

# WITH OR WITHOUT NECESSITY? (ATAYAL MODALITY SYSTEM)

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1

# OUTLINE

- Framework: kratzerian modality
- Relevant issues of Atayal
- Atayal modality: Chen's most recent overview
- Research data
- Main findings I: Modality tests per tribe
  - First summary
- Main findings II: Interaction with negation
  - Evidence for negation scope
- Final summary
  - Further questions



# FRAMEWORK

Kratzerian modality

# FRAMEWORK: KRATZERIAN MODALITY

- Modals can be defined along three dimensions:
  - modal base (the set of accessible worlds that modals quantify over)
  - ordering source (ranking of possible worlds): stereotypical, bouletic (in view of what I want), doxastic (in view of certain beliefs), teleological (in view of certain aims)
  - modal force (quantification): universal / existential.

# FRAMEWORK: KRATZERIAN MODALITY

- Necessity and possibility
  - (1) Michl must be the murder (NECESSITY)
  - (2) Michl might be the murder (POSSIBILITY)

(1) implies (2), but (2) does not imply (1)

# FRAMEWORK: KRATZERIAN MODALITY

- Modal bases
  - epistemic: worlds compatible with what we know
  - circumstantial: worlds compatible with what is the actual properties of objects
- Ordering sources (ranking worlds as close to or far-fetched from some ideal):
  - stereotypical: the worlds, where everything goes naturally
  - deontic: the worlds, where the rules and regulations hold
  - teleological: the worlds where ones goals are reached
  - bouletic: the worlds where ones wishes come true
  - doxastic: the worlds where ones beliefs are true
  - ....

It is the ordering source that makes a gradual modal (slight possibility, better possibility) possible

# FRAMEWORK: TYPOLOGY A LA RULLMAN ET AL.

- The languages may vary according to whether the modal base or the modal force is lexically specified
  - Table 1. Flexible modal base

English	Epistemic	Circumstantial
NECESSITY		<i>must</i>
POSSIBILITY		<i>may</i>

- Table 2. Flexible modal force

St'at'imcets	Epistemic	Circumstantial
NECESSITY	<i>k'a</i>	<i>ka</i>
POSSIBILITY		

# FRAMEWORK: TYPOLOGY

- The languages may vary according to whether the modal base or the modal force is lexically specified (Rullman et al. 2008, Vander Klok 2013)
  - Table 3. Presupposed typology

	<b>Selective base</b>	<b>Unselective base</b>
FORCE SPECIFIED	Javanese	English
FORCE UNSPECIFIED	St'at'imcets	Washo



# ATAYAL

Relevant issues and basic facts

# WHAT IS ATAYAL?

- Atayal < Atayalic < Austronesian
- Spoken in: central and northern Taiwan
- Major dialect groups:
  - Squliq
  - C'uli'



# BASIC ATAYAL MORPHOSYNTAX

- Basic word order: VOS
  - pronominal clitics positioned after the first stressed word
  - topicalization with a special topic marker
- Verb is inflected for four voices (active, passive, locative and instrumental) and three moods (indicative, imperative and hortative; only indicative considered in current study)
- Most of TMA is encoded by auxiliaries or particles
- All of negation is periphrastic, made up with five markers:
  - unat (existential negation / specific standard negation),
  - ini (standard negation / equative negation),
  - yat/ya (standard negation / equative negation / term negation / prohibitive),
  - ta (prohibitive)
  - laxi (prohibitive)

# ATAYAL NEGATION

- There are two standard negation markers: *ini* and *yat*

(3) *ɣini huqin tali*

NEG die T.

‘Tali didn’t die’

(4) *yat huqin tali*

NEG die T.

