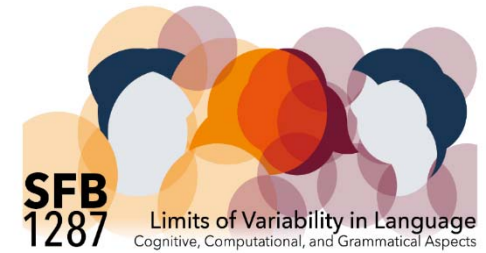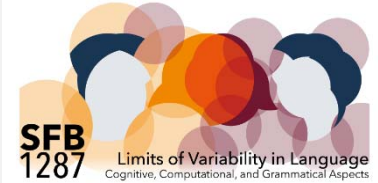# Situation anaphoricity in Hausa and Akan: A uniform account

Malte Zimmermann (Universität Potsdam) & Reginald Akuoko Duah (University of Ghana, Legon & Humboldt Universität zu Berlin)
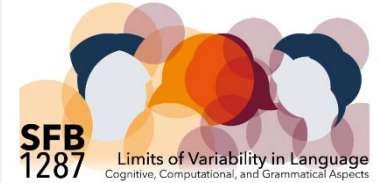
TripleA8, University of Singapore

June 25, 2021

1. Introduction

General Objective:

i. A plea for (covert) situation pronouns and/or situation extension operators in the semantic analysis of natural language clauses

ii. … based mainly on novel empirical evidence from two West African languages with anaphoric situation operators: Hausa & Akan

$\Rightarrow$ Such languages provide an ideal testing ground for situation-based phenomena, including discourse structure, in more controlled settings.

$\Rightarrow$ There may be a correlation between explicit reference to situations and the absence of obligatory grammatical tense marking on V.

1. Introduction

Empirical Scope:

The presentation focuses on two ways of coding situation anaphoricity in the two unrelated tenseless languages **Hausa** (Chadic, Afroasiatic) and **Akan** (Kwa, Niger Congo).

⇒ The two strategies involve the same underlying situation semantics (with salient context situations, Austinian topic situations, and situation extension), thereby accounting for cross-linguistic parallels in their distribution.

⇒ Unlike Hausa, Akan uses grammatical tone to disambiguate between situation-related and tense-related anaphoricity.
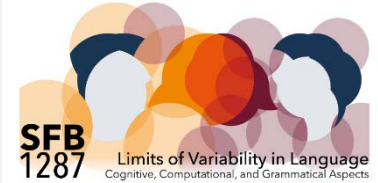
1. Introduction

Empirical Scope:

SVO(X);
Lexical and grammatical tone;
Aspect marking

Nilo-Saharan
Afro-Asiatic
Niger-Congo A
Niger-Congo B (Bantu)
Khoi-San
Austronesian

1. Introduction

Structure of the Talk:

§2: Background: Situations in Formal Semantics

§3: REL-Marking in Hausa:
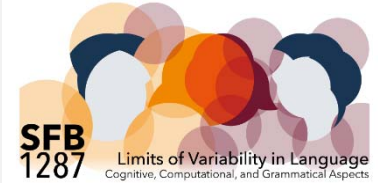   Data and Analysis - An anaphoric situation operator

§4: Extending the Analysis to Akan (Kwa, Niger Congo):
     Parallels and one difference

§5: Conclusion

Hausa data: From literature (Newman 2000), plus one additional
              data point elicited by first author with one speaker
Akan data: Second author
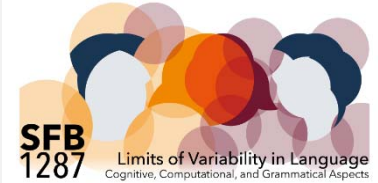
2. Situations in formal semantics

Situations (or events) play a crucial role in the semantic analysis of adverbial modifiers (Davidson 1967), cf. (1), and A-quantification (von Fintel 1995), cf. (2):

(1) a. Brutus killed Caesar [on the Ides of March].
    b. $\exists s$ [Ag(brutus, s) $\land$ kill(Caesar, s) $\land$ LOC(s, Ides of March ??)

(2) a. A Texan always drinks BEER.
    b. $\forall s$ [$\exists x$ [Texan(x) $\land$ in(x,s)]]: $\exists s'$ [s<s' $\land$ drink(beer, s')]

$\Rightarrow$ Adverbial Quantification involves minimal situation extension!

2. Situations in formal semantics

Erteshik-Shir (1997) uses covert topic situations in her analysis of thetic sentences = clauses with covert situation topics

(3) a. What's happening? There [are people dancing in the streets].

    b. = 1 iff [λs. people are dancing in the streets in s] (s_{TOP})
                    COMMENT   TOPIC

Kratzer (2011) generalizes the concept of topic situations by making contextually salient situation pronouns referring to Austinian topic situations an integral part of any clause; cf. also Schwarz (2009).
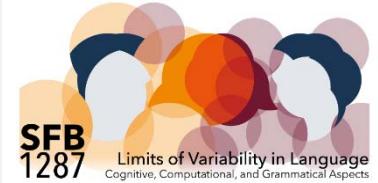
(4) [Max is playing cards with Emily and Sophie (Game 1), and somewhere else, Claire is playing cards with Dana (Game 2). At the same time, in their respective games, both Max and Claire are winning.] Someone, watching Game 1, mistakenly says:

A woman is winning. (Barwise and Etchemendy 1987, Grubic 2015)

Kratzer (2011) and Schwarz (2009:93f.): topic situation is represented as a variable in the syntax (as the argument of a topic operator)

(5) a.
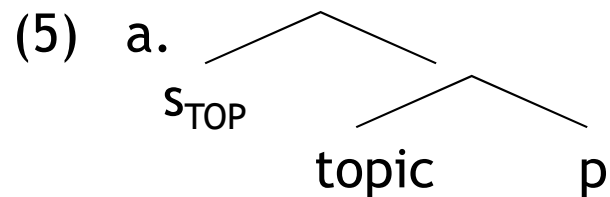
$$S_{TOP}$$

topic   p

b. $[[\text{topic}]] = \lambda p.\lambda s'.\lambda s.\ s \approx s' \wedge p(s)$
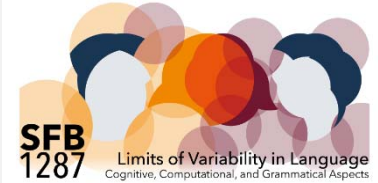
2. Situations in formal semantics

Western Indoeuropean languages show only scarce evidence for the existence of s_{TOP}-pronouns, with the exception of German (non-locative) *da* (Salfner & Salfner 2011) and Dutch *er*.

(6) Einmal war das Mädchen hingegangen, Wasser zu holen, und wie es sich bückte den Eimer aus dem Brunnen zu ziehen, bückte es sich zu tief und fiel hinein. Und als es erwachte und wieder zu sich selber kam, war es auf einer schönen Wiese, da schien die Sonne und waren viel tausend Blumen. Auf der Wiese gieng es fort und kam zu einem Backofen, der war voller Brot; das Brot aber rief: „ach! zieh mich 'raus, zieh mich 'raus, sonst verbrenn' ich, ich bin schon längst ausgebacken!" da trat es fleißig herzu und holte alles heraus. Darnach ging es weiter und kam zu einem Baum, der hing voll Aepfel und rief ihm zu: „ach! schüttel mich! schüttel mich! wir Aepfel sind allemiteinander reif!" Da schüttelt' es den Baum, daß die Aepfel fielen, [...] (Frau Holle, Brüder Grimm)

2. Situations in formal semantics

Western Indoeuropean languages show only scarce evidence for the existence of s_{TOP}-pronouns, with the exception of German (non-locative) *da* (Salfner & Salfner 2011) and Dutch *er*.
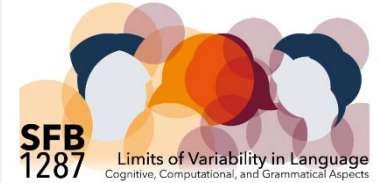
(6') The bread called: "[…]"

Da she [the girl] came eagerly forward and got everything out.

