The Role of Context in Interpreting a Versatile Modal in Creek

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1. Goals of the Talk
1. To propose that Creek modal *ta:y-* is a contextually conditioned modal.
2. To demonstrate how discourse markers, lexical items, and relative clauses contribute to the ordering source, modal base, and quantificational force of *ta:y-*.
3. To exemplify what can be learned from texts in research on meaning.

2. Introduction
2.1 A Kratzerian Theory of Modality (Kratzer 2012)
Modals are expressions of necessity and possibility, evaluated based on relevant facts often inferred from context.

Modals quantify over possible worlds, given some accessibility relation.
Three main elements: 1) Quantificational Force ($\forall$, $\exists$)
  2) Modal Base (realistic, stereotypical, deontic, teleologic, epistemic, etc.)
  3) Ordering Source (ranking according to some norm/ideal)

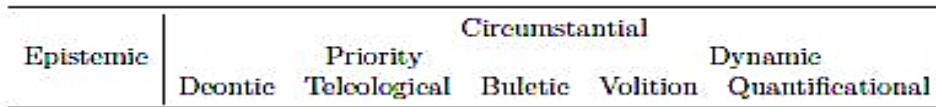I will be using a categorization of modal bases following both Portner (2009) and Kratzer (2012).

Epistemic	Circumstantial				
	Priority			Dynamic	
	Deontic	Teleological	Buletic	Volition	Quantificational

Figure 1: Divisions and subdivisions of circumstantial modality.

2.2 The Creek Modal System
The Language
Creek: endangered Muskogean language, spoken in Oklahoma.
Estimated 3,900 speakers in 2000 (Martin 2011).
Descriptive literature: Boasian triad
   1. Grammar (Martin 2011)
   2. Dictionary (Martin & Mauldin 2000)
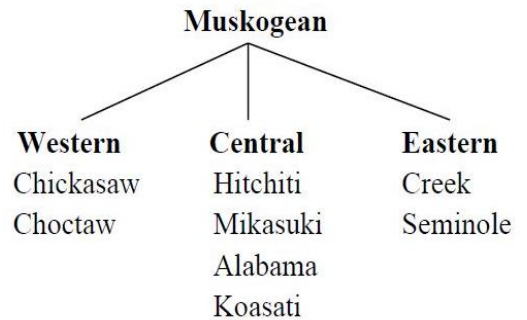   3. Glossed and translated texts (Haas & Hill 2015; Gouge 2004)

Muskogean

Western	Central	Eastern
Chickasaw	Hitchiti	Creek
Choctaw	Mikasuki	Seminole
	Alabama	
	Koasati	

Figure 2: Branches of the Muskogean language family (Mithun 1999).

Organization of the Modal System
- The future tense morpheme -aɬi:- can have a deontic modal meaning.
- Notice the gaps for non-epistemic past/present necessity (for non-2nd person) and non-epistemic future possibility.

	IND		IMP
	Non-FUT	FUT	Non-FUT
<u>Non-EPIS □</u>		-aɬi:-	-accas
<u>Non-EPIS ◊</u>	ta:y-		-accas
<u>EPIS □</u>	-acok		
<u>EPIS ◊</u>	weyt-		

Table 1: The distribution of Creek modals patterning with Indicative and Imperative moods.
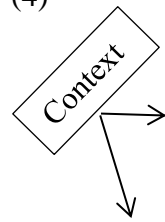
3. A Textual Analysis
3.1 A note on translations
(3) "Translations, however, are at best clues to meaning… since translations need not preserve truth or felicity conditions." (Tonhauser & Matthewson, in prep: 25)

*A complete piece of data in **texts**[1]:*

(4)

Context: A young man has stayed in a farmer's field all night to keep a beast from stealing the farmers crops. He reports that the crops haven't been devoured and asks for pay. The farmer goes to check and sees that the crops have been eaten. He returned …

o:k-â:t	nâ:ki-t	nóks-iko-n	hayâ:tk-is	máhk-íck-a:t
say.LGR-REF	thing-T	steal.food-not-N	dawn.FGR-IND	say.HGR-2sA-REF

noks-ip-í:-t	ô:m-a:n	o:k-íck-it	on-ká
steal.food-SPN-DUR-T	be.FGR-REF.N	say.LGR-2sA-T	be.LGR-so
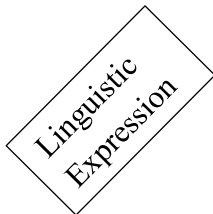
cin-fí:k-áko-: **tâ:y-it** ó:-s kéyhc-in
2D-pay-1sA.not-DUR **can.FGR-T** be.LGR-IND tell.HGR-N
'saying, You said nothing had devoured my crops by dawn, but because it has, **I cannot pay you'**