‘Tali cannot die’

- The semantic differences were analyzed in [Huang & Davis 1989]:
  - *ini* - negation of event
  - *yat* - negation of opportunity or preparation for the event

# ATAYAL NEGATION: SCOPE?

- In [Huang & Davis 1989] there is a number of examples where only *ini* combines with an aspect auxiliary:

(5)      cyux    ?ini      m-huqin      tali  
         PRG      NEG      AF-die      T  
         ‘Tali is not dead yet (he will be)’

(6)      \*cyux    yat      m-huqin      tali  
         PRG      NEG      AF-die      T

Intended: ‘Tali is not dead’

Given a somewhat modal semantics of *yat* one could suppose that it should simply scope over ASPECT => The scope of negation should be studied carefully

\*MOST OF this data is deemed infelicitous by my informants

# ATAYAL TMA SYSTEM UNDERSTUDIED

- Affixation (Egerod 1965, Rau 1992, Zeitoun & Huang 1997):
  - *<in>*: past or perfective? (discontinuous past in my data)
  - *p-*: irrealis or future? (prospective in my data)
- Analytic marking (Egerod 1965, Rau 1992):
  - *wal* (<*wayal* 'be gone'): past? (perfect in my data)
  - *musa* ('go'): future? (conditioned modality in my data)
  - *aki* (locative copula): another future?? (avertive in my data)
  - *cyux/nyux*: progressive
- No modals?



# ATAYAL MODALITY

Chen's most recent overview

# CHEN'S WORK BACKGROUND

- Hsinchu variety of Squliq Atayal
- Mayrinax variety of C'ole' Atayal

Miaoli



Hsinchu



# ATAYAL MODALITY MARKERS

- Table 4. Atayal modals in [Chen 2015]

Modal	Base/ Source	Force
<i>ki'a</i>	epistemic	possibility
<i>blaq</i>	circumstantial	possibility
<i>siki</i>	circumstantial	necessity
<i>nway</i>	deontic	possibility
<i>baq</i>	mental	ability
<i>thuzyay</i>	physical	ability

# ATAYAL MODALITY GAP

- Table 5. Atayal modality system as in [Chen 2015]

Base	Epistemic	Circumstantial			
Source		Deontic	Teleological	Bouletic	Pure
NECESSITY	<i>?</i>	<i>siki</i>			
POSSIBILITY	<i>ki'a</i>	<i>blaq</i>			
		<i>nway</i>			