Da-after it went on and came upon a tree loaden with apples that called out for her: „[…]"

Da she shook the tree …

Kratzer (2011): **These situations can be indicated by tense (t$_{TOP}$ = s$_{TOP}$)**
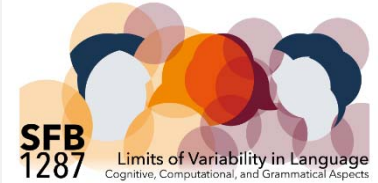
"In the majority of cases, however, there is no overt indication of what the topic situation is like in the sentence. Instead, the topic situation is contextually provided, via an assignment function." Grubic (2015:145)

e.g., via the current QUD (Kratzer 2011, Schwarz 2009, Grubic 2015)

(7) s$_{top}$ = ιs[ex(question extension)(s)]   (Schwarz 2009)

Grubic (2015: 149): "When the Current Question is implicit, the focus-background partition of the declarative sentence indicates what the Current Question is, thereby (i) possibly providing further information on the topic situation, (ii) introducing relevant alternatives via this topic situation, and (iii) identifying which of these alternatives is true."

2. Situations in formal semantics

Q: Is there evidence for more direct overt marking of s-pronouns and/or situation-operators in Non-Indoeuropean languages?
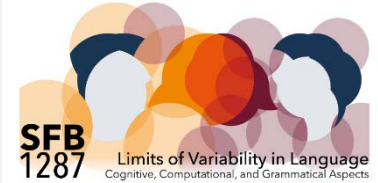
$\Rightarrow$ YES!

Non-Indoeuropean languages often mark DEF/INDEF-distinctions in the verbal domain: Baker & Travis (1997) on Mohawk, Matic & Nikolaeva (2014) on Tundra Yukaghir, Hole (2011) on Mandarin…

$\Rightarrow$ **DEF-marking on verbs: situation familiarity;**
INDEF-marking: $\exists$-closure over new situations;

cf. also Renans (2019) on definite event determiners in Ga (Kwa).

…   **and REL-marking in Hausa and connective marker *na* in Akan!**
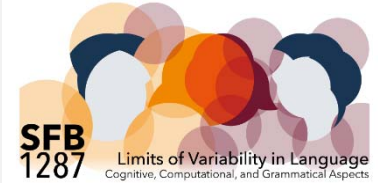**!!!THIS TALK!!!**

2. Situations in formal semantics

Hausa and Akan exhibit a different way of making anaphoric reference to contextually salient situations by means of part-whole relations.

$\Rightarrow$ Frequent explicit reference to situations may be correlated to the fact that both languages are grammatically tenseless (Osam 2008, Mucha 2013).

Grammatical Tenselessness: No obligatory tense marking on V in the form of a compulsory grammatical formative (suffix etc.)

3a. REL-Marking in Hausa: Data
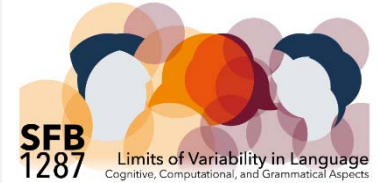
Background on Hausa [Newman 2000, Jaggar 2001] :

-     West Chadic, Afro-Asiatic
-     Tone language (H, L`), length contrast
-     Word order: SVO(X)
-     Person-Aspect Complex (PAC) preceding V

(8)   Kànde   taa   dafà   kiifii.
           Kande   3sg.F.PFV.ABS   cook   fish
           'Kande cooked fish.'

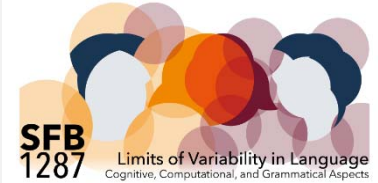In clauses with PFV and IPFV aspect, PAC comes in two forms:

(9) a. Kànde taa   dafà kiifii.   ABS
          Kande 3sg.F.PFV.ABS cook fish
          'Kande cooked fish.'

      b. Kànde ta   / *taa dafà kiifii.   REL
          Kande 3sg.F.PFV.REL   cook fish
          'KANDE cooked fish.'

(10) a. Kànde ta-nàa   dafà kiifii.   ABS
          Kande 3sg.F-IPFV.ABS cook fish
          'Kande is cooking fish.'

      b. Kànde (cèe) ta-kèe /   *-náa dafà kiifii. REL
          Kande PRT   3sg.F-IPFV.REL   cook fish
          'KANDE is cooking fish.'

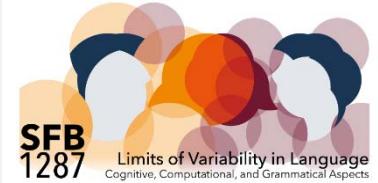   REL-form $\Rightarrow$ Focus?

REL-patterns in Hausa: REL-form typically attested with A'-movement: Focus fronting (11ab), wh-fronting (12a), relativization (12b):

(11) a. Kiifii (nèe) Kànde   ta / *taa   dafàa.
       fish   PRT   Kande   3sg.F-PFV.REL   cook
       'Kande cooked FISH.'

   b. Kiifii (nèe) Kànde   ta-kèe / *-nàa dafàa-waa
       fish   PRT   Kande   3sg.F-IPFV.REL cook
       'Kande is cooking FISH.'

(12) a. Wàa(cee cèe) ta   dafà   kiifii ?
       who (f-PRT)   3sg.F-PFV.REL   cook   fish
       'Who cooked fish?'

   b. ... yaarinyà-r [dà (ta)-kèe   dafà   kiifii]
       girl-LINK   REL 3sg.F-IPFV.REL   cook   fish
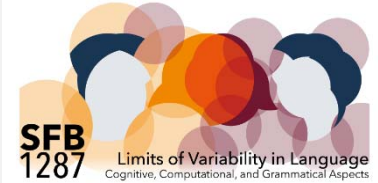   '(the) girl that is cooking FISH.'

3a. REL-Marking in Hausa: Data

REL-patterns in Hausa: REL-form typically attested with A'-movement:
Focus fronting (11ab), wh-fronting (12a), relativization (12b):

Generalization: Hausa REL occurs in sentence types that relate s_{TOP}
to contextually given situations:

wh-questions, focus marking, and (arguably) relative clauses make
reference to contextually given situations.

3b. REL-Marking in Hausa: Analysis

Standard analysis (Tuller 1986): REL ⇔ A'-movement

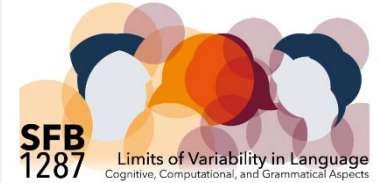REL-Marking: a mere formal reflex of A'-operator movement (wh, FOC, REL) with no semantic import.

vs Situation-based analysis (Zimmermann 2015):

REL-marking: an anaphoric marker of situation familiarity, independent of, but often consistent with focus-backgrounding.

(13) $[\![\text{REL}]\!] = \lambda p.\lambda s_{TOP}: \exists$ salient $s \leq s_{TOP}$. $\lambda s'$. $s' \approx s_{TOP} \wedge p(s')$

(= anaphoric variant of Schwarz' TOP-operator, somewhat comparable to familiar strong definites; Schwarz 2009)
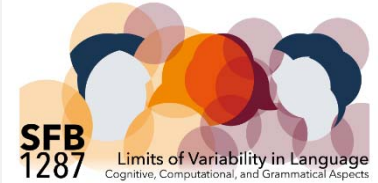
3b. REL-Marking in Hausa: Analysis

Prediction for standard analysis (A'-movement):

1:1-correlation between REL-marking and A'-movement

Not borne out! Two kinds of problems:

A.   Instances of REL-marking w/o A'-movement

B.   Instances of A'-movement w/o REL-marking

3b. REL-Marking in Hausa: Analysis

Problems for standard analysis:

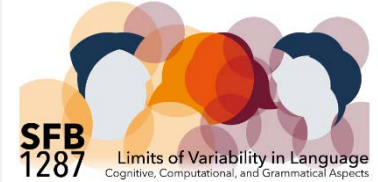A.   Instances of REL-marking w/o A'-movement:

i.   Past-oriented narrative discourse (Newman 2000, Jaggar 2006)

(14) suka shigoo, suka tuub'ee taakalmii, sai suka zaunaa [Jaggar 2006]
'They entered, pulled off their shoes, and then sat down.'

