The semantics of modality
Days 4 and 5: Evidentials and miratives

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Constraining the system

So far, the modality used in the imperfective is quite distinct from the modality seen in, e.g., modal auxiliaries. Though the former relates a reference situation to other situations that may or may not be in the actual world, the modal base always has to do with the "unfolding of the event":

(1)   Imperfective modal bases: event intertia, preparatory inertia, resultative, ...

(2)   Modal bases for modals: deontic modality, epistemic modality, bouletic modality, ...

It is clear that we want to exclude most of these modal bases from aspectual heads.

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> Será el jefe, pero no tiene la menor idea de cómo funcionan las cosas.

> A esta hora estará llegando a Retiro.

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> Será el jefe, pero no tiene la menor idea de cómo funcionan las cosas.
>
> A esta hora estará llegando a Retiro.

2. Indirect evidential readings of the perfect or pluperfect:

> Hoy día había llegado su mamá de él. (La Paz)
>
> Esto se ha caído ahí atrás y no lo vimos hasta ahora.

Aspect and modality: prospects

3. Mirative readings of the pluperfect or the imperfective:

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¡Eras alto!

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4. Hypothetical readings of the imperfective:

      Juguemos a que yo era policía y vos ladrón.

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Today we'll start looking at evidentiality. We have two tasks ahead of us: 1. show that (at least some) evidentiality can be modal; 2. show that the association between evidentiality and some aspects is not fortuitous.
We'll do something similar with mirativity tomorrow.

Evidentiality

Evidentiality encodes the source for a claim. Types of evidentiality include direct visual, direct non-visual, inferred from direct evidence, conjectured from general knowledge, hearsay. Sometimes finer gradations are necessary. Evidentiality is often claimed to be distinct from modality. For scholars such as De Haan and Aikhenvald, evidentiality encodes the source of the information contained in the utterance, while epistemic modality encodes the degree of commitment on the part of the speaker to the truth of the information.

Evidentiality: examples

Here's the Tuyuca data from the first day (Barnes 1984):

(3)   kiti-gï   tii-í
        chop:trees-M.SG AUX-**VISIBLE.PRESENT.3.M.SG**

        "He is chopping trees" (I see him)

(4)   kiti-gï   tii-gí
        chop:trees-M.SG AUX-**NONVISIBLE.PRESENT.3.M.SG**

        "He is chopping trees" (I hear him)

(5)   kiti-gï   tii-hòi
        chop:trees-M.SG AUX-**INFERRED.PRESENT.3.M.SG**

        "Apparently he's chopping trees" (I can't really tell)

(6)   kiti-gï   tii-yigï
        chop:trees-M.SG AUX-**HEARSAY.PAST.3.M.SG**

        "It is said he chopped trees"

A naïve modal analysis of evidentials

We could propose that what goes on in these different types of evidentiality is modelled by a series of modal bases similar to those employed in the imperfective:

(7) <u>General evidential</u>: $[\![\mathrm{EV}]\!]^c = \lambda P_{<s,t>}.\forall s'$:
   s' is compatible with the evidence available in s^*,
   $\exists s : s < s' \wedge P(s) = 1$

(8) <u>Inferential evidential</u> (= Resultative imperfective)
   $\mathrm{MB}_{\mathrm{Inferential}} = \lambda s.\lambda s'.s$ results from s',
   where for any two situations s and s', *s results from s'* iff s includes the consequences or results of the events in s'.

(9) <u>Hearsay evidential</u>
   $\mathrm{MB}_{\mathrm{Hearsay}} = \lambda s.\lambda s'.s'$ is a hearsay situation for s,
   where for any two situations s and s', *s' is a hearsay situation for s* iff what is said in s' includes asserting s.
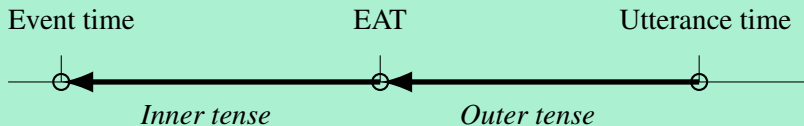
A case study: the Matsés inferential

The following discussion is based on a paper by David Fleck on Matsés. Matsés has a "double tense" evidential:

