1 Introduction

(1) MOOD:
   a. SENTENCE MOOD: declarative vs. interrogative vs. imperative
   b. VERBAL MOOD: indicative vs. subjunctive

Portner (2004) advances a theory of sentence mood underpinned by type-theoretic distinctions:

(2) a. Declarative → proposition (added to Common Ground)
    b. Interrogative → set of propositions (added to Question Set)
    c. Imperative → property (added to Addressee’s To-Do List)

This talk: Show that verbal mood can also be fruitfully studied from a type-theoretic angle.

More specifically: JUSSIVE-marked clauses in Gengbe (which are distributionally similar to Romance subjunctive clauses) are PROPERTY-DENOTING, as evidenced by their interaction with antecedent choice for logophoric pronouns.

Gengbe (also known as Gen or Mina) is a Niger-Congo language closely related to Ewe and spoken in southern Togo and Benin. According to Ethnologue, it has 278,900 speakers worldwide.

Data reported here were collected via elicitation sessions at Indiana University with Gabriel Mawusi (a native Gengbe speaker from Batonou, Togo). These sessions were conducted by Samson Lotven and supported by Professor Sam Obeng.

(3) Roadmap:
   a. Section 2: Core data and puzzles
   b. Section 3: The proposed solution in three stipulations
   c. Section 4: Revisiting the three stipulations
   d. Section 5: Harmonic modality?
   e. Section 6: Conclusions

Abbreviations used in glosses: ACC = accusative, COMP = complementizer, EXH = exhortative, INDIC = indicative, JUSS = jussive, IMP = imperative, LOG = logophor, PL = plural, POT = potential, PRM = promissive, SBJV = subjunctive, 1/3SG = 1st/3rd-person singular
2 The core data and puzzles

At first glance, jä seems to behave like an ordinary logophor: It must be bound by an attitude holder, and multiple embedding of attitudes gives rise to ambiguity in antecedent choice (cf. Clements 1975):

(4) Kofi bé Ámá2 káqóedzá [bē jä1/2/3 dū nú].
Kofi say Ama believe COMP LOG eat thing
‘Kofi said Ama believes that he/she (= Kofi/Ama) ate.’

Core puzzle: When jä is embedded under dʒí ‘want’, mood choice interacts with antecedent choice:

(5) Kofi bé Ámá2 dʒí [bē jä1/2/3 lā dū nú].
Kofi say Ama want COMP LOG POT eat thing
‘Kofi said Ama wants to eat.’  want+LOG+POT → CONTROL

(6) Kofi bé Ámá2 dʒí [bē jä1/2/3 nē dū nú].
Kofi say Ama want COMP LOG JUSS eat thing
‘Kofi said Ama wants him (= Kofi) to eat.’ want+LOG+JUSS → OBVIATION

(and similarly for: wáṣósú ‘intend’, dʒêñágbáà ‘try’, lè ‘agree’, fřèdʒígbè ‘pledge’)

Subsidiary puzzle #1: When the subject under dʒí ‘want’ is a full-NP, only nē is grammatical:

(7) *Kofi bé Ámá dʒí [bē Akú lā dū nú].
Kofi say Ama want COMP Aku POT eat thing
Intended:  ‘Kofi said Ama wants Aku to eat.’ want+full-NP+POT → *

(8) Kofi bé Ámá dʒí [bē Akú nē dū nú].
Kofi say Ama want COMP Aku JUSS eat thing
‘Kofi said Ama wants Aku to eat.’ want+full-NP+JUSS → OK

Subsidiary puzzle #2: When dʒí ‘want’ is replaced with káqóedzá ‘believe’, an embedded full-NP subject is grammatical with both lā and nē . . .

(9) Kofi bé Ámá káqóedzá [bē Akú lā dū nú].
Kofi say Ama believe COMP Aku POT eat thing
‘Kofi said Ama believes that Aku will eat.’ believe+full-NP+POT → OK

(10) Kofi bé Ámá káqóedzá [bē Akú nē dū nú].
Kofi say Ama believe COMP Aku JUSS eat thing
‘Kofi said Ama believes that Aku should eat.’ believe+full-NP+JUSS → OK

. . . and an embedded logophor under lā has free choice of antecedent, but an embedded logophor under nē induces obviation just as it does with dʒí ‘want’:

(11) Kofi bé Ámá2 káqóedzá [bē jä1/2 lā dū nú].
Kofi say Ama believe COMP LOG POT eat thing
‘Kofi said Ama believes that he/she (= Kofi/Ama) will eat.’ believe+LOG+POT → AMBIG.

