. 2011. *Getting even*. MIT dissertation • Okell, John. 1969. *A reference grammar of Colloquial Burmese* • Sheil, Christine M. 2016. *Scottish Gaelic clefts: Syntax, semantics, and pragmatics*. UC Berkeley dissertation • Velleman, Leah, David Ian Beaver, Emilie Destruel, Dylan Bumford, Edgar Onea, and Liz Coppock. 2012. *It*-clefts are IT (inquiry terminating) constructions. *SALT* 22