(10)   "[White-lipped peccaries] passed by."

kuen-ak	[said looking at fresh tracks]
kuen-nëdak	[said looking at old tracks]
kuen-ak-o-ş	[fresh tracks were discovered a short time ago at a distant location]
kuen-ak-onda-ş	[fresh tracks were discovered a long time ago at a distant location]
kuen-nëdak-o-ş	[old tracks were discovered a short time ago at a distant location]
kuen-nëdak-onda-ş	[old tracks were discovered a long time ago at a distant location]

A case study: the Matsés inferential

Fleck's claim about this construction is that the intermediate time encodes the time of acquisition of evidence.

The Matsés inferential also requires direct evidence

In some sense, both inferential and experiential encode direct experience in Matsés.

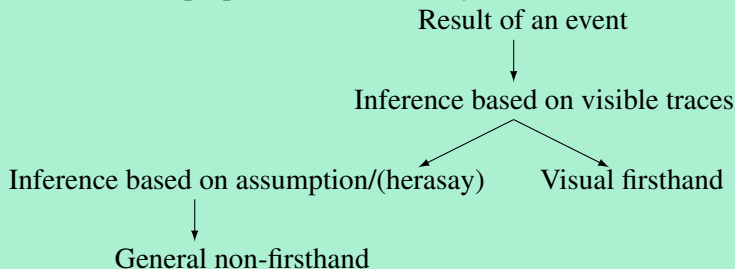> *Experiential* is the evidential category for events that are experienced by the speaker.

> *Inferential* is the evidential category for events whose results are experienced by the speaker.

> Like in many other languages with evidential distinctions, direct evidence is unmarked in Matsés.

Relation between perfects and evidentials

There is a strong cross-linguistic correlation between perfects and indirect evidentiality. Perfects focus on results. So completed past event is seen as relevant for present. An inference is made based on some traces or results of a previous event. Sources for this idea include: Comrie 1976:11; Johanson 1971, 2000b; Bybee, Perkins and Pagliuca, 1994:95-7.

Aikhenvald even proposes an evolutionary schema:

Result of an event

↓

Inference based on visible traces

Inference based on assumption/(herasay)   Visual firsthand

↓

General non-firsthand

Formalizing the link between perfects and evidentials

Izvorski 1997 formalizes the link between perfects and indirect evidentials by assuming a Parsonian interpretation of the perfect where the claim is that the consequent state (CS) of an event holds at the evaluation time, while the event itself doesn't:

(11) $\llbracket \text{PERF} \rrbracket = \lambda t.\lambda e.H(CS(e), t) \wedge \neg H(e, t)$

CS represents the "consequent state" of an event, and is common to both aspectual and evidential perfects.

In the aspectual interpretation of the present perfect, H is simply the *holds* relation.

In the evidential interpretation, H is a modal relation: "the speaker has direct evidence that some situation occurs in t".

The indirect evidential formed over a perfect construction is then stating that the speaker has no direct evidence of e, but does have direct evidence of $CS(e)$, the effects of e, which is generally the type of evidence considered "indirect".

What to expect if an evidential is a modal

We have insisted that evidentials can be treated as modals. But there is of course another possibility, most salient for hearsay, that an evidential is an illocutionary operator. See, e.g., Faller 2002, Murray 2010, among others.

What to expect if an evidential is a modal

We have insisted that evidentials can be treated as modals. But there is of course another possibility, most salient for hearsay, that an evidential is an illocutionary operator. See, e.g., Faller 2002, Murray 2010, among others. According to Faller, one can verify whether a particular evidential is modal by means of the following criteria:

a. (In)felicity if embedded proposition is known to be false
b. (In)felicity if embedded proposition is known to be true
c. Indirect evidence requirement not cancelable
d. Indirect evidence requirement not blocked by negation
e. Assent/dissent
f. Embedding
g. Readings in interrogatives
h. (In)ability to raise assertive strength

We'll look at only the first four here.

Tests for the modal character of evidentiality

Modal evidentials are infelicitous if we know the proposition to be false or true:

(12)   # It may/must be raining, but it is not (raining).
        OK to say: they said it's raining.