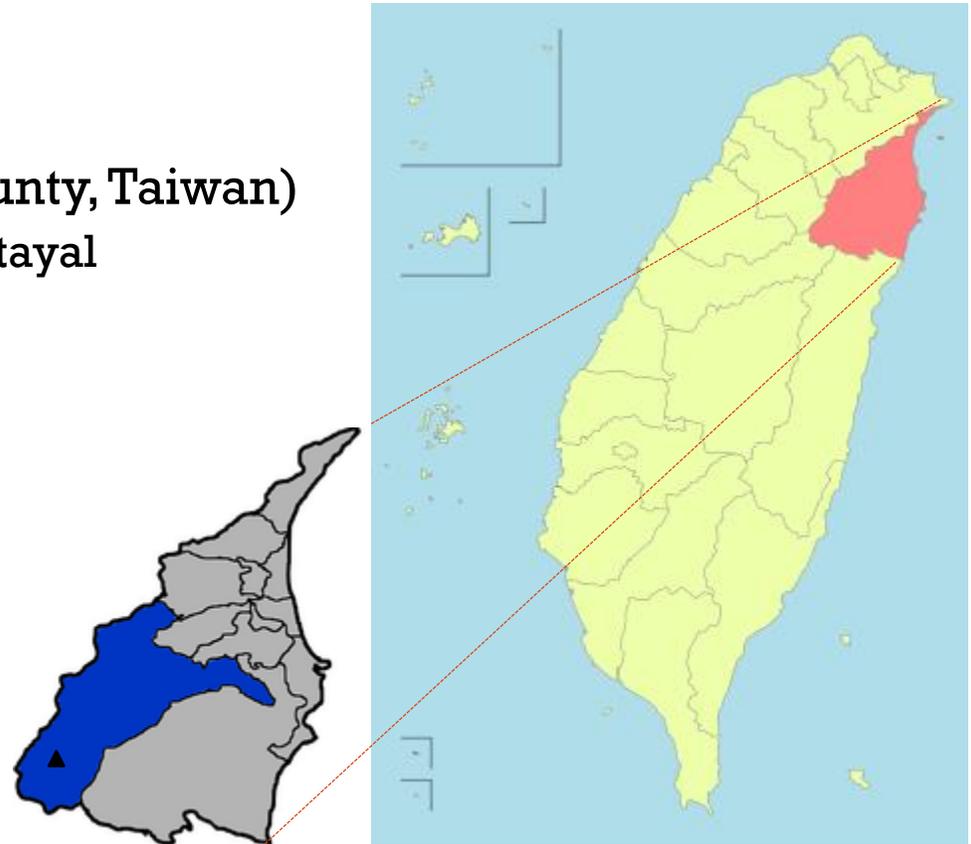


# DATA

Three tribes in one county;  
Three variants, both dialect groups

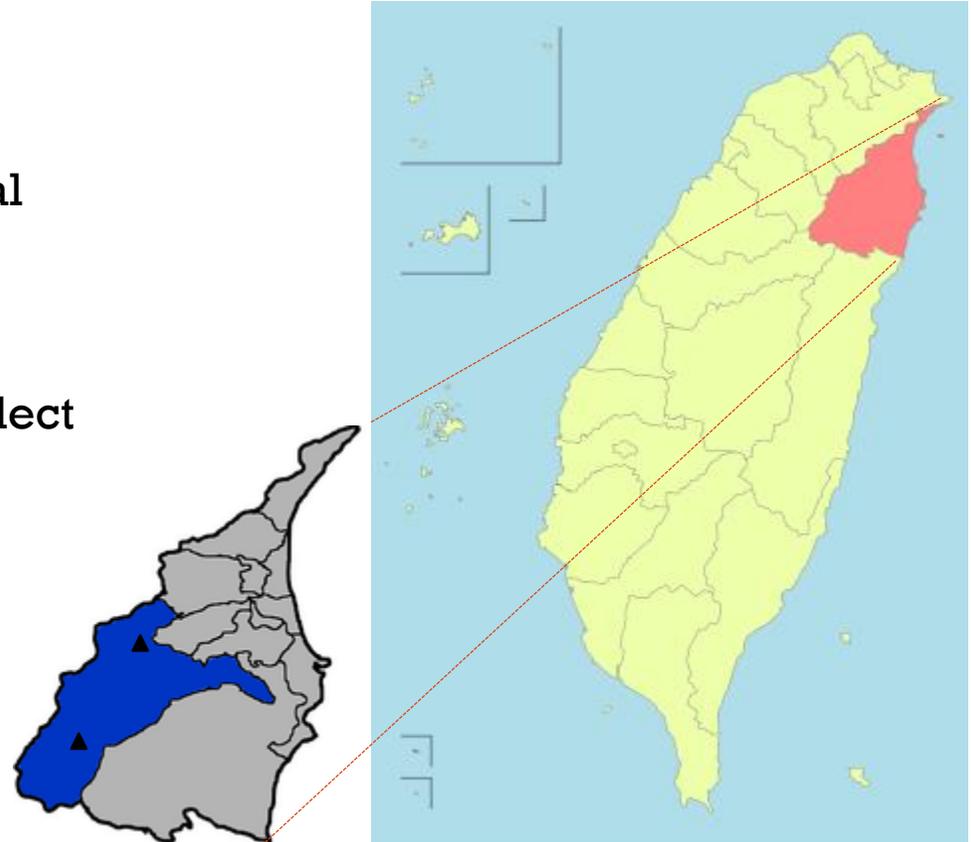
# DATA: THREE VARIANTS OF ATAYAL

- Data collected in Pyanan tribe (Yilan county, Taiwan)
  - Pyanan variety < Squliq dialect group < Atayal
  - Speakers: aged over 40
  - Informants: aged 45-79
- Contact language: Mandarin
- Interfering languages:
  - Mandarin and Minnan Chinese
  - Skikun variety of Atayal
  - Seediq, Taroko
  - Japanese (previously)



# DATA: THREE VARIANTS OF ATAYAL

- Skikun tribe (Yilan county, Taiwan)
  - Skikun dialect < C'ole' dialect group < Atayal
  - Informants: aged 40-56
- Syanuh tribe (Yilan county, Taiwan)
  - Syanuh variety < Gogan dialect < Squliq dialect group < Atayal
  - Informants: aged 60-66