(12) Kofi bé Ámá2 káqóedzá [bē jä1/2 nē dū nú].
Kofi say Ama believe COMP LOG JUSS eat thing
‘Kofi said Ama believes that he (= Kofi) should eat.’ believe+LOG+JUSS → OBVIATION

(and similarly for: pā ‘know’, gblō ‘say’, kúàdri ‘dream’)

2
3 The proposed solution in three stipulations

All of these puzzles can be accounted for with three stipulations:

(13) **Stipulation #1**: A logophor has to be bound by an attitude predicate:
   a. Kofi say [Ama believe [λx. [LOG_x eat]]] OK
   b. Kofi say [λx. [Ama believe [LOG_x eat]]] OK
   c. Kofi say [Ama believe [LOG_x eat]] ungrammatical

(14) **Stipulation #2**: n’kʷ ‘JUSS’ triggers individual abstraction whereas lâ ‘POT’ does not:
   a. [Kofi eat]_{st} → [λx. Kofi JUSS eat]_{e,st}
   b. [Kofi eat]_{st} → [Kofi POT eat]_{st}

(15) **Stipulation #3**: dʒt ‘want’ can only combine with a property whereas káŋ’ọédʒt ‘believe’ can combine with either a proposition or a property:
   a. [[dʒt]] = λP_{(e, st)} λxλw.∀w′ ∈ BEST_{desire}(DOX(x, w)): P(x)(w′) \langle \langle e, st \rangle, \langle e, st \rangle \rangle
   b. [[káŋ’ọédʒt]] = λP_{(e, st)} λxλw.∀w′ ∈ DOX(x, w): p(w′) \langle st, \langle e, st \rangle \rangle
   b’. [[káŋ’ọédʒt’]] = λP_{(e, st)} λxλw.∀w′ ∈ DOX(x, w): P(x)(w′) \langle \langle e, st \rangle, \langle e, st \rangle \rangle

The core puzzle revisited:

(16) want+LOG+POT induces control:
   a. Kofi say Ama [want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λx. LOG_x POT eat]_{e, st}] ← ok!
   b. Kofi say [λx. Ama want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [LOG_x POT eat]_{(st)}] ← mismatch!

(17) want+LOG+JUSS induces obviation:
   a. Kofi say Ama [want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λxλy. LOG_x JUSS eat]_{e, st}] ← mismatch!
   b. Kofi say [λx. Ama want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λy. LOG_x JUSS eat]_{e, st}] ← ok!

Subsidiary puzzle #1 revisited:

(18) want+full-NP+POT induces a mismatch whereas want+full-NP+JUSS does not:
   a. Kofi say [Ama want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [Aku POT eat]_{(st)}] ← mismatch!
   b. Kofi say [Ama want\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λx. Aku JUSS eat]_{e, st}] ← ok!

Subsidiary puzzle #2 revisited:

(19) Type flexibility for ‘believe’ renders believe+full-NP+POT / believe+full-NP+JUSS both OK:
   a. Kofi say [Ama believe\langle\langle st \rangle, \langle e, st \rangle \rangle [Aku POT eat]_{(st)}] ← ok!
   b. Kofi say [Ama believe\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λx. Aku JUSS eat]_{(e, st)}] ← ok!

(20) Type flexibility also enables both binding options for believe+LOG+POT:
   a. Kofi say [λx. Ama believe\langle\langle st \rangle, \langle e, st \rangle \rangle [LOG_x POT eat]_{(st)}] ← ok!
   b. Kofi say [Ama believe\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λx. LOG_x POT eat]_{e, st}] ← ok!

(21) But even with type flexibility, believe+LOG+JUSS induces obviation:
   a. Kofi say [Ama believe\langle\langle st \rangle, \langle e, st \rangle \rangle \langle\langle e, st \rangle, \langle e, st \rangle \rangle [λxλy. LOG_x JUSS eat]_{e, st}] ← mismatch!
   b. Kofi say [λx. Ama believe\langle\langle e, st \rangle, \langle e, st \rangle \rangle [λy. LOG_x JUSS eat]_{e, st}] ← ok!
4 Revisiting the three stipulations

4.1 Stipulation #1: A logophor has to be bound by an attitude predicate


4.2 Stipulation #2: né ‘JUSS’ triggers individual abstraction whereas lá ‘POT’ does not

In unembedded contexts, lá ‘POT’ is typically used to express future possibility (22) (cf. Essegbeys 2008) whereas né ‘JUSS’ is used to indicate a desire or priority:

(22) Kòfi lá dù nú. Kofi POT eat thing ‘Kofi will/might eat.’

né ‘JUSS’ is also found in contexts known cross-linguistically to support embedded imperatives:

(24) Kòfi dòó ū̀èì Èkú bè né dù nú. Kofi encourage Aku COMP JUSS eat thing ‘Kofi encouraged Aku to eat.’