Faller claims that (some) Quechua evidentials allow the speaker to know that the embedded proposition is false:

(13)   para-sha-n-si,   ichaqa mana crei-ni-chu
       rain-DUR-3-HEARSAY but   not   believe-1-NEG
       "It is raining, but I don't believe it."

Tests for the modal character of evidentiality

The third point makes a similar claim (but rather than knowing a proposition to be true, one has better evidence than initially declared); one cannot say something like the following with a reportative evidential:

(14)   # Mary [reportedly] kissed Roger; actually I saw it.
              consultant comment: somebody told you, you didn't see it.
              (adapted from Matthewson et al 2007)

Tests for the modal character of evidentiality

On the other hand, one would expect modals (but also illocutionary operators) to display scope interactions with negation, but this is never the case, to my knowledge:

(15)   Ivan ne izkaral   izpita.
        Ivan not passed.EVID.PST the-exam

        "Ivan didn't pass the exam (it is said/I infer)."
        but not: "It is not the case that {it is said/I infer} that Ivan passed the exam." (Izvorski 1997:228)

For Izvorski, the indirect evidence is part of the presupposition, and thus does not interact with negation. In the modal analysis proposed by Matthewson et al, where evidential content is part of the assertion, there is no reason why negation should not interact with it.

Mirativity: definition and examples

Mirativity: encoding of the speaker's surprise or "unprepared mind" regarding the veracity of a proposition.

(16)   Chechen (Molochieva 2010)

    a.   Zaara   j-e'a-na   vaiga

        Zara.NOM(J) J-come.PFV-PRF 1PL.INC.ALL

        "Zara has come (I expected her to come)."

    b.   Zaara   j-e'a-na-q   vaiga

        Zara.NOM(J) J-come.PFV-PRF-MIR 1PL.INC.ALL

        "(Wow!) Zara has come! (I didn't expect her to come)."

Mirativity and evidentiality

In the earliest sources (e.g., DeLancey 1997) there was some confusion between mirativity and evidentiality, because the two often go together. The typical situation, found in many languages, is one where indirect evidential gets a mirative meaning when it is clear that the evidence for the proposition is direct. The following example from Jarawara is cited in Aikhenvald 2012, p. 264:

(17)   jo   abohi   home-hino
           sloth be.dead lie-IMM.PST.NON-FIRSTHAND

           "A dead sloth lay (there), unexpectedly"

Mirativity and evidentiality

The link between miratives and evidentials is sometimes broken. In Chechen (same source) there are the following data which show that miratives and indirect evidentials are expressed through separate devices:

(18)   a.   Zaara   j-e'a-na   xilla

                 Zara.NOM(J) J-come.PFV-CVB.ANT be.PRF

                 "Zara has come (I can see her shoes in the hall, but I didn't see her come)."

       b.   Zaara   j-ie-na   xilla-q

                 Zara.NOM(J) J-come.PFV-CVB.ANT be.PRF-MIR

                 "Look! Zara was here! (I can see her special cookies in the kitchen; unwitnessed coming; unexpected/new situation; not concurrent with my expectations)"

(I couldn't get a hold of this source cited by DeLancey, so I don't know why the morpheme for "come" is different in the last example, nor why the last two examples do not need the "towards us" word at the end).

Mirativity and perfects

A further frequent connection is between mirative and perfect, often through the indirect evidential. This is a situation that obtains (at least historically) in Albanian, where the "admirative" mood is constructed with a short-form participle to which a tensed form of *have* is suffixed. The same construction is used for the indirect evidential, while the "real" perfect has the participle and the auxiliary as two separate words (data from Friedman 2014):

(19) Ai qen-ka   vulnetar.
      He be.PRT-has volunteer

      "He is a volunteer (much to my surprise)", or "He is (apparently) a volunteer."

(20) Ai ka qenë   vulnetar.
      He has be.PRT volunteer

      "He has been a volunteer."

These parallelisms between perfects, indirect evidentials and miratives occur in other Balkan languages (e.g., Macedonian and Turkish).