Speaker response & interpretation

(Gouge 2004.1)

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[1] I follow Martin (2011) for interlinear glossing. The abbreviations I use are defined as follows: 1pA '1st person plural agentive' 1sD '1st person dative' 2D '2nd person dative' 2sA '2nd person singular agentive' ATN 'attention' DAT '3rd person dative' DIM 'diminutive' DIR 'directive' DU 'dual' DUR 'durative' FGR 'falling tone grade' FOC 'focus' FUT 'future' HGR 'aspirating grade' IMP 'imperative' IMPL 'impersonal passive' IMPL.A 'impersonal agent' IND 'indicative' INF 'infinitive' INST 'instantaneous' LGR 'lengthening grade' MID 'middle voice' N 'non-thematic/different subject' NGR 'nasalizing grade' P5 'remote past' PL 'plural' PROSP 'prospective' RCP 'reciprocal' REF 'referential' SG 'singular' SPN 'spontaneous/ medio-passive' T 'thematic/same subject' TPL 'triplural'

3.2 Methodology
24 texts: 5 letters (1878, 1880), 1 autobiography (c. 1940), 2 folktales (c.1940), 16 folk tales (1915)
6 Creek authors: Earnest Gouge, James Hill, John Postoak, W. A. Palmer, John E. Carr, and Adam Grayson
Creek editors/translators: Margaret McKane Mauldin and Juanita McGirt

3.3 Findings
1. 57 Instances of ta:y-
- 40 potential (16 under negation) - **default meaning**
- 11 volition (all under negation)
- 4 priority[2] (2 obligation, 2 permission)

2. Ta:y- partially fills gaps in the paradigm

Variable modal base & variable force
Previous glosses of *ta:y-* : 'able, can, may' (Martin & Mauldin 2000; Martin 2011)).
My textual analysis finds several interpretations varying in force and modal base.
- Ability and potential collapse into **circumstantial** modality.
- Volition falls into the category of **dynamic** modality.
- Deontic and teleological are both included in a **priority** modal base.

Meaning	Example translation	Reference
(in)ability	[the tar baby] just stood there; it **couldn't** say a thing	Gouge 2004.3
	maybe [rabbit] **can** do it	Gouge 2004.6
potential	without guns, we **could not** kill and eat wild game	J. Hill, Autobiography
	they hunted anything one **could** eat	Gouge 2004.2
volition	[the giant lizard] **would not** stop chasing the man	Gouge 2004. 11
deontic	whoever the father is, he **should** marry her	Gouge 2004.5
	you **cannot** eat with us	Gouge 2004.1

Table 2: A textual analysis yielded instances of *ta:y-* with various interpretations corresponding to three modal bases: circumstantial, volition, and priority.

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[2] I follow Portner's terminology and organization of modals into Epistemic, Priority (which includes deontic, teleologic, and buletic), and Dynamic (which includes volitional and quantificational) (2009: 140).

3. Ta:y- is a contextually conditioned modal

Modal	Modal Force	Modal Base
-acok	*lexical*	*lexical*
weyt-	*lexical*	*lexical*
tay-	**context**	**context**
-ałi:-	*lexical*	**context**
-accas	**context**	*lexical*

Table 3: Patterns of lexical specification and contextual flexibility of 5 Creek modals. Together, Creek modals display all typologically predicted combinations of lexical and contextual information.

> **Proposal**
> Ta:y- *is an underspecified circumstantial modal which draws on context for more specified meanings and stronger quantificational force.*

4. Data Presentation
4.1 Default Meaning
Context: A man is taking the grandmother of a boy to see him. They are traveling to a lake and once they find a place where she can sit, the man goes to get the boy.