Ameka (2008), investigating the cognate Ewe jussive particle né, provides some examples suggesting that it sometimes has an optative flavor:

(25) gbôbo vó-wó né-do spirit bad-PL JUSS-exit ‘Let evil spirits come out.’ (Ewe, Ameka 2008)

We take this priority-oriented, optative-like status to be highly suggestive that né is in the same family of morphemes identified by Zanuttini, Pak, and Portner (2012) (henceforth ZPP12) as jussives, which for them include imperatives, promissives, exhortatives, and (possibly) optatives:

(26) Cemsim-ul sa-la. lunch-ACC buy-IMP ‘Buy lunch!’ (Korean imperative)
(27) Cemsim-ul sa-ma. lunch-ACC buy-PRM ‘I will buy lunch.’ (Korean promissive)
(28) Cemsim-ul sa-ca lunch-ACC buy-EXH ‘Let’s buy lunch.’ (Korean exhortative)
(29) kʰa:y eat-IMP.3SG ‘Let him eat.’ (Bhojpuri optative)

ZPP12 propose that jussives are individual abstractors that typically bind the subject and impose a person restriction on it:

(30) For any phrase XP, 
[[JUSS[person: v]k XP]]g,c = [λx : x = [[person: v]k]]g,c . [[XP]]g[k→x],c (ZPP12:1265)

A proposal for fitting optatives into this setup: Optatives induce individual abstraction but without any binding or person restriction (cf. ZPP12:note 30 for a different approach, due to P. Grosz).

(31) [[Kofi JUSS eat]]g,c = [λx. Kofi eat] Guiding idea: The status of the utterance as a property has the pragmatic effect of endowing it with a “world-to-word” direction-of-fit, but the lack of binding or person restriction means that it is not directed at any particular participant’s To-Do List.
4.3 Stipulation #3: dʒɪ ‘want’ can only combine with a property whereas káðōédʒɪ ‘believe’ can combine with either a proposition or a property

This proposal goes against the recent grain of treating all clauses (embedded or not, controlled or not, de se or not) in a type-theoretically uniform way, whether as propositions (Stephenson 2010) or as properties (Pearson 2013).

But it is not a new idea either: Dowty (1985) proposes that non-control complements are proposition-denoting whereas control complements are property-denoting, so that some embedding verbs are type (st, . . .), others type ⟨⟨e, st⟩⟩, and others ⟨⟨e, st⟩⟩(⟨⟨e, st⟩⟩)-flexible.

If we extend the property analysis of jussives to infinitives and subjunctives as well, there is cross-linguistic support for the type-theoretical rigidity of ‘want’ and flexibility of ‘believe’:

(32)  a. John wants [Bill to be happy].
     b. *John wants [that Bill is happy].

(33)  a. John believes [Bill to be happy].
     b. John believes [that Bill is happy].

(34)  Juan cree [que Pedro es feliz].
     ‘Juan thinks that Pedro is.INDIC happy.’
     Spanish ‘believe’ → indicative

(35)  Gianni crede [che Pietro sia felice].
     ‘Gianni thinks that Pietro is.SBJV happy.’
     Italian ‘believe’ → subjunctive

(36)  Juan quiere [que Pedro sea feliz].
     ‘Juan wants that Pedro is.SBJV happy.’
     Spanish ‘want’ → subjunctive

(37)  Gianni vuole [che Pietro sia felice].
     ‘Gianni wants that Pietro is.SBJV happy.’
     Italian ‘want’ → subjunctive

We can encode these subcategorization facts as follows:

**Denotations for embedding verbs:**

(38)  [[want]] = λP(⟨e, st⟩).∀xλw.∀w’ ∈ BEST_{desire}(DOX(x, w)): P(x)(w’)

