# Modality and Reality: The value of speech in context

**Marianne MITHUN**
University of California, Santa Barbara
mithun@linguistics.ucsb.edu

A central challenge for work on modality is delineating the domain and the categories within it, due in part to the fact that both are constantly evolving. Our understanding of possible systems and their components can thus be enhanced by learning more about how they develop through time. Because modality distinctions play major roles in social interaction, examination of spontaneous interactive speech can be particularly useful for uncovering the steps by which markers can progress and the motivations behind them. One longstanding puzzle has been whether irrealis distinctions should be included within modality. Here some reasons behind the dilemma are explored by tracing developments of an irrealis category in Northern Iroquoian languages, exemplified by Mohawk (Kanien'kéha'). The examination of speech in use, coupled with insights from speakers, provides clues to likely pathways of development and the discourse and social contexts facilitating them.

## 1. Delimiting the semantic space of modality

The domain of modality has been notoriously difficult to define, as have the interrelationships among the categories that comprise it. The difficulties have been the subject of much discussion, and a number of models have been proposed (Goossens 1983, 2003; Givón 1994; Bybee 1998; van der Auwera & Plungian 1998, Nuyts et al. 2007; Nuyts 2008; Nikolaeva 2016 among others). Nuyts (2016) provides a useful overview. As he points out, many models distinguish three types of modality: dynamic, deontic, and epistemic.

Dynamic modality is typically understood as the capacity or ability of a controlling participant to realize or effectuate the state of affairs, as in (1).

```
(1)  Dynamic modality with ability: Nuyts 2016: 34
a.   He can stand on his head without using his hands.
b.   The only person able to do this is John.
```

It may include necessity or need.

```
(2)  Dynamic modality with need: Nuyts 2016: 34
a.   I must find something to eat or I'll starve.
b.   I had to snatch a cookie, I couldn't resist the temptation.
```

The control may be participant-internal, that is, inherent in the primary participant, or participant external, determined by outside circumstances. Examples (1) and (2) above are of the first type. Those in (3) below are of the second.

```
(3)  Participant external control: Nuyts 2016: 35
a.   The garage is free so you can park your car there.
b.   To get into the garden you must pass through the patio.
```

Deontic modality is traditionally understood as involving permission or obligation, including moral desirability, such as societal norms or personal ethics. It can be a matter of degree, from absolute moral necessity to moral acceptability.

(4)    Deontic modality: Nuyts 2016: 37

a.    You **must** go now.

b.    You **may** go now.

The third major type, epistemic modality, specifies the likelihood, usually in the mind of the speaker, of a situation being true.

(5)    Epistemic modality: Nuyts 2016: 38

That's **probably** the postman.

As pointed out by van der Auwera and Plungian (1998) and others, epistemic modality may also be a matter of degree, ranging from certain to possible.

The first two types of modality, dynamic and deontic, are often distinguished from the third as non-epistemic, though their precise content and internal organization vary across authors. In some models, volition is included within the dynamic category, while in others, both volition and intention are included within the deontic category. Narrog (2016: 89), for example, proposes that 'deontic subsumes at least traditional notions of deontic (pertaining to rules and obligations), teleological (pertaining to goals), and bouletic (pertaining to what is desired). Still other models include neither.

The place of irrealis distinctions also continues to be under discussion. Palmer did not include them in his 1986 work, but he did in his 2001 second edition. Nuyts did not include them in his 2016 survey of the domain of modality and mood, but the volume in which it appears, *The Oxford Handbook of Modality and Mood* which he co-edited with van der Auwera (2016), includes a chapter by Mauri and Sansò on the linguistic marking of (Ir)Realis and Subjunctive.

Much of the challenge for constructing models of modality comes from the fact that the categories are constantly evolving, often interacting with other aspects of grammar. Our understanding of the complexities of possible systems can be enhanced by learning how they develop through time in the context of circumstances that might facilitate particular pathways of change. For some languages, primarily those of the Indo-European family, historical corpora can shed light on how the categories come into being and evolve, permitting us to trace the uses of particular constructions in their discourse context. For the majority of languages, however, no comparable historical documentation exists. Still, more grammars of typologically diverse languages are becoming available and showing us the kinds of distinctions that can develop. And descriptions of related languages are permitting comparisons of the functions of cognates at different stages of development.

But even in the absence of historical corpora we can learn much by observing speech in action within single languages. Technological advances are facilitating the compilation of corpora of everyday spoken language, providing crucial information about discourse and social contexts, the settings for change.