(5) móhm-it   ma łís-o:ł-â:t   ísta-n   ma hokt-â:l-a:t
     be.so.HGR that DIR-reach.LGR-REF   where-N that woman-old-REF

      léyk-i: **tâ:y-a:t**   má-n leyk-íck-áłi:-s   kéyhc-in
      sit.SG-DUR   **can.FGR-REF**   that-N sit.SG-2sA-FUT-IND say.HGR-N

      óywa onápa-n   oh-lêyk-in
      water above-N   LOC-sit.SG.FGR-N
      'And when they reached there, where the old woman **might sit,** he said, You will sit there, and she sat above the water'

                                    (Gouge 2004.10 morph breaks mine)

Contextual Factors:
Criteria for choosing location: unknown
At issue: potential to sit

Modal Base: circumstantial
Ordering Source: empty
Modal Force: possibility

4.2 Priority Meaning
Context: The animals need fire. The hold a meeting to discuss who can do the job.

(6) a.   nakâ:ft-it   istêy-t   tó:tka   hickóyc-i: **tâ:y**-a:t   ma:k-ít   apô:k-it
         meet.Fgr-T   who-T   fire   acquire-DUR **can.FGR**-REF say.Lgr-T sit.TPL.Fgr-T

         ómho:y-ín
         be.IMPL.Lgr-N
         'so there was a meeting to discuss who **would be able** to get fire...'

Context: (continuation of above) Rabbit said, "I can get it."

  b.   mô:m-eys   im-**inhónl**-iko-t   o:m-ít   istêy-t   om-i: **tâ:y**-a:t
       be.so.Fgr-even D-**trust**-NEG-T   be.LGR-T   someone-T be-DUR **can.FGR**-REF

       má-n   om-i: **tâ:**-s   kéyho:c-í: stôm-eys
       that-N be-DUR   **can.FGR**-IND   say.IMPL.LGR-DUR   what.FGR-even
       "But they didn't believe in him. "Someone **more able should** be the one," they said."
       lit. even so, [they] did not trust him; it was said, "someone (who) can, can be that."
                                                                              (Gouge 2004.6)
Contextual Factors
   1. Goal: **teleologic** conversational background
   2. *Ta:y-* 1: Set of potential candidates / possible worlds
   3. Ordering criteria for candidates: trustworthy & able
   4. *Ta:y-* 2: Set of ideal candidates / possible worlds

Strength of the third *ta:y-* comes from restriction of the ordering source by introducing a smaller set of accessible ideal worlds in which goals are reached. The proposition <u>follows</u> from these highly ranked worlds, giving a necessity reading.

Ta:y- 1   **Ta:y- 2**
Modal Base: teleologic   Modal Base: teleologic
Ordering Source: teleologic   Ordering Source: teleologic
Modal Force: (future) possibility   Modal Force: possibility
Introduces set of possible worlds   Defines ideal set of possible worlds

Ta:y- 3 - Takes *ta:y-* 2 in the embedded clause and quantifies over the set of ideal worlds
Modal Base: teleologic
Ordering source: teleologic
Modal Force: necessity

4.3 Volitional Meaning

Context: A giant lizard has been stealing hunters one by one until there is only one left. He is running away from the lizard, tiring it out so that he can defeat it. "The man saw that the big lizard had its mouth wide open in exhaustion."

(7) a. Mo:m-ín   ma   taksapolka-łákko-ta:t hotos-î:p-it   ón-t   o:m-**êys,**
    be.so.FGR-N that lizard-big-FOC   tired-SPN.FGR-T be-T be.LGR-**even**
    'Though the big lizard was very tired,'

   b. ma   ísti-n   î:s-ay-í: **tâlk**-it kô:m-it   om-i:p-ika,
    that   person-N take.SG.FGR-1sA-DUR **only**-T think.FGR-T be-SPN.LGR-so

    ma-ó   **wéyk-íko- :**   **tâ:y-it**   o:m-**êys,**
    that-also   **let.go-NEG-DUR** **can.FGR-T** be.LGR-**even**
    'it was thinking only of catching the man, so it, too, **would not stop**'

   c. hotos-ip-í: **hi:ⁿl**-it   o:m-atí:-s   .
    tired-SPN-DUR **very.NGR**-T be.LGR-P5-IND
    'even though it was very, very tired.'   (Gouge 2004.11 morph breaks mine)

Contextual Factors
    1. Discourse Marker *-êys* 'even'[3]
    2. Intensified aspect (Nasalizing Grade, NGR)
    3. Lexical item *tâlk-* 'only'

Volition: Emphasis on adverse circumstances attribute agency (or will) to the lizard. Absolute negation: Ta:y- is strengthened by reference to adverse circumstances and a unique goal.

Practical Reasoning
The big lizard only wants to catch the man.
Given the relevant circumstances, the lizard will only catch the man if he keeps chasing him.

Therefore, **necessarily** the lizard doesn't stop.