# DATA RESTRICTION

- The experiment was narrowed to epistemic modality and deontic modality. Teleological, bouletic and other ordering sources of circumstantial modal base were not considered.
- Aim: to see, how seemingly overspecified modal system interacts with a complex negation system
- Basic tests
  - Elicited production
  - Felicity judgement (when it comes to negation scope)



# MAIN FINDINGS I

Modality without negation (per tribe)

# MODALITY TESTS: PYANAN

- Deontic modality

(7)      (**si=ga**) *m-wah*                  *yukan*

AS=TOP   AF-come                  Y

‘Yukan must come (he has an arrangement)’                  (NECESSITY)

(8)      \*(**ana**) *m-usa skikun*

MOD        AF-go        S

‘(He) may go to Skikun (he has obtained permission)’      (POSSIBILITY)

# MODALITY TESTS: PYANAN

- Epistemic modality

(9) *m-hŋan balay la kia tiu m-ʔabi yukan la*  
AF-late very IAM MOD PRG.DIST AF-sleep Y IAM

‘It is already really late, Yukan should be sleeping now (Judging from my knowledge of Yukan’s style of life and common sense; I have no other evidence though)’  
(STRONG POSSIBILITY)

(10) *yat ga kia tiu m-hkangi squleq skikun na*  
NEG TOP MOD PRG.DIST AF-seek human S. CNT

‘If not, he could be still looking for that person in Skikun (basically, I only see those two probabilities)’  
(WEAK POSSIBILITY)

# MODALITY TESTS: PYANAN

- Epistemic modality

- (11)    ***kia***    *tiux*                            *yik*    *sakaw*  
          MOD    COP.LOC.DIST            under    bed  
          ‘(It) might be under the bed’                            (POSSIBILITY)
- (12)    *tiux*                            ***balay***    *ska*    *kulu?*    *la*  
          COP.LOC.DIST            very    inside    box    IAM  
          ‘It is now definite that it is in the box’                            (NECESSITY)

# MODALITY TESTS: SKIKUN

- Deontic modality

(13) **si=ga** *m-usa muyax hya la*  
AS=TOP AF-go home 3SG IAM  
'She should go home now' (NECESSITY)

(14) **ana** *m-havi cani uyi*  
MOD AF-stay here too  
'(She) may also stay here' (POSSIBILITY)

=> in deontic modality necessity of p does not outrule a possibility of not-p, due to conflicting rules and regulations

# MODALITY TESTS: SKIKUN

- Epistemic modality

(15) *qutux mniau=ni=ga*

one cat=DEM.PROX=TOP

**aki** *nia* *m-aki* *yik* *pa?*

MOD PRG.PROX AF-COP.LOC under bed

‘This cat is probably under the bed’ (POSSIBILITY)

(16) *kana.raru?* **aki** *tia* *maki* *cka* *na?* *kulu=ca?*

for.sure MOD PRG.DIST AF-COP.LOC inside GEN box=DEM.DIST

‘(As it is not even there), for sure it is in that box’ (STRONG POSSIBILITY)

# MODALITY TESTS: SYANUH

- Deontic modality

(18) *sayun l=ga m-usa ngasan*

S IAM-TOP AF-go home

‘Sayun must go home’ (NECESSITY)

(19) *kumay ga ana m-ʔabi beh qani*

Kumay TOP MOD AF-sleep hear DEM.PROX

‘Kumay may sleep over’ (POSSIBILITY)

# MODALITY TESTS: SYANUH

- Epistemic modality

- (20)    *niau=qa*            ***kia***    *tiux*    *tlaqing zik*    *sakaw*  
cat=DEM            MOD    PRG.DIST AF.hide    under    bed  
‘The cat might be hiding under the bed’            (POSSIBILITY)
- (21)    ***kia***    *tiux*    *m-aki*            *beh*    *zik*    *kulun*  
MOD    PRG.DIST AF-COP.LOC            near    under    box  
‘(It) must be by or under the box’            (STRONG POSSIBILITY)