## 2.    An Iroquoian distinction

Some reasons behind the challenges posed by irrealis distinctions for models of modality can be appreciated by observing trajectories of development of a verb prefix in languages of the Iroquoian family, indigenous to North America. (General discussion of modality and mood in these languages is in Mithun 2016.) The uses of this marker are illustrated here with material from Mohawk (Kanien'kéha'), spoken in six communities in modern Quebec, New York State, and Ontario, but they are essentially the same through all of the Northern Iroquoian languages: Mohawk, Oneida, Onondaga, Cayuga, Seneca, Wendat (Huron)/Wyandot, and Tuscarora.

### 2.1    Resources

The Mohawk material cited here is drawn from a corpus of over 60,000 words, consisting of approximately 280 files of unscripted speech, lasting from a few minutes to a few hours. It contains a mix of conversation and monologue in a variety of genres, from 80 speakers, together representing all six Mohawk communities. The data are drawn from spontaneous speech, but consultation with speakers concerning the contexts and their understanding of the connotations of grammatical choices has been a valuable addition to the methodology.

### 2.2    The language

Mohawk, like other Iroquoian languages, is polysynthetic, with potentially many morphemes per word. Three lexical categories are distinguished on the basis of morphological structure. 1) Particles have no internal morphological structure, but they may be compounded. They serve a range of lexical, syntactic, discourse, and social functions. 2) Nouns generally have comparatively simple internal structure. They always serve as referring expressions. 3) Verbs can have complex internal structures and are by far the most pervasive in speech. They can function as predicates, as referring expressions, and as clauses and whole sentences on their own.

An example of a verb is in (6).

(6)  Mohawk verb: Josephine Kaieríthon Horne, speaker
     Ia'tenionnihsnónhsohwe'.
     ia'-t-en-ie-ani-shnonhs-o-hw-e'
     TLOC-DV-FUT-FI.AGT-MID-hand-be.in.water-CAUS-PFV
     'She would dip her hands into the water.'[1]

The morphological structure is templatic: morphemes occur in a fixed order within words. The major morphemes of a verb are shown in their order of occurrence in Figure 1.

| PRE-PRONOMINAL PREFIXES | **PRONOMINAL PREFIX** | MIDDLE REFLEXIVE | NOUN STEM | **VERB ROOT** | DERIVATIONAL SUFFIXES | **ASPECT SUFFIXES** | ADDITIONAL TENSE SUFFIXES |
|---|---|---|---|---|---|---|---|

Figure 1: Verb template

The only obligatory elements in the verb are a pronominal prefix, which identifies the core arguments of the clause, a verb root, and an aspect suffix. A more detailed template for the prefixes, showing their relative order of occurrence, is laid out in Figure 2. Prefixes within the same column do not co-occur. Thus, for example, the Cislocative and Repetitive prefixes never appear together in the same verb, nor do the Future prefix and a prefix with the basic shape *a:-*.

| CONTRASTIVE | TRANSLOCATIVE | FACTUAL | DUPLICATIVE | FUTURE | CISLOCATIVE | PRO | MIDDLE |
|---|---|---|---|---|---|---|---|
| COINCIDENT | | | | *a:-* | REPETITIVE | | REFLEXIVE |
| PARTITIVE | | | | | | | |
| NEGATIVE | | | | | | | |

Figure 2: Verb prefixes

---

[1]    Abbreviations are AGT = GRAMMATICAL AGENT, AL = ALIENABLE, AND = ANDATIVE, APPL = APPLICATIVE, ART = ARTICLE, BEN = BENEFACTIVE, CAUS = CAUSATIVE, CHAR = CHARACTERIZER, COIN = COINCIDENT, CONT = CONTINUATIVE, CONTR = CONTRASTIVE, CSL = CISLOCATIVE, DISTR = DISTRIBUTIVE, DU = DUAL, DV = DUPLICATIVE, EX = EXCLUSIVE, FAC = FACTUAL, FI = FEMININE-INDEFINITE GENDER, FUT = FUTURE, HAB = HABITUAL, IMPER = IMPERATIVE, IN = INCLUSIVE, INCH = INCHOATIVE, INS = INSTRUMENTAL, LK = LINKER, M = MASCULINE GENDER, MID = MIDDLE, OPT = OPTATIVE, N = NEUTER GENDER, NEG = NEGATIVE, NS = NOUN SUFFIX, PAT = GRAMMATICAL PATIENT, PFV = PERFECTIVE, PL = PLURAL, PRT = PARTITIVE, PROTH = PROTHETIC, REFL = REFLEXIVE, REP = REPETITIVE, SG = SINGULAR, ST = STATIVE, TAG = TAG QUESTION, TLOC = TRANSLOCATIVE, 1 = FIRST PERSON, 2 = SECOND PERSON, 3 = THIRD PERSON.