Modal Base: Volitional
Ordering Source: Teleologic or Buletic
Modal Force: Necessity[4]

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[3] I define discourse markers in Creek following Martin (2011). Discourse markers are enclitics with attach to auxiliary verbs to link phrases together.

[4] This characterization of modal strength is debatable ($\neg \Diamond \equiv \Box \neg$) and dependent on verifying the scope of negation w.r.t. the modal.

4.4 Summary of Observations
The Nature of Creek ta:y-
1. Default meaning is circumstantial possibility
   - The relevant circumstances are external factors, but can also imply *physical ability*.

2. Restricted to non-epistemic environments
   - No naturally occurring usage in epistemic environment in the texts.
   - No gaps in epistemic modal system.

3. Contextually conditioned for **both modal base and modal force**
   Mechanisms influencing variable interpretations:
   - Lexical items introduce goals or wishes. (6b inhónl 'trust', 7b tâlk- 'only')
   - Discourse markers =êys 'even though', trigger potentially inhibiting factors and contribute to stronger force.
   - Relative clauses picking out smaller sets of possible worlds restrict ordering sources.

5. Analysis and Conclusions
   - Creek *ta:y-* combines variability in modal base as seen Indo-European languages and variability in quantificational force as seen in recent studies of Native American languages.
   - Creek follows the general tendency (proposed by Kratzer) that modal force is sensitive to restricted ordering sources.

5.1 Ordering Sources and Modal Force
(8)   "Graded and comparative notions of possibility emerge when we rank worlds that are compatible with a body of facts according to how close they come to some norm or ideal." (Kratzer 2012: 38)

   - The **domain is restricted** when we order worlds.
   - Limiting worlds of evaluation weakens the definition of necessity and strengthens the definition of possibility.

Necessity: p follows from the closest possible worlds
Possibility: p is compatible with at least one of the closest possible worlds
$W = \{w_0, w_1, w_2\}$ as opposed to $W = \{w_0, w_1, \dots w_n\}$

5.2 Variable Force Modality
Previous analyses for other Native American languages have presented different methods for deriving variation in force.

St'át'imcets: choice function picks a specific subset of possible worlds and weakens the default necessity modal (Matthewson et al. 2007; Rullmann et al. 2008; Davis et al. 2009)
             Kratzer argues that this is just what an ordering source does (2012).

Gitskan: ordering source (relating to speaker commitment) generates variable force in epistemics (Peterson 2010)

Nez Perce: lack of scale (and scalar implicature) allows for greater range of interpretation in non-downward entailing environments (Deal 2011)

5.3 Contributions of Creek
- Creek *ta:y-* is a modal showing variability not only in force but also in base.
- The Creek modal system suggests that gaps in the paradigm could be environments giving rise to variable modals
- Creek texts show some mechanisms for determining conversational backgrounds and restricting ordering sources.
    1. Discourse markings
    2. Lexical items introducing uniqueness of goal or criteria for ordering
    3. Embedding a modal under another modal

5.4 Implications
- Creek is an additional language that conforms to an ordering source account of variable force.
- The Creek textual data shows additional triggers restricting ordering sources.
- Contrary to the general conception, Creek shows that variable force need not accompany a fixed modal base.

6. Further Research
Objectives
1. Additional evidence for *ta:y-* as a necessity modal.
- Necessity readings would be confirmed by finding *ta:y-* in contexts which exclude possibility readings (barring a periphrastic *not possibly not*).

    Ex. Context: Children must go to school; it's the law and there are no exceptions.

2. Determine scope of negation with respect to *ta:y-*.
- Understanding scopal possibilities between the modal and negation will illuminate true force in negated environments.

    Ex. NEG > MODAL
    'You can't eat with us.'
    'You don't have to eat with us.'

    MODAL > NEG
    'You mustn't come with us.'
    'You can not come with us.' (i.e. if you want, it's up to you)

3. Differentiate between ambiguous force and strengthening fixed force.

- Using context and force as a variable, a strengthening hypothesis predicts (possibly) both interpretations available for a default context but only a necessity reading for a context with restricted ordering source.

  Context A (default): Context: A man is taking a grandmother to see her son.
  Ex A: They came to a place where the woman **might/should** sit.

  Context B (restricted): A woman's relatives don't want her to be alone; they want her child's father to marry her.
  Ex B: Whoever the father of the child is **should/can** marry her.

- Other tests might include testing the strength of an elided modal. Since the elided element must be identical to its antecedent, an ambiguous modal would allow for two interpretations even when elided.

  Ex. Mike is possibly at home and Fred is ___ too.

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