⇒ Individual sub-clauses specify subparts of a larger topic situation!

Problems for standard analysis:

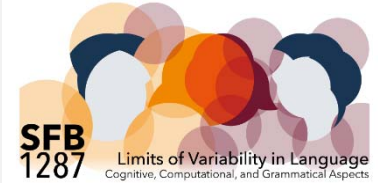A.   Instances of REL-marking w/o A'-movement:

ii.   Exclamatives/Partial Focus marking [Hartmann & Zimmermann 2007a]

(15) Q: What happened?   [QUD-focus: S]

    A: B'àràayii nèe su-kà   yi mîn   saatàa!
       robbers   PRT 3pl-PFV.REL   do to.me   theft
       'ROBBERS have stolen from me!' [cf. Bolinger 1972]

    $\Rightarrow$ Why vacuous movement of a subpart of focus?

Problems for standard analysis:

B.   Instances of A'-fronting w/o REL-marking:

i.   No REL with A'-fronting in clauses with FUT, HAB, SUBJ, NEG
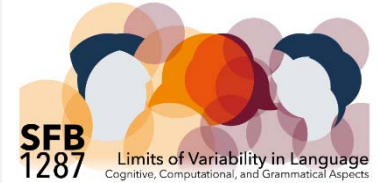   aspect [Newman 2000, Jaggar 2001]

(16) a. Kànde   zaa-tà   dafà   kiifii
         'Kande will cook fish.'

   b. Kiifii   Kànde zaa-tà dafáa
      'Kande will cook FISH.'

⇒ PFV & IPFV refer to situations that exist in w_0!

⇒ NEG-clauses do not assert the existence of situations in w_0.
   FUT/HAB/SUBJ-operators quantify over situation arguments.

Problems for standard analysis:

B. Instances of A'-fronting w/o REL-marking:

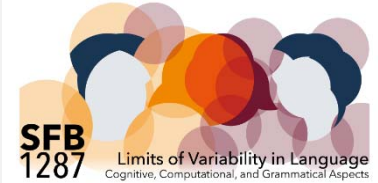ii. No REL-marking with fronted *har yanzu* 'until now' under aspectual focus, even with IPFV aspect!

(17) A: Adamu has repaired his bike.

B: A'à, har yànzuu$_1$ yanàa   gyaarà-ntá t$_1$.   (ELICITED)
no, until now   3SG.M.IPFV.ABS   repairing-it
'No, he's STILL repairing it!'

$\Rightarrow$ NB: *har yanzu* base-generated in postverbal position!

(18)   Ina   Kano   har yanzu.
1sg-IPFV Kano   until now
'I am still in Kano.'

2-factorial account of FoC and REL:

A'-fronting and REL-marking are distinct grammatical strategies imposing different conditions on utterance context:

i. A'-fronting marks FoC: the presence of salient alternatives in the context. (Krifka 2008)

$\Rightarrow$ Fronting of FoC-alternatives normally occurs against the background of salient background situations: situation - focus denotation

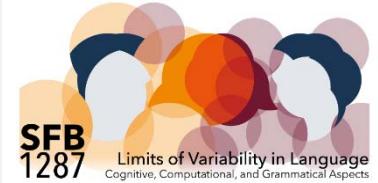ii. REL-marking triggers a presupposition directly restricting s_{TOP}:

(13) $[[REL]] = \lambda p.\lambda s_{TOP}: \exists$ salient $s \leq s_{TOP} . \lambda s'. s' \approx s_{TOP} \wedge p(s')$

$\Rightarrow$ context situation not necessarily identical to s_{TOP} of REL-clause!

$\Rightarrow$ Q-restriction of $\exists s$ provided by implicit argument!

3b. REL-Marking in Hausa: Analysis
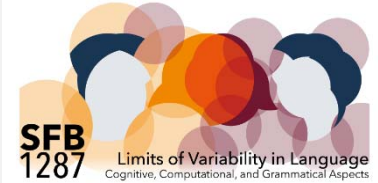
2-factorial account of FoC and REL:

A'-fronting and REL-marking are distinct grammatical strategies imposing different conditions on utterance context:

Crucially, both FoC and REL refer to salience and (indirectly) to s_{TOP}:

$\Rightarrow$ This is the source of the illusion that the two markers code the same information-structural distinction: **FoC-REL Conspiracy**

... and it accounts for the frequent co-occurrence of the two markers!

3b. REL-Marking in Hausa: Analysis

An aside on salience: Barlew (2014)

SALIENCE = CG-supported attention of addressee(s) to discourse referent

(19) Given a context, c, and $i \in D_c$:

$$sal(i,c) \leftrightarrow \forall a_c, s_c \, [att(i, s_c, t_c) \wedge CG_c \text{ entails that } att(i, a_c, t_c)]$$

$\approx$ A discourse referent i is salient in c iff the speaker is attending to i in c AND there is strong contextual evidence that the addressees are attending to in in c

$\Rightarrow$ Salience requires contextual support in the form of linguistic (e.g, preceding utterances) or non-linguistic information (e.g., physical features of utterance setting)

3b. REL-Marking in Hausa: Analysis

An aside on salience: Barlew (2014)

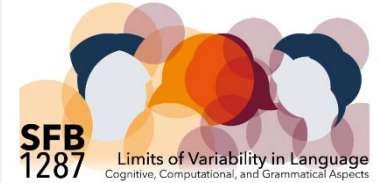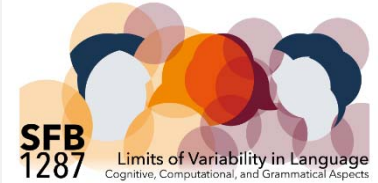SALIENCE = CG-supported attention of addressee(s) to discourse referent

Top-Down Salience: depends on CG-supported intentions and discourse goals of the addressee, which become manifest e.g., by a QUD (Roberts 2012), or by continued attendance to a previously introduced DR (≈ strong familiarity, topic continuity).

Bottom-Up Salience: triggered by perceptually prominent features of the linguistic signal or the utterance situation.

$\Rightarrow$ Both types of salience play a role in licensing REL-marking in Hausa!

3b. REL-Marking in Hausa: Analysis

Case Studies I: Focus fronting + REL-marking PFV (standard)

(11) a. kiifii   Kànde   ta   dafàa.
     fish   Kande   3sg.F-PFV.REL   cook
     'Kande cooked FISH.'

   = 1 iff $\exists e\ [e \subset s_{TOP}]$: Kande cooked fish in e   (PFV)

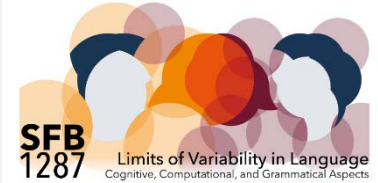   = 1 iff s_{TOP} is a Kande fish-cooked-situation

$\Rightarrow$ REL: (11a) defined iff there is a salient $s \leq s_{TOP}$

   Satisfied by top-down salience from Focus-Background/QUD:

(20) $SAL_s(q[x_{FOC}]) = \iota s\ [p(s)]$;   with $p = q\backslash[x_{FOC}]$

        ($\approx$ argument reduction) (von Fintel 1995, Beaver & Clark 2003)

Case Studies I: Focus fronting + REL-marking PFV (standard)

(11) a. kiifii Kànde ta   dafàa.
     fish   Kande 3sg.F-PFV.REL   cook
     'Kande cooked FISH.'