Two categories of verb stems can be distinguished according to their aspectual possibilities: stative-only verbs, which occur only with Stative aspect inflection, and event verbs, which occur with no overt ending as imperatives, or with one of three inflectional suffixes for Stative, Habitual, or Perfective aspect. Perfective aspect verbs are obligatorily inflected further with one of three prefixes, what is termed the Factual, often but not always marking past tense, the Future, or a prefix of the form *a:-*. Examples are in (7).

```
(7)  Verb inflection
     Stative-only verbs
         Stative aspect       Iohsnó:re'.         'It is fast.'
     Event verbs
         Imperative           Saterá:ko!          'Keep it!'
         Stative aspect       Wakaterákw-en.      'I have kept it.'
         Habitual aspect      Katerákw-as.        'I keep it.'
         Perfective aspect
             Factual          Wa'-katerá:ko-'.    'I kept it.'
             Future           En-katerá:ko-'.     'I will keep it.'
             ??               A:-katerá:ko-'.     'I could/should/might
                                                   keep it.'
```

As noted, all verbs can occur as sentences on their own. All but imperatives can also occur in complement clauses.

```
(8)  Future complement: Dorothy Karihwénhawe' Lazore, speaker
     Wà:kehre'
     wa'-k-ehr-e'
     FAC-1SG.AGT-think-PFV
     'I thought

     [enkhehnekanontèn:ra'               kí:ken
      en-khe-hnek-a-nont-enhra-'          kiken
      FUT-1SG>3PL-liquid-LK-feed-AND-PFV  this
     [I would go water the flowers

     ohén:ton'   tewaktsi'tsaienthon].
     ohenton'    te-wak-tsi'tsi-a-ienth-on
     in.front    DV-1SG.PAT-flower-LK-plant-ST
     [that I had planted in front of the house]].'
```

## 2.3    The prefix a:-

Of interest here is the prefix *a:-*. The prefix occurs in hypothetical conditionals.

(9)   Hypothetical conditional: Annette Kaia'titáhkhe' Jacobs, speaker

| Iáh ki' | na:' | thé: | thaháttoke' | | ki: |
|---|---|---|---|---|---|
| iah ki' | na'a | othenon | th-aa-ha-at-tok-e' | | kiken |
| not in.fact | guess | any | CONTR-IRR-M.SG.AGT-MID-notice-PFV | | this |

'He wouldn't notice

| ostòn:ha | iá́khawe' | | ki: | raò:hi. |
|---|---|---|---|---|
| oston=ha | i-**aa**-k-haw-e' | | kiken | rao-ahi. |
| bit=DIM | TLOC-**IRR**-1SG.AGT-take-PFV | | this | M.SG.AL.POSS-fruit |

**if I took** a little bit of his fruit.'

It does not, however, occur with realis conditionals, as in (11).

(11)   Realis conditional: Watshenní:ne' Sawyer, speaker

| Tóka' | io'shátste' | t**en**hsawénrie' |
|---|---|---|
| toka' | io-'shatst-e' | t-**en**-hs-awenrie-' |
| if | N.PAT-be.strong-ST | DV-**FUT**-2SG.AGT-stir-PFV |

'If you **stir** too hard,

| akwé:kon | t**en**hsià:khon'. |
|---|---|
| akwek-on | t-**en**-hs-ia'k-hon-' |
| be.all-ST | DV-**FUT**-2SG.AGT-break-DISTR-PFV |

you'**ll** break them all up.'

It occurs in counterfactuals.

(10)   Counterfactual: Mae Niioronhià:'a Montour, speaker

| Tóka' | **a**esahén:ton' |
|---|---|
| toka' | **aa**-esa-hent-on-' |
| if | **IRR**-2SG.PAT-go.ahead-ST-PFV |

'If **you had gone up first**,

| i**a**onsakonia'ténha' | | tsi | nén:we'. |
|---|---|---|---|
| i-**aa**-onsa-kon-ia't-enha-' | | tsi | nenwe' |
| TLOC-**IRR**-REP-1SG>2SG-body-take-pfv | | to | forever |

**I would have taken you away** with me forever.'

It occurs in negated futures, as in the second line of (12).

```
(12) Negated Future: Lazarus Jacob, speaker
     Tóka'      ní:se'     enhsaté:ko',
     toka'      ne=ise'    en-hs-ate-ko-'
     maybe      ART=2      FUT-2SG.AGT-MID-escape-PFV
     'Maybe you'll run away,

     iáh ki'        ni:'i      tha:katé:ko'.
     iah ki'        ne=i'i     th-aa-k-ate-ko-'
     not in.fact    ART=1      CONTR-IRR-1SG.AGT-MID-escape-PFV
     but I won't.'
```