Mirativity and perfects

If we return to Izvorski's formula, we might wonder if it can be extended to account for mirative meanings:

(21) $[\![\text{PERF}]\!] = \lambda t.\lambda e.H(CS(e), t) \wedge \neg H(e, t)$

In the evidential interpretation, H was a modal relation: "the speaker has direct evidence that some event occurs in t". For the mirative, ...
Let's first look at some more familiar examples of evidential and mirative perfects.

Evidential perfects in Spanish

In the Spanish of La Paz (Martin 1981:205; Laprade 1981:223,225): pluperfect (*hoy día había llegado*) used to indicate indirect knowledge, while preterite is direct (*hoy día llegó*). Djudezmo (Friedman 2003:190) has something similar.

In Ecuador, the perfect is a present with indirect evidence or a mirative component, while pluperfect is a past with indirect evidence:

(22)   Bastantes muebles ha tenido ['tiene']

(23)   Mire, compró estos, los probé ... y .. ¡han sido peras! (Olbertz 2009:70)

(24)   Habían sido ['eran'] los hijos de unos señores de las haciendas de Machachi. (Kany 1969:208)

Evidential perfects in Spanish

Examples of this type always seem to have stative verbs. With dynamic verbs, the perfect has past reference with indirect evidence:

(25)   La Vero se ha casado. (Haboud 2008)

I found no examples of pluperfects with dynamic verbs.

Evidential perfects in Spanish

Something similar is claimed to hold in Bolivia. The following is from Herminia Martín, apud Avellana 2012:

A: — Sapir fue un gran lingüista.

B: — ¿Cómo lo sabes?

A: — Los libros lo dicen.

B: — Entonces no puedes hablar así; debes decir: Sapir *había sido* un gran lingüista.

Evidential perfects in Spanish

This example is from an Argentinean narrative, and exemplifies the indirect evidential with a series of verbs:

(26)   Mi finado fue una vez a cazar a una laguna y ahí **había estado**, en un palo, la madre del agua, peinándose con un costillar de pescado. Y ahí la ha hallado. Se **había llegado** cerquita y vido que muy rubia **había sido**. Dice que **había tenido** la cara delgadita, como una criatura chica y muy bonita **había sido**. Pero las trenzas decía que las tenía, po, muy largas, que **habían estado** topando el agua, y ella **había tendido** casi todo el cuerpo afuera, y desnudo que **había estado**. Y decía que después de un rato que se **había volcau** al agua, y que el agua **había quedado** batiéndose. (from Vidal de Bertini 1980, apud Avellana 2012)

Evidential and mirative perfects

Torres Bustamante claims that the following is episodic in Andean Spanish, though in this case the evidentiality is bundled with mirativity, to be examined later:

(27)   ¡Juan había fumado!

Context: you thought Juan didn't smoke *at the party*, but then you see ashes on his clothes.

(28)   ¡Te habías casado! [I didn't know it]

Evidential and mirative perfects

In non-Ecuadorean Andean varieties, the present perfect with indirect evidential interpretation is absent. In some cases the present perfect is used with the value of a pluperfect:

(29)   Y, claro, ya si ha dado ['había dado'] cuenta de las intenciones del compadre.

In other cases, it is simply a direct evidential (Hardman de Bautista 1982):

(30)   Ella **ha comprado** la casa. [compró, me consta]

(31)   Ella **había comprado** la casa. [compró, no me consta]

(32)   Ella **había comprado** la casa **dice**. [compró, según oí]

Parallel with Quechua *-sqa*

The contrast between direct and indirect evidence is bundled with past tense in Quechua (data from Faller, apud Avellana):

(33) Para-sha-**sqa**
      rain-DUR-PST.IND

      "It was raining [inferred/reported]."

(34) Para-sha-**rqa**-n
      rain-DUR-PST.DIR-3

      "It was raining [directly experienced]."

This same morpheme can have a mirative sense if the evidence is direct:

(35) kay-pi   ka-sha-**sqa**   Marya-qa
      here-LOC is-DUR-PST.INDIR Marya-TOP

      "¡María is here!"

Incidentally, there are two more particles treated as evidentials in Quechua
(Faller 2002:164), one of which we saw earlier:

(36)   Para-sha-n-**mi**
       rain-DUR-3-ASSRT
       "It is [clearly] raining."

