

# Obligation, prohibition, non-finite complementation

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A deontic modal's argument = proposition: MOD [p]  
Today, we will look **inside the complements** of verbs of **obligation and prohibition** in Bangla/Bengali  
Their mandatorily **non-finite complements** will raise challenges on two fronts: i) what is the semantics of prohibition and obligation?; ii) what is the semantics of infinitives and gerunds, and how do they combine?

## The Patterns

- Mina-r **je-te** (\*ja-wa) hobe.  
Mina-GEN go-INF/\*go-GER has-to (obligation)  
'Mina has to go.'
  - Mina-r **je-te/ ja-wa** baron (prohibition)  
Mina-GEN go-INF/go-GER forbidden  
'M is forbidden to go/ going is forbidden.'
- Verbs of obligation ~ 'hobe'/'lagbe' (have-to/got-to) ~ only take infinitives and not gerunds.  
Verbs of prohibition 'mana'/'baron'/'nishedh' (forbid/prohibit/disallowed) take both.  
In the literature, gerunds and infinitives have been given a similar semantics: kind-like abstract individuals/eventualities (Carlson '77, Chierchia '84, '16), or as sets of minimal situations (Portner '92).  $v$  = event type;  $e$  = event var:  
[[**-INF**]]/[**-GER**] :=  $\lambda P_{vt} \lambda e_v. P(e)$  (baseline semantics)  
Evidence: Gerunds & infinitives =  $\checkmark$  with kind verbs:  
(3) [Getting into trouble] is rare for adults.  
(4) [For people to love their pets] is common.  
In Bangla, however, kind-denoting predicates can take gerunds but not infinitives:  
(5) Shukhi manush khuje **pa-wa** birol. (Bangla infinitives cannot be kind terms, unlike gerunds)  
happy person find get-GER rare  
'Finding happy people is rare.'
  - \*Otithi-der mishti **di-te** procholito.  
guest-GEN sweet give-INF common  
Intd: 'To give guests sweets is common.'

## Infinitives vs. Gerunds: quantification & tense

- Infinitives cannot be definite events (unlike gerunds):  
(8) Amar tomar gaan **ga-wa** mone pore (9) \*Amar tomar gaan **gai-te** mone pore  
I your song sing-GER mind fall I your song sing-INF mind fall  
'I remember your singing.' Intd: 'I remember your singing.'
- Infinitives are incompatible with definite classifier ta:  
(10) Tomar gaan **ga-wa-ta** dekh-lam. (11) \*Toma-ke gaan **gai-te-ta** dekh-lam  
your song sing-GER-CL sec-IP.PERF YOU-DAT song sing-INF-CL sec-IP.PERF  
'I saw (the event of) your singing.' Intd: 'I saw (the event of) your singing.'
- With an adverb of quantification, a quantificational reading is unavailable; thus, the infinitive cannot be set-denoting, unlike English POSS-ing gerunds (Portner '89):  
(12) J shadharonoto B-ke shohore **je-te** jor kore  
J usually B-DAT city go-INF force do  
'J usually forces B to go to the city.' (Unavailable: 'Whenever B goes to the city, J forces it.')
- Infinitives only pick out one non-specific event (unlike English POSS-ing gerunds which do not permit an  $\exists$  reading):  
(13) Jas B-ke Dilli **je-te** bolechilo 'Jas told Bob go-INF to Delhi'

- Stowell ('82), Duffley ('00), Landau ('00), Morita ('12) posit a crucial distinction between infinitives and gerunds:  
(14) Jen remembered [bringing the wine]. GER > MATRIX  
(15) Bo tried [repairing the brakes]. GER unrealized or PRES  
Gerunds are atemporal; have no internal tense operator.  
In contrast, infinitives have an internal tense operator; the understood time frame has to be fixed wrt the matrix:  
(16) Jen remembered [to bring the wine]. MATRIX > INF  
(17) I'm sorry [to have missed your call]. INF > MATRIX  
We see Bangla obligation & prohibition verbs **choose** between infinitives and gerunds. So baseline semantics =  $\times$   
What property distinguishes non-finite complements?  
(18) [[**-GER**]] :=  $\lambda P_{vt} \lambda e_v. P(e)$  where  $TT(e) = \text{unspecified}$   
(19) [[**-INF**]] :=  $\lambda P_{vt} \lambda x_e \exists e [P(e) \ \& \ \text{agent}(e, x)]$  where  $TT(e) = \text{unspecified}$   
Ans: **Topic time** specification! (Klein '06)  
A typological space is opened up by this analysis.

## Modal verbs

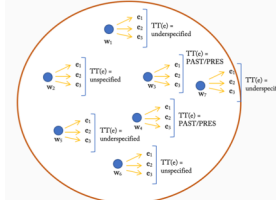
- The Bangla infinitive morpheme is an existential statement over events; after V, it leads to a set of worlds intensionally.  
Proposal: Obligation & prohibition verbs differ in argument structure.  
Obligative verbs only take tenseless propositions (sets of worlds), while prohibitive verbs take both tenseless propositions & (tenseless) sets of events.  
Morpho-syntactically, this results in the always infinitive complement vs. a choice between infinitive or gerund complements.  
(20) [[**OBLIGATIVE**]]<sup>w</sup> =  $\lambda f_{(s(st,t))} \lambda p_{st} : \forall e \text{ s.t. } e \text{ is an event in } p\text{-worlds, } TT(e) = \text{unspecified. } [\forall w' \in \bigcap f(w) : p(w')]$   
The presupposition is a core restriction on the propositional argument.  
All prohibitives contain negation (Iatridou '21: lack of permission).  
(21) [[**PROHIBITATIVE TYPE I**]]<sup>w</sup> =  $\lambda f_{(s(st,t))} \lambda p_{st} : \forall e \text{ s.t. } e \text{ is an event in } p\text{-worlds, } TT(e) = \text{unspecified. } [\neg \exists w' \in \bigcap f(w) : p(w')]$   
(22) [[**PROHIBITATIVE TYPE II**]]<sup>w</sup> =  $\lambda f_{(s(st,t))} \lambda E_{vt} \lambda x_e [\neg \exists e' \in E \forall w' \in \bigcap f(w) : \text{HOLDS}(e', x, w')]$ , where  $TT(e') = \text{unspecified}$   
(23) **HOLDS** :=  $\lambda w \lambda x \lambda e. e \text{ is an event that happens in world } w \text{ with } x \text{ as the agent of } e$

## Events & Modal Bases

Our classical component (the deontic modal base) would need to be formed out of generalized intersection over tenseless propositions: a set of worlds formed from propositions built from the right kinds of events, with the content being preserved. Our proposal:  
MODAL BASE REPLACER :=  
 $\lambda w_s. \lambda f_{(s(st,t))} : \forall p \in f(w) \forall e [e \text{ is an event in } p\text{-worlds, } TT(e) = \text{specified}]. G_{(s(st,t))} \text{ s.t. } \forall p \in G(w) \forall e [e \text{ is an event in } p\text{-worlds, } TT(e) = \text{unspecified}].$



An MBR ensures the quantificational domain is correctly carved out.



Our proposal builds on a partial view of the world (modeling a concept from artificial intelligence, and aligned with the framework of Local Models Semantics in computer science) (Ghidini & Giunchiglia '93, '02, a.o.)