Future marking is also used for customary events in the past, not unlike 'would' in English. Irrealis marking is used for the negation of these Future tense clauses as well. The speaker in (13) was describing the pronunciation of students in her previous language classes.

```
(13) Negated Future: Tewateronhiáhkhwa' Mina Beauvais, speaker
     Nó:nen      enthontáhsawen'              [ahontá:ti']
     ne=onen     en-t-hon-at-ahsawen-'       aa-hon-atati-'
     art=now     FUT-CSL-M.PL.AGT-MID-begin-PFV  IRR-M.PL.AGT-speak-PFV
     'When they would start speaking

     iáh ki'       tho      ní:          tsi,
     iah ki'       tho      ni-io-ht     tsi
     not in.fact   there    PRT-N.PAT-be.so  as

        thaonsahonnì:ron'.
        th-aa-onsa-honn-ihron-'
        CONTR-IRR-REP-M.PL.AGT-say-PFV
        they wouldn't say it the same way.'
```

Verbs with this prefix are especially frequent in complement clauses.

```
(14) a:- complements
a.   Kahská:neks [a:kón:ken'].
     'I wish [I could see you].'
b.   Ki: ronatén:ron' wahatshà:nike' [ne  a:héntsiake'].
     'His friend was afraid [to eat the fish.]'
c.   Nek tsi iáh ki' teionkwahrha:rehkwe'
     'But we never expected
          [ne ónhka' aionkhí:nonte'].
          [anyone would give us anything to eat].'
```

A delicate contrast can be seen between the use of the Future in (15), portrayed as certain, and the Irrealis in (16), portrayed as unrealized.

```
(15) Future complement: Josephine Kaieríthon Horne, speaker
     Wahshakohrharátsten'
     wa-hshako-rhar-atst-en-'
     FAC-M.SG>3PL-be.ready-CAUS-BEN.APPL-PFV
     'He promised them

     [tsi enhshakó:ion'           iehwista'ékstha'].
     tsi  en-hshako-ion-'         ie-hwist-a-'ek-st-ha'
     that FUT-M.SG>3PL-give-PFV   FI.AGT-metal-LK-strike-INS.APPL-HAB
     [that he would give them a bell].'

(16) Irrealis complement : Margaret Monroe Lazore, speaker
     Wahonterihwahserón:ni'
     wa-hon-ate-rihw-a-hseronni-'
     FAC-M.SG.AGT-MID-matter-LK-make-PFV
     'They agreed

     [ahatiiá:ken'ne'           ki:     entákta'].
     aa-hati-iaken'n-e'         kiken   ent-akta'
     IRR-M.PL.AGT-go.out-PFV    this    week-next.to
     [they would go out on Saturday].'
```

The cognate prefix in the related language Oneida was earlier termed the 'Indefinite tense' by Lounsbury (1953), a term continued in many works on other Northern Iroquoian languages, since it contrasts with the Factual and the Future. The three prefixes are mutually exclusive, and the Future even occurs in the same slot as the prefix *a:-* in the template. But *a:-* and its cognates in other Northern Iroquoian languages also mark unrealized situations. The overlap is clear: if an event does not occur at a particular time, it could be viewed as either tenseless (thus the label Indefinite) or non-actualized. The range of uses of *a:-* suggests it might now be better identified as Irrealis.

Cristofaro (2012) describes two types of irrealis categories.

I       Events not positively realized at some reference point but that may take place later:

futures, conditions, wishes, obligations, commands, prohibitions, complements of 'want', 'order', purpose, when, conditionals

II      Events that failed to take place at a particular reference point:

unsuccessful attempts, unfulfilled obligations and desires, counterfactual conditions, complements of 'want' and 'order', but only those that did not occur in the past

The Mohawk prefix *a:-* matches some uses in both categories: I: wishes and obligations, marking complements of 'want' and 'order', and purpose, and II: unsuccessful attempts, unfulfilled obligations and desires, and counterfactual conditions. These uses can be seen in all of the Northern Iroquoian languages, suggesting that they are ancient.

## 3.     Modality and irreality

There is a notorious overlap between modality and irreality. Van der Auwera and Zamorano Aguilar (2016) note that irrealis is sometimes included within the domain of modality. One possibility is that the relation is a diachronic one. Mauri and Sansò (2016), citing Bybee et al. 1994, Bybee 1998, and Cristofaro 2012, hypothesize that irrealis markers might not actually originate from a general notion of unrealized states of affairs, but may develop out of modality markers.