(37)   Para-sha-n-**si**
       rainDUR-3-HEARSAY
       "It is [reportedly] raining."

Mirative pluperfects and *había sido*

Kany documents a mirative use of the pluperfect in a vast area, mostly southern South America:

(38)   ¡Cha que había sido salame!

(39)   Tu hijo había sido un mañudo.

(40)   ¡Qué mal pensado había sido usted, Don Juan Francisco!

(41)   ¡Qué interesada había sido la virgen!

(42)   Encontró un guazuncho. Y habían sido dos.

(43)   Este viejito mendigo había sido Dios.

(44)   Ha visto que había sido mentira que era dura la cabeza de mi hermanito.

These can normally be paraphrased with *resultó que*.

Mirative pluperfects and *había sido*

But for some reason this only happens with *ser* and not other verbs. With verbs other than *ser* a more periphrastic construction is called for. In Paraguay and the northeast of Argentina, the following is found (data from Avellana 2012):

(45)   Había sido que el pelado fue castigado.

(46)   Pero no, ¡había sido que era ella!

In Paraguay, *había sido* has become a fixed adverbial expression that may appear at the beginning or end of a sentence, without an overt complementizer:

(47)   Era usted había sido.

(48)   Había sido se enfermó.

Mirative pluperfects and *había sido*

The corresponding Guaraní particle *ra'e*, which we will examine later, appears often in Paraguayan Spanish (internet data from Avellana 2012):

(49)   ¡La nueva Miss Mundo quería ser monja **ra'e**!

(50)   Su amada esposa **ra'e** tenía otro marido.

On the relation between evidentiality and mirativity

Summing up: as we saw with Quechua *-sqa* and with Spanish pluperfects, it is very common for a morpheme indicating indirect evidentiality to do double duty as a marker of surprise. This reading typically arises when the evidence is clearly direct.

For Spanish, Torres Bustamante 2013 provides the following example:

(51)   ¡Juan había sido alto!

      a.   Mirative present: looking at Juan standing.

      b.   Evidential present/past: looking at his coffin.

The relation between perfect/pluperfect and evidentiality and mirativity is also quite solidly attested cross-linguistically.

Imperfective as mirative

In addition to what is reported with Andean Spanish, there is, according to Torres Bustamante, a mirative reading of the imperfective that holds in standard Spanish.

(52)   ¡Juan fumaba! ['fuma', recently discovered]

(53)   ¡Eras alto! ['sos', recently discovered]

Clash between speaker's previous beliefs and the current state of affairs. The surprise is not encoded in mirativity, but rather is a pragmatic consequence of the clash.

Properties of the mirative

What is asserted is considered true by the speaker:

(54)   ¡Eras alto! # De hecho, no lo eres.

The mirative does not make a contribution to the proposition:

(55)   ¡Juan fumaba!

        # Pero no me sorprende.

        # No, no estás sorprendido.

         ¡Pero si ya te lo había dicho!

Cannot be displaced to the past:

(56)   # ¡Oye, Juan fumaba hace 10 años!

Analysis of the mirative

Torres Bustamante's surprise operator:

(57) $M = \lambda p.\lambda q.[[\forall w' \forall w [p \cap \neg q(w') \wedge p \cap q(w)] \rightarrow w' \leq_M w] \wedge q(w^*)]$

The assertion is that $q(w^*)$. The not-at-issue content says that $\neg q$ worlds are more likely than q worlds, according to the speaker's belief.

The mirative operator M relates two sets of worlds with doxastic modality: the set of worlds compatible with prior beliefs, and the set of worlds denoted by the assertion: $\neg q$ worlds are better than q worlds.

Guaraní *ra'e*

(This section reports ongoing work with Javier Carol).
The Guaraní particle *ra'e* expresses mirativity in declarative clauses:

(58)   Juan o-hai   peteĩ libro ra'e.
       Juan 3A-write one   book RA'E

       "Juan wrote a book, after all." (i.e., contrary to expectation)

(59)   Juan h-asy   ra'e.
       Juan 3P-sick RA'E

       "Juan got sick, after all."

In these cases, the implication is that I have just acquired the evidence for the proposition at issue.