(39)  a. [[believe]] = λP(⟨e, st⟩).∀xλw.∀w’ ∈ DOX(x, w): P(w’)
     b. [[believe’]] = λP(⟨e, st⟩).∀xλw.∀w’ ∈ DOX(x, w): P(x)(w’)

**Denotations for complements:**

(40)  Infinitives/subjunctive clauses
     a. [[Bill to be happy]] = [λxλw . Bill is happy in w]
     b. [[PRO to be happy]] = [λxλw . x is happy in w]
     c. [[Pedro sea feliz]] = [λxλw . Pedro is happy in w]

(41)  Finite indicative clauses
     a. [[Bill is happy]] = [λw . Bill is happy in w]
     b. [[Pedro es feliz]] = [λw . Pedro is happy in w]

We intend this as an implementation of a theory of mood choice, not as a replacement for existing proposals about what semantic properties characterize indicative- vs. subjunctive-selecting verbs.
5 Harmonic modality?

It is crucial to our analysis that \( n\hat{E} \) ‘JUSS’ adds an individual argument as in (42), which a ZPP12 ‘individual abstractor’ analysis of jussives readily provides.

\[
(42) \quad [Kofi \, eat]_{(st)} \rightarrow [\lambda x . \, Kofi \, JUSS \, eat]_{(e,st)}
\]

But our analysis would also be compatible with the view that \( n\hat{E} \) has more content than this. In particular, it is also conceivable to analyze it as a priority modal, where the individual argument helps determine the worlds that are quantified over:

\[
(43) \quad [[n\hat{E}]] = \lambda p_{(st)} \lambda x \lambda s . \forall w' \in \text{PRIORITY}(x,s) : \exists s' [s' \leq w' \land p(s')]
\]

where \( \text{PRIORITY}(x,s) = \{ \forall w | w \text{ is compatible with } x\text{’s priorities in } s \} \)

This could then be coupled with a non-modal analysis \( d\hat{E} \) ‘want’ (44) to achieve a Kratzer 2013-style decompositional ‘neo-Davidsonian’ approach to attitude reports (45) (cf. also Moulton 2009; Moltmann 2014; Bogal-Allbritten 2016; Grano 2016):

\[
(44) \quad [[d\hat{E} \, ‘want’]] = \lambda p_{(e,st)} \lambda x \lambda s . \text{want}(s) \land \text{EXPERIENCER}(s) = x \land P(x)(s)
\]

\[
(45) \quad [[\text{Ama \ want} \, \text{COMP} \, \text{Aku \ JUSS \ eat \ thing}]] = \\
\exists s [ \text{want}(s) \land \text{EXPERIENCER}(s) = \text{Ama} \land \forall w' \in \text{PRIORITY}(\text{Ama},s) : \exists s' [s' \leq w' \land \text{Aku \ eats} \, \text{in} \, s']]
\]

‘There is a state s, s is a wanting whose experiencer is Ama, and all those worlds compatible with Ama’s priorities in s are worlds in which Aku eats.’

On this analysis, (45) instantiates the same kind of HARMONIC MODALITY that Kratzer (2013) points to in motivating her approach to embedding:

\[
(46) \quad \text{It seems to us entirely desirable that there ought to be a constitutional amendment. (Kratzer 2013:slide 17)}
\]

\[
(47) \quad \text{The urgency of the situation requires that the dig must continue regardless of the weather and comfort. (Kratzer 2013:slide 18)}
\]

Possible source of cross-linguistic support: Obviative ‘should’ in Yiddish and Yiddish English:

\[
(48) \quad \text{Ikh vil er zol geyn.} \\
\text{1SG want 3SG should go} \\
\text{‘I want him to go.’ (Yiddish, Sadock 2012)}
\]

\[
(49) \quad \text{You want I should help you?} \\
\text{(see discussion at http://languagelog.ldc.upenn.edu/nll/?p=11847)}
\]

In these examples, ‘should’ resembles Gengbe \( n\hat{E} \). If they are to have the same analysis, then either ‘should’ in these examples does not have a modal semantics (!), or Gengbe \( n\hat{E} \) does have a modal semantics.
6 Conclusions

Central conclusion: A property analysis of Gengbe jussive clauses helps make sense of an otherwise puzzling interaction between embedding verb choice, mood choice, and antecedent choice for logophors.

Taking a step back: If we are correct in extending the property analysis to subjunctive clauses and infinitives cross-linguistically, why do we not see the same kind of puzzle in more familiarly studied languages?