> The widespread multifunctionality pattern whereby the same forms are used to encode futures, desire, and obligation originates from the fact that, in many contexts, expressions of desire and obligation are used to convey an intention to perform some action. (Mauri & Sanso 2016: 192)

The Mohawk irrealis prefix *a:-* is clearly old, occurring in all of the languages of the family except the most remote member, Cherokee. The marker is small: in Tuscarora it is *ara-*, and in all of the other languages it is now just a single long vowel *a:-*, shortened to *a-* in some phonological contexts and more generally by some speakers. As can be seen in Figure 2 above, it occupies an inner position among the pre-pronominal prefixes in the verb. There is no evidence of a lexical source in any of the modern languages, and cognates across the family suggest that its fundamental function has not changed over several thousand years.

Intriguingly, verbs with this prefix *a:-* occur in sentences translated with all three basic modality types listed by Nuyts.

```
(17) Dynamic possibility: Annette Kaia'titáhkhe' Jacobs, speaker

     Thò:ha     ahshakohnhóntera'ne'.

     thoha      aa-hshako-hnhontera'n-e'

     almost     IRR-M.SG>FI-catch.up.to-PFV

     'He was almost able to catch up to her.'

(18) Deontic possibility: Annette Kaia'titáhkhe' Jacobs, speaker

     Ahsaterennó:ten'                   ki'      wáhe'.

     aa-hs-ate-renn-ot-en-'             ki'      wahe'

     IRR-2SG.AGT-MID-song-stand-CAUS-PFV in.fact  TAG

     'You should sing.'

(19) Epistemic possibility: Joe Awenhráthon Deer, speaker

     Tóka'  ónhka'k      aietshén:ri'.

     toka'  onhka'=ok    aa-ie-tshenri-'

     maybe  who=ever      IRR-FI.AGT-find-PFV

     'Maybe somebody might find it.'
```

When speakers are asked about the meanings of irrealis verbs in isolation, however, their reactions are somewhat surprising. Their response is often "That (verb) would never occur on its own". But a quick look through the corpus confirms that simple sentences with just *a:-* verbs abound in speech. Intriguingly, their ranges of meanings appear to mirror those described for some Germanic systems, in which markers of dynamic modality have been extended

to deontic modality and then epistemic modality (Shepherd 1982; Bybee & Pagliuca 1985; Traugott 1989; Bybee, Perkins & Pagliuca 1994; Heine 1995; Goossens 1999, 2003; Traugott & Dasher 2002; Ziegeler 2016).

## 4.       From irreality to modality: The role of context

Internal evidence suggests mechanisms by which the Iroquoian irrealis prefix may have come to mark modality. Among the frequent kinds of matrix verbs occurring in Mohawk complement constructions are some that can express traditional modality distinctions. Participant-internal dynamic modality, for example, can be indicated in complex sentences with matrix verbs based on the root *-kweni* 'be able'.

(20) Dynamic modality: Tioròn:iote' Dennis Stock, speaker

Aó:wen          ahotshennonníhake

aa-o-wen        aa-ho-atshenni-hak-e'

IRR-N-happen    IRR-M.SG.PAT-be.happy-CONT-PFV

'He should be happy


tsi       ra**kwénni**e's          ahatá:ti.

tsi       ra-**kweni**-e's          aa-ha-atati-'

that      M.SG.AGT-**be.able**-HAB    IRR-M.SG.AGT-speak-PFV

that he's **able** to speak.'

(21) Dynamic modality: Annette Kaia'titáhkhe' Jacobs, speaker

['They punished them if they spoke the language, but']


iáh  ki'       tehoti**kwéni**on

iah  ki'       te-hoti-kweni-on

not  in.fact   NEG-M.PL.PAT-**be.able**-ST

'they were not **able**


ne   a:iohtòn:'on.

ne   aa-io-ahton-'-on

ART  IRR-N.PAT-disappear-INCH-ST

to erase it.'

Participant-external dynamic modality can be expressed with verbs based on *-aton* 'be possible' among others.

(22) Dynamic modality: Joe Awenhráthen Deer, speaker

> Iáh  teio**tòn:**'on,
> iah  te-io-aton-'-on
> not  NEG-N.PAT-**be.possible**-INCH-ST
> **'I couldn't**

> aontiénthon'             thé:nen.
> aa-wak-ienth-on-'        othenen
> IRR-1SG.PAT-plant-ST-PFV anything
> plant anything [because the ground was too hard.]'