# MODALITY TESTS: SUMMARY

- Table 6. Atayal modals (in Yilan varieties)

	<b>Epistemic</b>	<b>Deontic</b>
NECESSITY	<i>?</i>	<i>(siga)</i>
POSSIBILITY	<i>kia / aki</i>	<i>ana</i>

=> deontic necessity also seems to be unspecified



# MAIN FINDINGS II

Interaction with negation

# NECESSITY OF NOT-P: MARKED AFTER ALL?

- There is a clear cut between two standard negation markers in Atayal when it comes to epistemic impossibility:

(22) **yat**     *m-usa skisun qu yukan*

NEG     AF-go   S.     DEF     Y.

‘Yukan couldn’t have gone to Skikun’ (I saw him go in an opposite direction)

(23) **ini**     *m-usa skisun qu yukan*

NEG     AF-go   S.     DEF     Y.

‘Yukan didn’t go to Skikun’

# NECESSITY OF NOT-P: MARKED AFTER ALL?

- The same marker is used for deontic impossibility:

(24) *ana=k*                      *m-wah m-yup muyaw=su*                      *ga*  
DEON.POSS=1SG.NOM                      AF-come AF-enter home=2SG                      Q

‘May I come in?’

(25) *niu=ku*                      *ini*                      *plukus*                      *na,*  
PRG.PROX=1SG.NOM                      NEG                      CNG.dress                      CNT

*ya*                      *si*                      *kyup*  
NEG                      AS                      CNG.enter

‘I am not dressed yet, you may not enter’

# NECESSARILY NOT-P OR NOT POSSIBLE P?

- What is impossibility?
  - A necessity scoped over negation?
  - A negation scoped over possibility?
- This is the point where we get concerned about negation scope

# EVIDENCE FROM DISTINCT MARKING

- When a negator and a modal are compatible, both orders can be found:

- NEG<sup>?</sup>>MOD.EPIS (from [Chen 2015])

(26) *bali ki'a p-qwalax*

NEG EPIS.POSS FUT.AV-rain  
'It will not rain (I guarantee)'

- MOD.DEON>NEG<sup>V</sup>

(27) *ana ini tnaq s-qu t.in.bwan.an*

DEON.POSS NEG CNG.alike ACC-DEF land

'The countries may be not alike'

# EVIDENCE FROM DISTINCT MARKING

- The different negators seem to have different scope

- PRG > NEG<sup>V</sup>

(28)    *niu=ku*            *ini*            *pqwas* *gakko*  
         PRG=1SG.NOM    NEG            study    school

‘I am not at school (~any more)’

- NEG<sup>^</sup> > PRG

(29)    *yat=ku*            *niu*            *pqwas* *gakko*  
         NEG=1SG.NOM    PRG            study    school

‘I am not at school’

# ATTEMPT FOR ANALYSIS

- The syntactic position of modals according to [Chen 2015]:
  - Epistemic > TENSE > Circumstantial > ASPECT > Ability
- Negation in Atayal: different syntactic position
  - ( uŋat> PERF >)ya > TENSE/ASPECT > ini
- Mutual orders:
  - Epistemic/Deontic/ya> TENSE/ASPECT > ini



# SUMMARY

Atayal modality system

# ATAYAL MODALITY SYSTEM: QUESTIONS

- A totally different system?
  - Possibility - in the set of accessible worlds there is at least one world, where p is false, and at least one world, where p is true (lexically specified)
  - Impossibility - p is false in all of the accessible worlds (lexically specified)
  - Necessity - p is true in all of the accessible worlds (unspecified)

Table 7. Atayal modals (in Yilan varieties) - revised

	Epistemic	Deontic
Necessity	<i>(siga)</i>	
Possibility	<i>kia</i>	<i>ana</i>
Impossibility	<i>ya</i>	

# PROBLEMS FOR TYPOLOGY?

- I agree with [Chen 2015] in that particular modals, rather than the whole system vary in the choice of flexible parameters
- However, I believe that the lack of a modal is always balanced by a modal double of another kind
- Should impossibility enter the theory as another possible modal force?

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  - and everyone else.

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