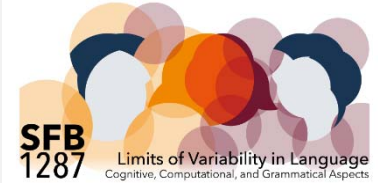$= 1$ iff $\exists e\ [e \subset s_{TOP}]$: Kande cooked fish in e (PFV)

$= 1$ iff s_{TOP} is a Kande fish-cooked-situation

$\Rightarrow$ REL: (11a) defined iff there is a salient $s \leq s_{TOP}$

Satisfied by top-down salience from Focus-Background/QUD:

(21) $s_{(11a)} = \iota s.$ s is a Kande cooked-situation $\Rightarrow$ $s \leq s_{TOP}$ ✔

3b. REL-Marking in Hausa: Analysis

Case Studies II: Focus fronting + REL-marking IPFV (standard)

(11) b. kiifii Kànde ta-kèe   dafàwàa.
          fish   Kande   3sg.F-IPFV.REL cook
          'Kande is cooking FISH.'

    $= 1$ iff $\exists e\ [s_{TOP} \subset e]$: Kande cooks fish in e (IPFV)

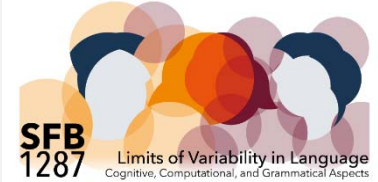> $= 1$ iff s_{TOP} is a temporal part of a Kande fish-cooking situation.

$\Rightarrow$ REL: (11b) defined iff there is a salient $s \leq s_{TOP}$

    Satisfied by top-down salience from Focus-Background/QUD:

(22) $s_{(11b)} = \iota s.$ s is a temporal part of a Kande-cooking situation

                            $\Rightarrow$ $s \leq s_{TOP}$ ✓
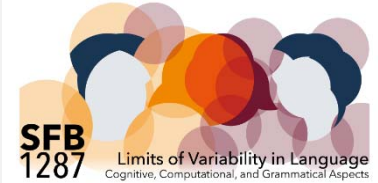
⇒ The analysis for focus fronting carries over to REL-marking in *ex situ* wh-questions, (12a).

(12) a. Wàa(cee cèe) ta   dafà   kiifii ?
     who (f-PRT)   3sg.F-PFV.REL   cook   fish
     'Who cooked fish?'

Satisfied by top-down salience from QUD:

(23) $s_{(12b)}$ = ιs. s is a fish-cooking situation   ⇒ $s ≤ s_{TOP}$ ✔

3b. REL-Marking in Hausa: Analysis

$\Rightarrow$ The REL-analysis also accounts for REL in relative clauses…

… with an additional assumption: REL clauses contain a situation argument ($\approx s_{TOP}$), which is subpart-related to the situation introduced by the NP head: Hohaus (2015: 60ff.):

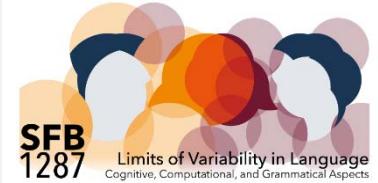(24) … yaarinyà-r [dà   (ta)-kèe   dafà   kiifii]
         girl-LINK   REL 3sg.F-IPFV.REL cook   fish
         '(the) girl that is cooking FISH.'

   s = girl-situation; s_{TOP} = girl-cooking-fish situation

   $\Rightarrow$ s and s_{TOP} are related through a SIT-operator (Hohaus 2014:61)

(25)   [[SIT]] = $\lambda s\lambda p. \exists s' [s' \leq s \land p(s')]$

Case Studies III: REL-marking w/o fronting in thetic exclamations

(15A) B'àràayii nèe su-kà   yi mîn   saatàa!
       robbers   PRT 3pl-PFV.REL   do to.me   theft
       'ROBBERS have stolen from me!'

       = 1 iff s_{TOP} is a robbery of the speaker by robbers

$\Rightarrow$ REL: (15A) defined iff there is a salient $s \leq s_{TOP}$

       Satisfied by bottom-up salience:

       $s = s_{TOP}$ = contextually given theft circumstance

       $\Rightarrow$ $s \leq s_{TOP}$ ✔

3b. REL-Marking in Hausa: Analysis

Case Studies III: REL-marking w/o fronting in thetic exclamations

(15A) B'àràayii nèe su-kà   yi mîn   saatàa!
      robbers   PRT 3pl-PFV.REL   do to.me   theft
      'ROBBERS have stolen from me!'

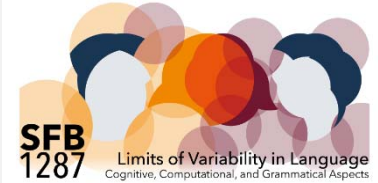   = 1 iff s_{TOP} is a robbery of the speaker by robbers

$\Rightarrow$ REL: (15A) defined iff there is a salient $s \leq s_{TOP}$

(15A) has the flavor of a contextually licensed thetic exclamation, commenting on the utterance situation s_{TOP} [Erteschik-Shir 1997, 2006]

(26)   a. THIEVES!
       b. There are THIEVES (in s_{TOP})!

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3b. REL-Marking in Hausa: Analysis

Case Studies IV: REL-marking w/o fronting in narrative discourse

(14) suka shigoo, suka tuub'ee taakalmii, sai suka zaunaa
    'They entered, pulled off their shoes, and then sat down.'

$\Rightarrow$ In narrative discourse, there is a contextually supplied continuous
    s_{TOP} commented on by the individual subclauses:

(14') s_{TOP} suka shigoo, s_{TOP} suka tuub'ee taakalmii, sai s_{TOP} …

3b. REL-Marking in Hausa: Analysis
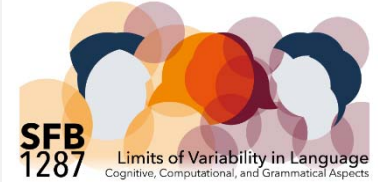
Case Studies IV: REL-marking w/o fronting in narrative discourse

(14) suka shigoo, suka tuub'ee taakalmii, sai suka zaunaa
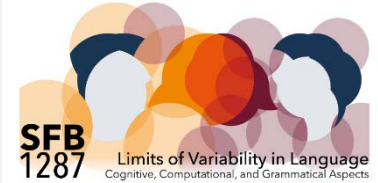'They entered, pulled off their shoes, and then sat down.'

= 1 iff $\exists e\ [e \subset s_{TOP}]$: they pulled off their shoes in e

$\Rightarrow$ REL: (14) defined iff there is a salient $s \leq s_{TOP}$

Satisfied by top-down salience, namely by continued salience of an activated situation DR s in the context (= topic continuity): $s = s_{TOP}$

$\Rightarrow$ $s \leq s_{TOP}$ ✔

Case Studies V: No REL-marking with fronting in FUT/HAB/SUBJ/NEG

(16) a. Kànde zaa-tà dafà kiifii
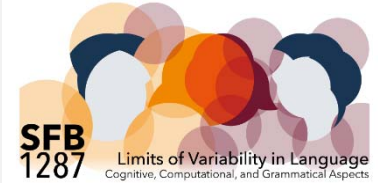   'Kande will cook fish.'

b. Kiifii Kànde zaa-tà   dafáa
   fish   Kande FUT-3.SG.F cook
   'Kande will cook FISH.'

$\Rightarrow$ NEG does not assert the existence of a topic situation that could
      be anaphorically related to a contextual situation: No s_{TOP}!

$\Rightarrow$ FUT/HAB/SUBJ quantify over the situation-argument (Mucha 2013):
      No s_{TOP}!

Case Studies VI: No REL-marking with fronting under aspect focus

(17) A: Adamu has repaired his bike.