Deontic possibility can also be expressed in complex sentences with matrix verbs based on the same root *-aton* 'be possible'. The sentence in (23) described the reactions of people to being told to quarantine during the pandemic.

(23) Deontic possibility matrix: A. Kaia'titáhkhe' Jacobs, speaker

> Rotina'khwèn:'en,
> roti-na'khwen-'-en tsi
> M.PL.PAT-be.angry-INCH-ST
> 'They were angry

> tsi  iáh  tha**ón:ton'**,              iahatiiá:ken'ne'.
> tsi  iah  th-aa-w-**aton**-'           i-a-hati-iaken'n-e'
> that not  CONTR-IRR-N.AGT-**be.possible**-PFV TLOC-FAC-M.PL.AGT-go.out-PFV
> that **they were not allowed** to go out.'

Deontic necessity can be expressed in complex sentences with matrix verbs based on a root 'be necessary'.

(24) Deontic necessity: Dorris Kawennanó:ron' Montour, speaker

> Teiot**onhontsó**hon              ken  a:konhró:ri'
> te-io-at-**onhontso**-h-on        ken  aa-kon-hrori-'
> DV-N.PAT-MID-**be.necessary**-DISTR-ST  Q  IRR-1SG>2SG-tell-PFV
> 'Do I **have to** tell you?'

A likely scenario is that the high frequency of Irrealis marking on complements of modal matrix verbs lent a modal flavor to the prefix *a:-* via contamination. Such a process would be not unlike the circumstances behind independent optatives in many languages. The English *Have a nice day!* is not a full indicative sentence, and even now it is not generally understood as a straightforward command. It is more like the complement of an unspoken matrix along the lines of *I hope that you*, now simply an appropriate construction in certain contexts.

A similar trajectory likely underlies the Irrealis marking of volitional statements. Not surprisingly, complements of verbs of desire and volition are usually Irrealis: they describe unrealized situations.

```
(25) Matrix verb of volition: Watshenní:ne' Sawyer, speaker
     Tewakatonhontsón:ni,
     te-wak-at-onhontsonni
     DV-1SG.PAT-MID-want.ST
     'I would like

     aiesewató:kenhse'         tsi  niiakwawennò:ten'. . .
     a-esewa-tokenhs-e'        tsi  ni-iakwa-wenn-o'ten-'
     IRR-2PL-MID-certain-PFV   how  PRT-1PL.EXC.AGT-word-be.a.kind.of-ST
     'you all to understand the way we speak,'

(26) Matrix verb of volition: Watshenní:ne' Sawyer, speaker
     Tánon'      wakahskanékon
     tanon'      wak-ahskanek-on
     and         1SG.PAT-wish-ST
     'And I wanted

     nakaterihwaienhstà:na'.
     ne   aa-k-ate-rihw-a-ienhst-ahn-a'
     ART  IRR-1SG.AGT-MID-matter-LK-learn-AND-PFV
     to go to school.'
```

Volition and hope can now also be indicated with an Irrealis verb alone, in a common construction based on an Irrealis form of the verb 'happen'.

```
(27) Volitional Irrealis: Josephine Kaieríthon Horne, speaker
     Aiá:wen's                      ki:       iohsnó:re'
     aa-iaw-en-'=se'                kiken     io-shnor-e'
     IRR-N.PAT-happen-PFV=indeed    this      N.PAT-be.quick-ST
     'I hope that soon

     ahatihiá:ton'           ne:--     ...
     aa-hati-hiaton-'        ne:
     IRR-M.PL.AGT-write-PFV  that
     they might write about this . . .'
```

Speakers suggest that other aspects of the context might also foster the modal interpretations. The sentence in (17) seen earlier, 'He was almost able to catch her', contained the particle *thò:ha* 'almost'. There is a logical inference that if her pursuer almost caught her, the event was not actualized. This speaker volunteered that the translation 'able to' was just added later in her retelling in English. There was no verb 'be able' in the original Mohawk, but she felt that that meaning was present. The sentence in (18) 'You should sing' contained the particle *ki'* which indicates that the statement is pertinent to the previous discussion. The particle *wáhe'* is a tag, soliciting agreement or further response, or suggesting that the listener might or should already be aware of it: 'you know'.

That sentence was not uttered in isolation; it was a suggestion made at a party when guests were jumping up to sing and dance. The sentence in (19) 'Maybe somebody might find it' contained the particle *tóka'* 'maybe', strengthening the epistemic meaning of reduced certainty.