We think it is because Gengbe has two properties not typical among better studied languages:

1. Logophoric pronouns
2. Full (finite, non-truncated) clauses as complements to verbs like ‘want’

It is only when these two properties co-occur that we see the puzzles of interest.

A secondary theoretical point: It is also due to these two properties that we see in Gengbe the recruitment of logophoricity to achieve syntactic control (possibly evidence against Landau’s 2015:38 claim, following Culy 1994, that logophors never occur in obligatory control complements).

This point is consonant with the recent trend in control theory of not viewing controlled subjects as instantiations of a dedicated pronoun PRO but instead as a species of expression that has wider grammatical currency such as minimal pronouns (Kratzer 2009; Landau 2015) or A-traces (Hornstein 1999) that interact with the other pieces of the sentence to give rise to control.

References


Heim, Irene. 2002. Features of pronouns in semantics and morphology. Handout of talk given at USC.


A Appendix: Additional data and puzzles

A.1 ‘want’ > ‘say’ embeddings

Our core data in section 2 consisted of ‘say’ > ‘believe’ and ‘say’ > ‘want’ embeddings, but our analysis also makes predictions about other kinds of embedding configurations such as ‘want’ > ‘say’.

These predictions are borne out in the following data:

(51) Kofi dʒí bë Ámá nē/*lá gblɔ bë Åkú ḱu nù.
Kofi want COMP Ama JUSS/*POT say COMP Aku eat
‘Kofi wants Ama to say that Aku ate.’
(want+full-NP+JUSS/*POT)

(52) Kofi dʒí bë Ámá nē gblɔ bë jë ḱu nù.
Kofi₁ want COMP Ama₂ JUSS say COMP LOG₁/₂ eat
‘Kofi wants Ama to say that Aku ate.’
(say+LOG: ambig.)

(53) Ámá bë Kofi dʒí bë jë nē gblɔ bë Åkú ḱu nù.
Ama₁ say Kofi₂ want COMP LOG₁/₂ JUSS say COMP Aku eat
‘Ama said Kofi wants Ama to say that Aku ate.’
(want+LOG+JUSS: obviation)
A.2 Object-position logophors

The facts change when we turn to object-position logophors. Object-position logophors exhibit ambiguity in antecedent choice not only under ‘believe’ (55) but also under ‘want’ (56), against the expectations of our analysis. They also pattern unlike subject-position logophors in that they do not enable POT mood under ‘want’ (57).

(55) Kofi be Amá káqóedzí [bè Àkú lá kpò jè1/2].
Kofi say Ama believe COMP Aku POT see LOG
‘Kofi said Ama believes that Aku will see him/her (= Kofi/Ama).’

(56) Kofi be Amá dží [bè Àkú nè kpò jè].
Kofi say Ama want COMP Ama JUSS see LOG
‘Kofi said Ama wants Aku to see him/her (= Kofi/Ama).’

(57) *Kofi be Amá dží [bè Àkú lá kpò jè].
Kofi say Ama want COMP Ama POT see LOG
Intended: ‘Kofi said Ama wants Aku to see him/her.’

The facts are consistent with the view that object-position logophors, unlike subject-position logophors, are bound by DPs rather than by attitude predicates. But this would be an unattractive complication to the theory.

A.3 The jussive person restriction

In unembedded contexts, JUSS is unacceptable with a first-person subject:

(58) *mü nè dù nù.
1SG JUSS eat thing
Intended: ‘I should eat.’

This seems like the unembedded analogue of the obviation effect: nè signals that the subject is obviative with respect to the local attitude holder, and in unembedded contexts, the local attitude holder is the speaker. Curiously, though, the same restriction is found in embedded contexts, regardless of the choice of embedding predicate:

(59) *Kofi1 be mü nè dù nù.
Kofi say 1SG JUSS eat thing
Intended: ‘Kofi said I should eat.’

(60) *Kofi1 káqóedzí be mü nè dù nù.
Kofi believe COMP 1SG JUSS eat thing
Intended: ‘Kofi believes I should eat.’

(61) *Kofi1 dží be mü nè dù nù.
Kofi want COMP 1SG JUSS eat thing
Intended: ‘Kofi wants me to eat.’

We leave this as an open puzzle.

The facts are consistent with the view that object-position logophors, unlike subject-position logophors, are bound by DPs rather than by attitude predicates. But this would be an unattractive complication to the theory.