B: A'à, har yànzuu$_1$ yanàa   gyaarà-ntá t$_1$.
no, until now   3SG.M.IPFV.ABS   repairing-it
'No, he's STILL repairing it!'
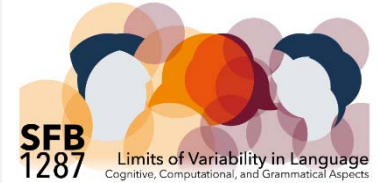
$\Rightarrow$ REL illicit because of conflicting constraints:

i. REL: $e = s \leq s_{TOP}$ (bike-repairing part of s_{TOP})

ii. IPFV Aspect: $s \leq s_{TOP} \subset e$ (s_{TOP} part of bike-repairing)

$\Rightarrow$ There is no $s \leq s_{TOP}$, with s_{TOP} located at UT   (IPFV) (Mucha 2013)

Additional prediction: Presence or absence of REL triggers differences in semantic interpretation with embedded temporal clauses:

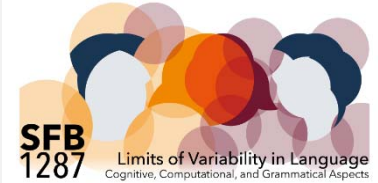<p align="center">BORNE OUT!</p>

(27) a. [Sândà mukà   daawoo] (sai) mukà   gayà musù làabarìi
        when   1sg-PFV.REL return   then 1sg-PFV.REL tell them news
        'When we returned, we told them the news.'

   b. Mun   gayà musù làabarìi [sândà   mukà   daawoo]
        1sg-PFV.ABS tell them news   when   1sg-PFV.REL return
        'We told them the news when we returned.' (Newman 2000:556)

⇒ (27a) relates the main clause situation to a temporally situated context situation: when-clause specifies topic time/context situation

⇒ (27b) introduces a new situation: when-clause specifies event time.

REL vs ABS: $TOP_{REL} + s_{TOP}$ vs $TOP + \exists s$

i.   REL: $TOP_{REL} + s_{TOP}$

(28) a. $[\lambda s_{TOP}:$ there is $s \leq s_{TOP} . \lambda s'. \; s' \approx s_{TOP} \wedge p(s')]([[s_{TOP,1}]]^g)$

$= \lambda s'. \; s' \approx g(1) \; \& \; p(s');$ defined iff there is $s \leq g(1)$
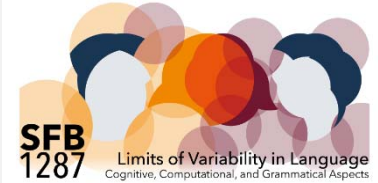
ii. ABS = non-anaphoric TOP, Existential Closure over s_{TOP}-argument

(28) b. $[[ABS]] = \lambda p. \lambda s_{TOP} . \lambda s'. \; s' \approx s_{TOP} \wedge p(s')$

c. $[[\exists ABS \; S]] = \lambda s'. \; \exists s_{TOP} [\; s' \approx s_{TOP} \wedge [[S]] (s')]$

(indefinite situation topic: "Es war einmal ...)

Conclusions so far:

i. Semantic analysis of REL as an anaphoric situation operator accounts for its distribution and interpretive effects, including standard cases and occurrences or absences of REL that are unexpected on a movement-based account!

⇒   Semantic analysis superior to standard analysis of REL as a mere morpho-syntactic reflex of A'-fronting.

⇒   Hausa overtly marks anaphoric situation-chaining!

ii. **Consequences for discourse structure:** Is a QUD-based analysis for Hausa feasible if only REL-clauses are sensitive to preceding QUDs?

REL: immediate QUD?   vs ABS: answer to a higher question?

subordinating relation?   coordinating relation?
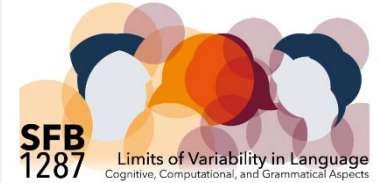
4. Extending the analysis to Akan *na*

Akan facts: The left-peripheral connecting element *na* (Duah & Amfo 2020, Duah 2019, Boadi 2008, Osam 2004) occurs in a similar set of environments as REL in Hausa, including:

(i.) focus fronting (29a):

(29) a. [Yaw] [nà   ɔ̀-dɔ́   Ama].   (Duah 2019)
          Yaw   CONN   3SG-love.HAB   Ama
          'It is Yaw that loves Ama.'
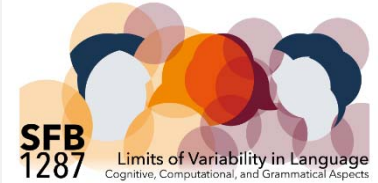
4. Extending the analysis to Akan *na*

Akan facts: The left-peripheral connecting element *na* (Duah & Amfo 2020, Duah 2019, Boadi 2008, Osam 2004) occurs in a similar set of environments as REL in Hausa, including:

(ii.) situational chaining to implicit reference times/situations (29b-d)

(29) b. Ná   Yaw rè-sùá   àdéɛ́.   (Duah 2019)   [PAST]
     CONN Yaw PROG-study thing
     '(When ...) Yaw was studying.'

   c. ɛnórà ànwùmérɛ̀ ná   ɔ̀-rè-sìésìé   hɔ́.   [PAST]
     yesterday morning CONN 3SG PROG-clean there
     'Yesterday morning she was cleaning.'

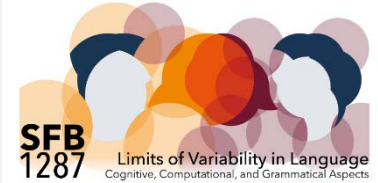# 4. Extending the analysis to Akan *na*

Akan facts: The left-peripheral connecting element *na* (Duah & Amfo 2020, Duah 2019, Boadi 2008, Osam 2004) occurs in a similar set of environments as REL in Hausa, including:

⇒   *ná* is not a dedicated past marker: it can also refer to future reference times/situations (Duah & Savić 2020).

(29)   d. ɛ́ŋkɔ́sí ɔ̀kyéná ná   Carmen á-síésìè   nè   lɔ́rè.
           by tomorrow CONN   Carmen PERF-repair 3SG.POSS car
           'By tomorrow Carmen will have repaired her car.'

Akan facts: The left-peripheral connecting element *na* (Duah & Amfo 2020, Duah 2019, Boadi 2008, Osam 2004) occurs in a similar set of environments as REL in Hausa, including:

(iii.)   clausal chaining (29ef).   (Duah 2019)

(29) e. Manu nyà-à   sìkà   [nà ò-sí-ì   dáń] [nà ɔ̀-tɔ́nὲὲ]
        Manu get-PFV money   3sg-build-PFV house   3sg.sell-PFV
        'Manu got money and built a house (with it) and sold it.'
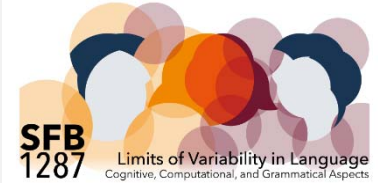
   f. [Kòfí gyàὲ`ntɔkwá nó ná ɔ-kɔ   fíé   ná ɔ-dwárὲ
      Kofi stop fighting DET   3sg.go   home   3sg.bathe

      ná ò-sùá   àdéέ à]   ɛ-yɛ
        3sg-study   thing COND 3sg.INA-be.good (Duah 2019)

      'It would be good if Kofi stopped fighting and went home and
       took a bath and studied.'   (counterfactual ⇒ fake past?)

Akan facts: The left-peripheral connecting element *na* (Duah & Amfo 2020, Duah 2019, Boadi 2008, Osam 2004) occurs in a similar set of environments as REL in Hausa, including:

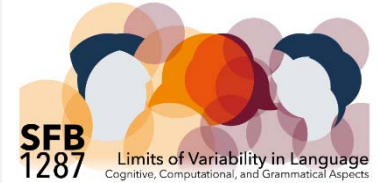(iv.) (Implicit) adverbial quantification with situation extension (29g).