Processes like this, in which an irrealis marker developed modal connotations because of its high frequency in modal contexts, may not be uncommon cross-linguistically. Such developments are likely to occur gradually. Recognizing them can help us to understand why modeling the modality domain can be challenging, and in this case determining the place of Irrealis within it.

## 5.      Additional development

As noted by Nyuts (2016) and Narrog (2016) among others, teleological distinctions (pertaining to goals) are often included within the domain of modality. The Iroquoian Irrealis prefix has developed into a marker of purpose as well. Many Mohawk Irrealis-marked complements specify an unattained goal, a desired outcome.

> (28) Unattained goal: Susie Lynch, speaker
>
>      Rate'nién:tenhskwe'            [**a:**iakeniiá:ken'ne'].
>
>      ra-ate-'nienten-hskwe'        **aa**-iakeni-iaken'n-e'
>
>      M.SG.AGT-MID-try-PAST.HAB      **IRR**-1EXC.DU.AGT-go.out-PFV
>
>      'He was trying [**to date me**].'

The prefix *a:-* now also serves pervasively as a purpose clause marker with no additional specification of purpose. Because of their function, purpose clauses do not generally occur on their own in simple clauses: they generally describe the purpose behind a statement in the matrix.

> (29) Purpose clause: Mae Niioronhià:'a Montour, speaker
>
>      Ietshehnhà:'on              [ahakihnónksha'].
>
>      ie-tshe-nha'-on             aa-hak-ihnonks-ha-'
>
>      TLOC-2SG>M.SG-hire-ST       IRR-M.SG>1SG-go.get-AND-PFV
>
>      'You sent him [**to come get me**].'
>
> (30) Purpose clause: Kahentoréhtha' Marie Cross, speaker
>
>      Kwah se'ken  atkòn:sera'    ehtà:ke    ronátion        kí:ken
>
>      kwah se'ken  atkon'ser-a'   eht-a'ke   ron-ati-on      kiken
>
>      just indeed  pillow-NS      down-place M.PL.PAT-throw-ST this
>
>      'They had thrown the pillow on the floor
>
>      khere'                 káti'   ken ne [tho   **a:**há:rate'].
>
>      i-k-ehr-e'             kati'   ken ne  tho   **aa**-ha-rat-e'
>
>      PROTH-1SG.AGT-believe-ST in.fact Q   ART   there **IRR**-M.SG.AGT-lie-PFV
>
>      [I guess [**so that he** (the puppy) **could lie on it**.]'

The semantic extension of the Mohawk Irrealis to mark purpose constructions has evolved further to marking the purpose of referents. Bridging contexts are

easy to see. The sentence in (31) could be understood as describing either the purpose of giving the blanket or of the blanket itself.

```
(31) Purpose: Carolee Konwatién:se' Jacobs, speaker
     Ki:        rón:kwe   áhsire'        tahó:ion'
     kiken      r-onkwe   ahsir-e'       ta-hoi-on-'
     this       M-person  blanket-NS     CSL.FAC-M.SG>M.SG-give-PFV
     'This man gave him a blanket

     [tahohsirawèn:'eke'                      ne   rohsótha].
      t-aa-ho-ahsir-awen'ek-e'                ne   ro-hsot-ha
      DV-IRR-M.SG>M.SG-blanket-wrap-PFV   ART  M.SG>M.SG-be.gd.parent.to=DIM
     [to wrap his grandfather in].'
```

But in (32) the referent is clearly the swimming place.

```
(32) Referent purpose: Watshenní:ne' Sawyer, speaker
     Iah   tetsonkwá:ien'
     iah   te-tsi-onkw-ien-'
     not   NEG-REP-1PL.PAT-have-ST
     'We no longer had

     ka'   nón:      se'       [aionsaiakwatá:wen'].
     Ka'   nonwe     se'       aa-onsa-iakwa-at-awen-'
     some  place     indeed    IRR-REP-1EXC.AGT-MID-bathe-PFV
     a place [to swim].'
```

These Mohawk developments, in which intention and obligation have developed into purpose, are in line with proposals by Bybee et al. (1994: 240) that one pathway of development can move from intention to purpose.

## 6.    Conclusion

Modality is a particularly elusive grammatical domain, in good part because of its pervasive interpersonal functions and its tendency to evolve through time. Tracing the twists and turns of change in context can help us understand why systems are the way they are. If we look just at sentences in isolation, especially with only translations from a contact language, we stand to miss not only the precise functions of the markers and constructions of which they form a part, but also the circumstances that can motivate their development.