Guaraní *ra'e*

In conjunction with *nipo* (*[ni]mbo*) or *niko* (*[ni]ngo*), it expresses surprise with exclamative force:

(60)   Re-ju   nipo ra'e!
        you-come   PRT RA'E

        "You've come (after all)!"

(61)   Rei-kove nipo ra'e!
        you-live   PRT RA'E

        "You're still alive (after all)!"

Guaraní *ra'e*

The surprise expressed with *ra'e* can be shifted to the past, expressing that some situation was unexpected when first encountered. In traditional descriptions, *ra'e* in such cases is claimed to just express relative past, but it is clear that the event stated is somehow unexpected:

(62) Peteĩ aratiri   o-trosa ra'e la tajy.
      one   lightning 3A-split RA'E the tabebuia

      "[When he got there he realized that] a lightning had split the tabebuia tree."

(63) A-guahẽ-ramo   pépe o-pá-ma   ra'e.
      1SG.A-arrive-when there 3A-end-already RA'E

      "When I got there, [it turns out that] it had already ended."

Analysis of Guaraní *ra'e*

We propose that the semantics of *ra'e* should be something like this:

(64) $[\![\text{RA'E}]\!] = \lambda t.\lambda w.\lambda p : \exists t^* < t :$
       the speaker did not know in t^* that $p = 1$ in $w.p = 1$

(For the formula to work, it seems that *p* should be a durative eventuality that extends at least from t^* to t.) The intuition is in fact that the surprise introduced by *ra'e* is not asserted; it can't be negated by the speaker or contradicted by the interlocutor.

Properties of *ra'e*

In combination with the future tense morpheme *ra'e* scopes necessarily over tense:

(65) O-ú-ta   ra'e.
      3A-come-FUT RA'E

      "He'll come, after all." (Suggested context: I get a hint that he's coming, though I didn't expect him to come.)

An inverse interaction seems to hold with the "hypothetical" marker:

(66) O-pá-ne   ra'e.
      3A-finish-HYP RA'E

      "It might be finished, after all." (Suggested context: I ask you to grab a bottle in the fridge, and you come back saying that you found nothing.)

ra'e as a mirative

In sum, the evidence for *ra'e* having an essentially mirative meaning is abundant. However, one of its frequent concomitant meanings is that evidence for *p* be indirect:

(67)   Reju ra'e.
         "So you came, after all (evidence for your coming is indirect)."

(68)   Rejuha.
         "So you came, look at that." (evidence is direct; *ha* is some sort of participial or nominalizing marker)

In other constructions, the departure from a basic mirative meaning is greater...

ra'e as mirative

In interrogatives, the sense that is added is that the question seeks confirmation or a reminder for a piece of information that the asker should already know, or somehow an expectation is introduced, but the relationship with the stated proposition is not as straightforward as in declarative clauses:

(69) Mba'éicha-pa ne-ko'ẽ?
      how-Q   your-night

      "How was your night?"

(70) Mba'éicha-pa ne-ko'ẽ   ra'e?
      how-Q   your-night RA'E

      "How was your night? (I might expect that it wasn't too good.)"

Still, one can see the family resemblance with *ra'e* in declaratives in a question such as:

(71) e-rú-pa   la ka'a ra'e?
      2A-bring-Q the mate RA'E

      "Did you bring the yerba mate?"

In this case (and maybe this is the case in all yes/no questions), the expectation is that the hearer did not do what is being asked.

Challenges to an analysis where ¬*p* is likely

In some cases, it is clear that there is no need to counter an expectation:

(72)   Ape ngo la javy'a ra'e!
        "Here is were we feel well!"

Or the following, uttered after I had been calling you and not managed to get through:

(73)   Repinta ngo hína ra'e
        "Oh, you were painting! [that explains it!]"

(74)   rejahu hína
        "Oh, you were bathing! [that explains it!]"

Challenges to an analysis where $\neg p$ is likely

And, contrary to what happens in Torres Bustamante's data, the expectation can in fact coincide with what happens:

(75)   Aguahẽrõguare, opáma ra'e la fiesta, ché aimo'ã haguéicha
       "When I arrived, the party had finished *ra'e*, as I had expected."
       Consultant comment: "in this case, *ra'e* means 'I found out'."