(29) g. Sὲ   Texasni   á-ǹ-kɔ́   àdwúmà à,
COMP Texan   PST.NEG.go work.   COND

nà   ɔ̀-nóm̀   bíá.
CONN   3SG.SBJ.drink beer

'When a Texan is off work, he drinks beer.' (e.g. in Yucatan)
(= A Texan off work always drinks beer)

cf. von Fintel (1995/2004)

Extending the analysis:

(30) $[[\text{nà}]] = \lambda p.\lambda s_{TOP}: \exists$ salient $s \leq s_{TOP} .\lambda s.\ s \approx s_{TOP} \wedge p(s)$

$\Rightarrow$ Analysis accounts for the observable parallels in the distribution of Hausa REL and Akan *na*

$\Rightarrow$ Analysis allows for a unified treatment of Akan *na* with

    i. focus fronting and *wh*-questions (29a)

    ii. situation anchoring with (implicit) topic time setters (29b-d)

    iii. Clausal chaining (e.g., in past narrative discourse) (29e)

    iv. Adverbial quantification (with situation extension) (29f)

4. Extending the analysis to Akan *na*
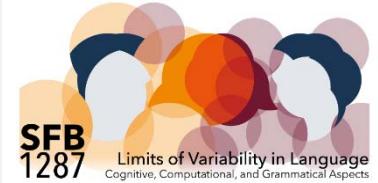
Extending the analysis:

(30) $[[\text{nà}]] = \lambda p.\lambda s_{TOP}: \exists \text{ salient } s \leq s_{TOP} .\lambda s.\ s \approx s_{TOP} \wedge p(s)$

$\Rightarrow$ Non-present interpretation in (29b-d) would also follow:

In order for s to be a proper subpart of s_{TOP}, s_{TOP} must be temporally extended, and hence cannot take the momentary present utterance situation/time as its value (Smith & Erbaugh 2004).

... there's more going on, however!
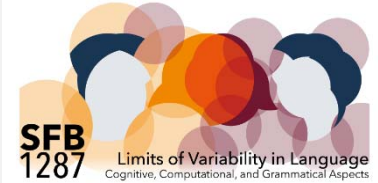
4. Extending the analysis to Akan *na*

One difference: *ná* vs *nà*

⇒ It appears that Akan has grammaticalized the distinction between anaphoric reference to situations and times, respectively:

> Whereas anaphoric reference to situations (with wh-ex situ/focus fronting, narrative situation chaining, A-quantification) is uniformly marked with L-tone *nà*, reference to reference or topic times (Klein 1994) is marked by H-tone *ná*; cf. (29b-d).
>
> **Grammatical/Semantic tone marking!**

4. Extending the analysis to Akan *na*

Grammatical tone: *ná* vs *nà*

$\Rightarrow$ Same as other West African languages (and Hausa!), Akan employs grammatical tone to mark functional & semantic differences (Dolphyne 1988):
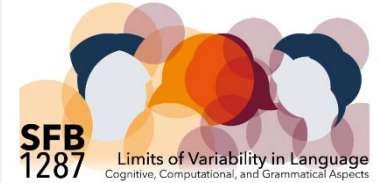
Grammatical/semantic tone in Hausa codes:

i. Difference between declarative clauses and yes/no-interrogatives

ii. Difference between proximal and distal demonstratives

iii. Difference between counterfactual reference to different world/situation indices and past reference to different time indices.

(Zimmermann 2021)

Grammatical/semantic tone in Akan codes:

i. Difference between declarative clauses and yes/no-interrogatives

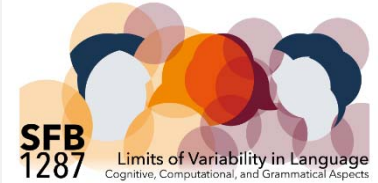ii. Temporal-aspectual differences; situation vs temporal reference

4. Extending the analysis to Akan *na*

The tonal specification *nà* vs *ná induces s*emantic differences

(31) a. [ɛ̀mó bótɔ́ dwírí gùù   wɔ̀ China nó] Maria hínítîì wɔ̀ Germany.
       rice bag   fall lie.PFV at China CD Maria trip.PFV at Germany
       'When the rice bag fell in China, Maria tripped in Germany.'

   b. [ɛ̀mó bótɔ́ dwírí gùù   wɔ̀ China nó] nà Maria hínítîì wɔ̀ Germany.
       rice bag   fall lie.PFV at China CD   Maria trip.PFV at Germany
       'When the rice bag fell in China, Maria tripped in Germany.'
                                                                    $(s \leq s_{TOP})$

   c. [ɛ̀mó bótɔ́ dwírí gùù   wɔ̀ China nó] ná Maria à-hínítí wɔ̀ Germany.
       rice bag fall   lie.PFV at China CD   Maria PERF-trip at Germany
       'When the rice bag fell in China, Maria had already tripped in
                                                              Germany.'
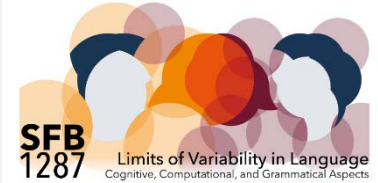
4. Extending the analysis to Akan *na*

Towards an account of *nà* vs *ná*: situation chaining vs temporal chaining

i.   L *nà* presupposes the presence of a salient situation $s \leq s_{TOP}$; cf. (30)

ii.   H *ná* presupposes the presence of salient temporal $t \neq UT$
(Akan otherwise grammatically tenseless, Osam 2008, Lecavalier, this conference)

(32)   [[ná]] = $\lambda p.\lambda t^*: \exists t \neq t^*.\lambda i.\lambda s.\ p(t)(s) \wedge t \leq i$ (with $t^* = UT$, $t = RT$)

Acknowledgement: Lecavalier et al. (2020)!

Towards an account of *nà* vs *ná*: situation chaining vs temporal chaining

i.   L *nà* presupposes the presence of a salient situation $s \leq s_{TOP}$; cf. (30)

ii.   H *ná* presupposes the presence of salient temporal $t \neq UT$
      (Akan otherwise grammatically tenseless, Osam 2008, Lecavalier,
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(32) $[[\ ná\ ]] = \lambda p.\lambda t^*: \exists t \neq t^*.\lambda i.\lambda s.\ p(t)(s) \wedge t \leq i$ (with $t^* = UT$, $t = RT$)

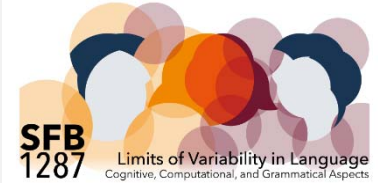$\Rightarrow$ Possible intermediate step / diachronic development:

(32') $[[\ ná\ ]] = \lambda p.\lambda t^* : \exists s \leq s_{TOP} \wedge \tau(s_{TOP}) \neq t^* . \lambda s.\ p(t)(s)$

      defined iff there is a contextually salient subsituation *s* of s_{TOP},
      whose running time is not identical to momentary UT t^*:

            $\Rightarrow$ **anaphoric *s* located in past or future!**

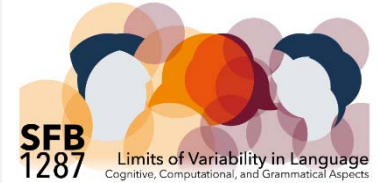**Accounting for the difference (31b) vs (31c)**

(31) b. [ɛ̀mó bɔ́tɔ́ dwírí gùù   wɔ̀ China nó] nà Maria hínítíì wɔ̀ Germany.
        rice bag   fall lie.PFV at China CD   Maria trip.PFV at Germany
        'When the rice bag fell in China, Maria tripped in Germany.'