Data from spontaneous speech in Mohawk suggest that some of the difficulty of separating the category of Irrealis from the domain of modality may be due to gradual developments of irrealis constructions into constructions signaling modality, including not only dynamic, deontic, and epistemic, but boulomaic (pertinent to desires) and teleological (pertinent to goals) distinctions as well.

Though there is no philological record of Mohawk and related languages sufficiently ancient to provide evidence of these developments, documentation

of current speech in context, along with the insights of speakers, allows us to form promising hypotheses concerning the circumstances that might have led to the modern system. And adding the diachronic dimension can permit us to better understand the challenges posed for model building in domains with fuzzy boundaries.

# REFERENCES

van der Auwera, J. & Zamorano Aguilar, A. (2016): The history of modality and mood. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook modality and mood. Oxford University Press, 9-27.

van der Auwera, J. & Plungian, V. (1998): Modality's semantic map. Linguistic Typology 2, 79-124.

Bybee, J. (1998): "Irrealis" as a grammatical category. Anthropological Linguistics, 40, 257-271.

Bybee, J. & Pagliuca, W. (1985): Cross-linguistic comparison and the development of grammatical meaning. In J. Fisiak (ed.), Historical semantics, historical word formation. The Hague: Mouton, 59-83.

Bybee, J., Perkins, R. & Pagliuca, W. (1994): The evolution of grammar: tense, aspect, and modality in the languages of the world. Chicago: University of Chicago Press.

Cristofaro, S. (2012): Descriptive notions vs grammatical categories: Unrealized states of affairs and "Irrealis"? Language Sciences, 34, 131-146.

Givón, T. (1994): Irrealis and the subjunctive. Studies in Language, 18, 265-337.

Goossens, L. (1983): *Can* and *kunnen*: Dutch and English potential compared. In F. Daems & L. Goosens (eds), Ins and outs of predication. Dordrecht: Foris, 21-37.

Goossens, L. (1999): Metonymic bridges in modal shifts. In K.-U. Panther & G. Radden (eds), Metonymy in language and cognition. Amsterdam: John Benjamins, 193-210.

Goossens, L. (2003): Patterns of meaning extension, 'parallel chaining', subjectification, and modal shifts. In A. Barcelona (ed.), Metaphor and metonymy at the crossroads: A cognitive perspective. Berlin: Mouton de Gruyter, 149-169.

Heine, B. (1995): Agent-oriented vs epistemic modality: Some observations on German modals. In J. Bybee & S. Fleischman (eds), Modality in grammar and discourse, Amsterdam: John Benjamins, 17-53.

Lounsbury, F. (1953): Oneida verb morphology. New Haven, CT: Yale University Press.

Mauri, C. & Sansò, A. (2016): The linguistic marking if (ir)realis and subjunctive. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 166-195.

Mithun, M. (2016): Modality and mood in Iroquoian. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 223-257.

Narrog, H. (2016): The expression of non-epistemic modal categories. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 89-116.

Nikolaeva, I. (2016): Analyses of the semantics of mood. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 68-85.

Nuyts, J. (2008): Qualificational meanings, illocutionary signals, and the cognitive planning of language use. Annual Review of Cognitive Linguistics 6, 185-207.

Nuyts, J. (2016): Analyses of the modal meanings. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 31-49.

Nuyts, J., Diepeveen, J. & Byloo, P. (2007): *Hopen* is niet "niet vrezen", *verzen* is niet "niet hopen". In D. Sandra, R. Rymenans, P. Cuvelier, & P. Van Petegem (eds), Tussen taal, spelling en onderwijs. Gent: Academia Press, 101-112.

Nuyts, J. & van der Auwera, J. (eds) (2016): The Oxford handbook of modality and mood. Oxford: Oxford University Press

Palmer, F. (1986): Mood and modality. Cambridge: Cambridge University Press.

Palmer, F. (2001): Mood and modality, 2nd edn. Cambridge: Cambridge University Press.

Shepherd, S. (1982): From deontic to epistemic: An analysis of modals in the history of English, creoles, and language acquisition. In A. Ahlqvist (ed.), Papers from the Fifth International Conference on Historical Linguistics. Amsterdam: John Benjamins, 316-323.

Traugott, E. (1989): On the rise of epistemic meanings in English: An example of subjectification in semantic change. Language 65.1, 31-55.

Traugott, E. & Dasher, R. (2002): Regularity in semantic change. Cambridge: Cambridge University Press.

Ziegeler, D. (2016): The diachrony of modality and mood. In J. Nuyts & J. Auwera, van der (eds), The Oxford handbook of modality and mood. Oxford: Oxford University Press, 387-405.