FALLING and then TRIPPING

     c. [ɛ̀mó bɔ́tɔ́ dwírí gùù   wɔ̀ China nó] ná Maria à-hínítí wɔ̀ Germany.
        rice bag fall   lie.PFV at China CD   Maria PERF-trip at Germany
        'When the rice bag fell in China, Maria had already tripped in
                                                        Germany.'
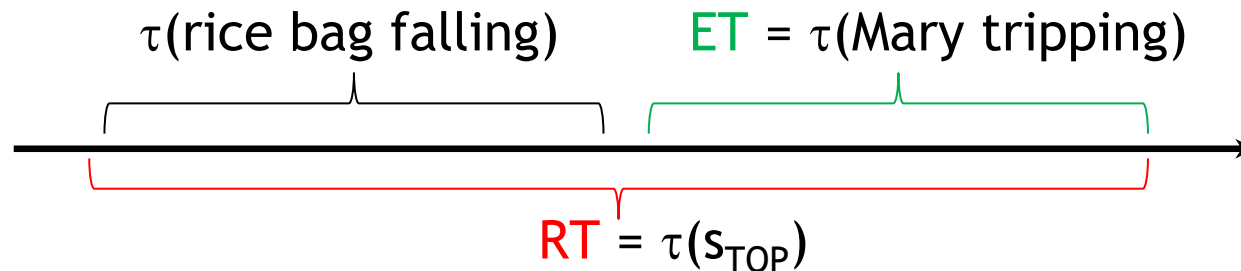
TRIPPING before FALLING

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Accounting for the difference (31b) vs (31c)

(31b): L-tone *nà* indicates that (past) context situation extends into the topic situation s_{TOP} partially specified by main clause content.

PFV: $ET \subset RT$
$ET = \tau$(Mary tripping)
$RT = \tau(s_{TOP}) = \tau$(rice bag falling & Mary tripping)

4. Extending the analysis to Akan *na*

Accounting for the difference (31b) vs (31c)

(31b): L-tone *nà* indicates that (past) context situation extends into the topic situation s_{TOP} partially specified by main clause content.
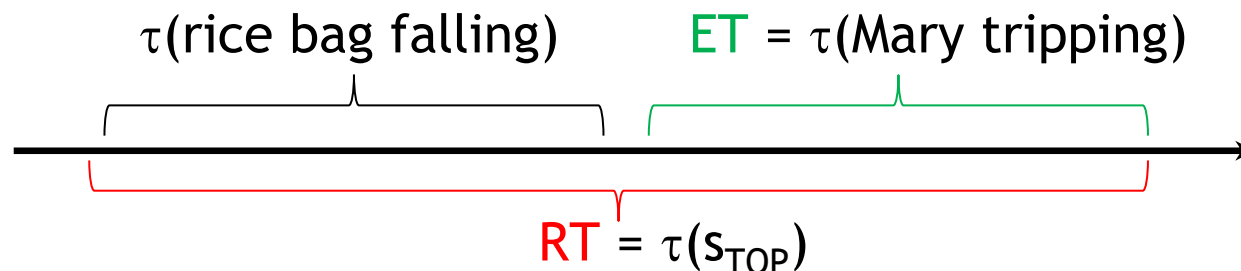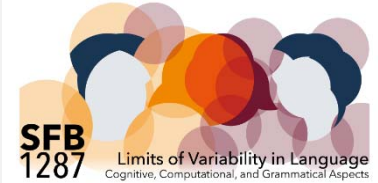
PFV: $ET \subset RT$
ET = τ(Mary tripping)
RT = $\tau(s_{TOP})$ = τ(rice bag falling & Mary tripping)

τ(rice bag falling) ET = τ(Mary tripping)

RT = $\tau(s_{TOP})$

$\Rightarrow$ Another argument for keeping events and situations apart! Events are clause-internal arguments, Situations can span across sentences and contain one or more events/states.

Accounting for the difference (31b) vs (31c)

(31b): L-tone *nà* indicates that (past) context situation extends into the topic situation s_{TOP} partially specified by main clause content.
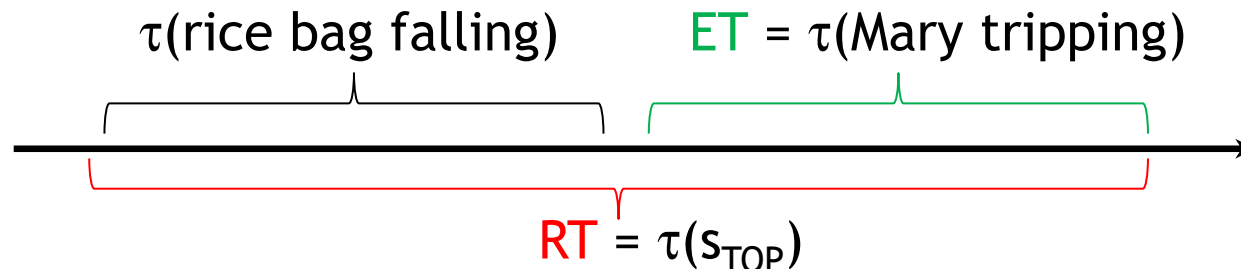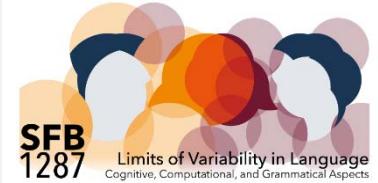
PFV: $ET \subset RT$
$ET = \tau$(Mary tripping)
$RT = \tau(s_{TOP}) = \tau$(rice bag falling & Mary tripping)

τ(rice bag falling) $ET = \tau$(Mary tripping)

$RT = \tau(s_{TOP})$

$[[(31b)]] \quad = \quad \exists e$ in s_{TOP} $[\tau(e) \subset \tau(s_{TOP}) \wedge$ trip'(mary, e)]; defined iff

$\exists$ <u>salient s</u> $\leq s_{TOP}$
when-clause (= Falling)

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Accounting for the difference (31b) vs (31c)

(31c): H-tone *ná* indicates that RT $\neq$ UT, and by default RT<UT

PERF: ET< RT
ET = τ(Mary tripping)
RT = τ(rice bag falling)   [no nà = no situation extension!]

ET = τ(Mary tripping)

RT = τ(s$_{TOP}$) = τ(rice bag falling)

Accounting for the difference (31b) vs (31c)

(31c): H-tone *ná* indicates that RT ≠ UT, and by default RT<UT

PERF: ET< RT
ET = τ(Mary tripping)
RT = τ(rice bag falling)   [no nà = no situation extension!]
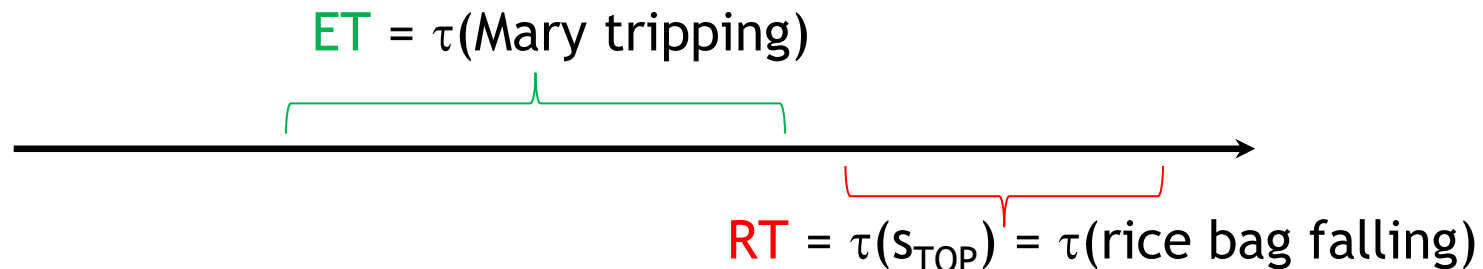
ET = τ(Mary tripping)

RT = $\tau(s_{TOP})$ = τ(rice bag falling)

[[(31c)]] = $\exists s\exists e$ in s [$\tau(e) < t \wedge$ trip'(mary, e) $\wedge$ t $\leq\tau$(rice bag falling)];

defined iff $\exists t \neq t^*$ *when-clause*

Accounting for the ungrammaticality of (31b'): *nà+PERF

(31b'):*[ɛ̀mó bɔ́tɔ́ dwírí gùù wɔ̀ China nó] nà Maria à-hínti wɔ̀ Germany.
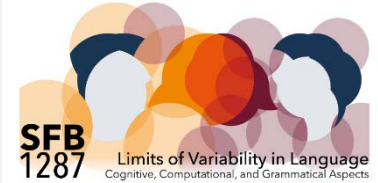   rice bag   fall   lie.PFV at China CD   Maria PERF-trip at Germany

⇒ **Conflicting constraints:**

i. L-tone *nà* indicates that (past) context situation extends into s_{TOP} ;

⇒ ET = τ(Mary tripping) $\subset$ $\tau(s_{TOP})$ = τ(rice bag falling & Mary tripping)
                                                              = RT

ii. PERF indicates that ET < RT ☠⇔💣 ET $\subset$ RT (from i.)

4. Extending the analysis to Akan *na*

Conclusions:

i. The analysis of Hausa REL extends directly to clause chaining and focus-related L-toned *nà* in Akan

ii. H-toned *ná* appears to play a similar but different semantic role in the temporal domain. ⇒ *ná* is a tense marker

iii. L-toned *nà* can coordinate propositions describing temporally/ spatially disjoint situations through (QUD-driven) top-down salience:

(33) Ben re-to dame   wɔ Kumasi **nà** Carlo re-tɔn   nam wɔ Nkran
     Ben prog-play draught at   Kumasi and Carlo prog-sell meat at Nkran
     'Ben is playing draught in Kumasi and Carlo is selling meat in Accra.'

⇒ The salient situation *s* can but need not be the situation expressed by the antecedent clause: ***nà*-coordination ≠ situation extension**

Further Data & Open Issues & Empirical Questions:

i. No general incompatibility of clause chaining *nà* and PERF *a-:*

- with causal connections:

(34) a. Mè bá-àyɛ́ nà ɔ́-á-sɔ́re
         1sg come-pfv conn 3sg.sbj-perf-stand up
         'He got up because/as soon as I arrived.'

⟹ but not in clause chaining with ET< RT=UT (as expected)!!!

b. Ama á-yɛ̀ adwúmá á-nyà sìká á-sì dáń
    Ama perf-do work perf-get money perf-build house
    'Ama has worked, got money and built a house.'

Further Data & Open Issues & Empirical Questions:

ii.   Obligatory co-occurrence of temporal adverbs and *ná*?

    Temporal adverbs are typically followed by ná, unless there is a prosodic break between left-dislocated adverb and the main clause:

(35) ɛ̀nórà̀ (*ná), Yaa sù-ùyɛ̀
     yesterday   Yaa cry-pfv
     'Yesterday Yaa cried'

iii. Temporal adverbs can be focused (and negated) in the presence of *ná*

(36) ɛ̀nórà̀   nà ná Yaa ré-sù
     yesterday   Yaa prog-cry
     'It was yesterday that Yaa was crying'

4. Extending the analysis to Akan *na*

Further Data & Open Issues & Empirical Questions:

iv.   Double occurrence of H *ná* with *before*-clauses (Lecavalier, this conference)

v.   Incompatibility of H *ná* and PFV-marking: *ná+PFV

vi.   Why not *nà*, but *a* in relative clauses?

vii. What about the postulated diachronic origin of *na* from *ne* + REL-marker *a* (Ofori 2011: 260)?

5. Conclusion

i. Situations play a crucial role in the context-based derivation of sentence meanings and in clausal chaining, and thus in the overall organisation of discourse structure.

ii. Hausa and Akan exhibit overt reference to situations in the form of anaphoric situation operators.

iii. The closer study of such phenomena with formal-semantic tools will contribute to a better understanding of the role of situations in compositional semantics AND the organisation of discourse structure!

5. Conclusion

Medaase!
Mun gode!
Thank you!

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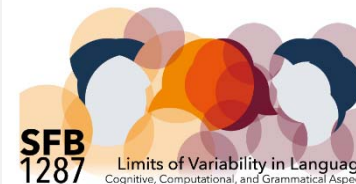
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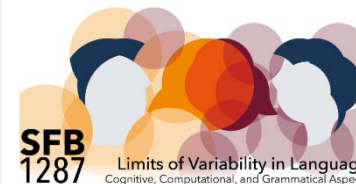
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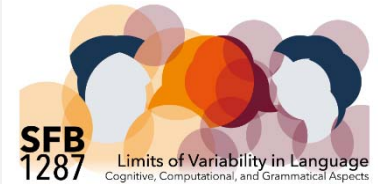
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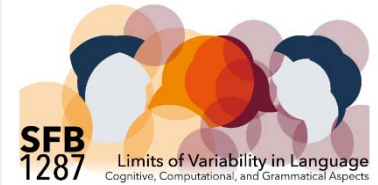
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Alternative s-derivation through QUD-exemplification? (Kratzer 2011, Schwarz 2009)

(7) $s = \iota s[ex(\textbf{Q}uestion\ \textbf{E}xtension)(s)]$ (Schwarz 2009)

(A1) $QE = \lambda s.\ s \leq\approx s_{QUD} \wedge [\lambda x.\ x\ sleeps\ in\ s = \lambda x.\ x\ sleeps\ in\ s_{QUD}]$

(Grubic 2015: 149)

(11) a. kiifii Kànde ta dafàa.   'Kande cooked FISH'.

    QUD: What did Kande cook?

$\Rightarrow$ s = the maximal situation consisting of all situations in which
      Kande cooked something

$\Rightarrow$ Because of exemplification, s could never be a proper subpart of s_{TOP}
    in (11a), so the meaning of REL would need to be changed:

(A2) $[[\,REL\,]] = \lambda p.\lambda s_{TOP}$: there is a salient $s = s_{TOP}\ .\lambda s'.\ s' \approx s_{TOP} \wedge p(s')$

Alternative s-derivation through QUD-exemplification? (Kratzer 2011, Schwarz 2009)

BUT: The modified meaning in (A2) predicts (11a) to be exemplified wrt to QUD as well $\Rightarrow$ (11a) should be an exhaustive answer.

(11) a. kiifii Kànde ta dafàa.   'Kande cooked FISH'.

QUD: What did Kande cook?

= 1 iff the contextually salient maximal Kande-cook-situation is a situation in which Kande cooked fish (and nothing else)

$\Rightarrow$ NOT BORNE OUT! Hartmann & Zimmermann (2007b) show that REL-marking in answers alone does not make them exhaustive:

Exhaustivity/Exemplification is introduced by the focus-sensitive particle *nee/cee*! (Hartmann & Zimmermann 2007b)

$\Rightarrow$ REL-sentences are partial answers to (implicit) QUDs!

Additional prediction: No REL-marking with scalar additives

BORNE OUT!

(A3) Koo jàariirìi   yaa   san   hakà.
      even child   3SG.M.PFV.ABS   know that
      'Even a CHILD knows that.'

$\Rightarrow$ REL not licensed because of additive nature of alternative-introducing scalar *koo* ($\Rightarrow$ SFB833, C1), which presupposes the existence of a distinct salient situation in the context; viz. (26) (Krifka 1999); see also Grubic & Wierzba (to appear)

(A4) Mary passed the test. #Even Mary and Bertha passed the test.

$\Rightarrow$ Being distinct, the contextually salient situation cannot be a (proper) subpart of s_{TOP}

Contrastive Topic Patterns

Why do declaratives in contrastive topic-contexts regularly occur without REL-marking (at least when the subject is the CT)?

(A5)   Q: What did the boys buy?

         A: Audu yaa sayi wake,   (beans)
             Musa yaa sayi shinkafa,   (rice)
             Bashir kuma yaa sayi gyad'a.   (peanuts)

$\Rightarrow$ Boys-buying-situation s not part of s_{TOP} of individual sentences (too big); Audu buying-situation s not part of Musa-buying situation etc.