Modal Indefinites

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ESSLLI 2016, Lecture 5

Yesterday: Random Choice

(1) Juan cogió una carta cualquiera.
     Juan took   a   card CUALQUIERA

1. Existential claim:

   There is an actual event e of Juan taking a card x, and

2. Modal component:

   For every (relevant) card y in w_0, there is a world w
   compatible with d_e where d_e is fulfilled by an event e' of
   Juan taking y.

Random Choice

- How does this modality come about compositionality?
- How to derive the distributional restrictions?

Long Distance Interactions

- How are harmonic interpretations derived?

Modal Selectivity

- Why are harmonic interpretations available only with some modals?

ℹ Alonso-Ovalle and Menéndez-Benito forthcoming, submitted

Roadmap

Implementation: Modal Projection

- Question: How can *uno cualquiera* access the decision?
- Our answer: by projecting its modal domain from the event argument of the verb.
- Next up: Background on the work on verbal modality that we are building on.

- The domains of modal auxiliaries are projected out of events or situations.

🛈 (Hacquard, 2006, 2009; Arregui, 2009; Kratzer, 2011, 2012, 2013a,b, 2014)

    (2)   a.   It must be raining.
            b.   [s [must [it be raining]]]

- Modal anchor: *s*, a situation that provides the evidence that the claim is based on. (Kratzer, 2011)

Domain Fixing Functions

- Domain fixing functions: functions that map a part of the evaluation world (the anchor) to a set of worlds (the modal domain) (See, e.g., Kratzer 2011).

(3)   a.   It must be raining.
      b.   [s [must [it be raining]]]
      c. $\forall w'[w' \in f(s) \rightarrow$ it is raining in $w']$

(4) $f(s)$ = the set of worlds that contain duplicates of s

Constraints on Anchors

- Modals can impose constraints on their anchors.

  (5)   It must be raining.

- Odd if uttered when looking at the rain pouring down (von Fintel and Gillies, 2010)

- Kratzer (2011): epistemic *must* imposes a constraint on what (evidence) situations can count as anchors.

Beyond Modal Auxiliaries

- Transfer of possession verbs: *throw, give for free, bequeath, grant, offer, buy, owe ...*

- Kratzer (2013a, 2014): these verbs project a modal domain from the event argument of the verb (modal anchor).

    > 🛈 On these and other verbs that convey sub-lexical modality, see, e.g., Koenig and Davis (2001); Martin and Schäffer (2012).

Illustration

(6)   Lord Peter offered Harriet a cup of tea.

(Kratzer, 2013a, 2014)

- There is an event *e* of offering by Lord Peter,
- Modal domain: worlds that have a duplicate of *e* and where the normative conditions associated with *e* (offer honored and accepted) are satisfied.
- Modal claim: In all the worlds in the modal domain, the (duplicate of the) offer causes Harriet to have a cup of tea.

- An account of *uno cualquiera* inspired by Kratzer's account of transfer of possession verbs.

Random Choice: Basic Idea

- *Uno cualquiera* projects a modal domain from an event argument (its anchor).
- The anchor of *uno cualquiera* has to be co-indexed with another event argument in the structure.
- When the anchor of *uno cualquiera* is co-indexed with the event argument of the verb: random choice reading.

LF
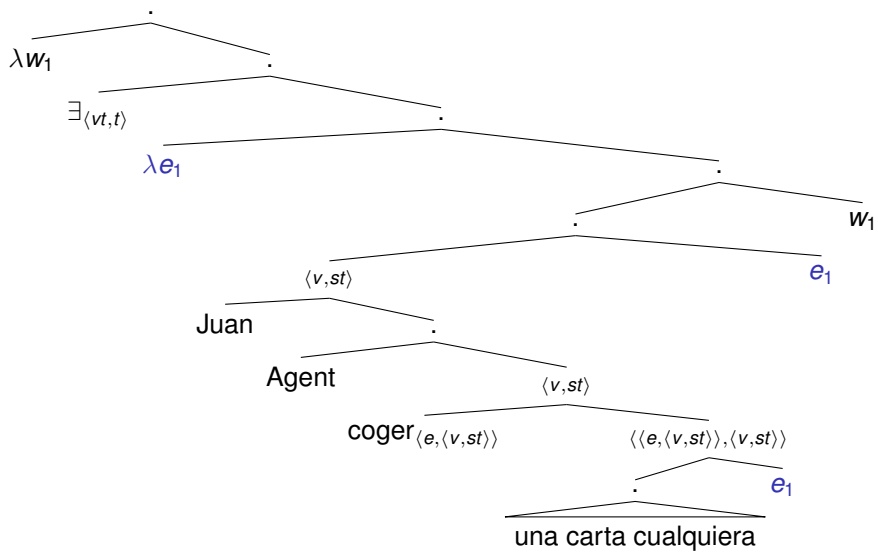
Constraint on the Anchor

- *Uno cualquiera* projects modality via a domain fixing function *f*.
- $f(e)$ is only defined if *e* (the anchor) is an event that has a (possibly improper) part with normative conditions (i.e., it establishes obligations or goals).

Satisfied by Volitional Events

- Constraint: $f(e)$ is only defined if e (the anchor) is an event that has a (possibly improper) part with normative conditions (i.e., it establishes obligations or goals).

- Satisfied by volitional events.

    1. Any volitional event e is caused by a decision to act on the part of its agent (d_e).
    2. d_e is part of the preparatory stage of e (see Grano 2011).
    3. A decision to act d_e by agent a establishes a goal, which is fulfilled by events performed by a.

        ⇝ Any volitional event has a normative part: its decision sub-part.

Modal Domain

- When defined, $f(e)$ yields a set of worlds that have a duplicate of the 'normative' part of e and where the normative part is fulfilled.

    $\rightsquigarrow$ If e is the event argument of the verb: the set of worlds that contain a duplicate of the decision and where the decision is fulfilled.

Un NP Cualquiera

(7) $[\![una\ carta\ cualquiera]\!]([\![e_1]\!])([\![take]\!]) =$

$\lambda e'.\lambda w.\underbrace{\exists x[\text{CARD}_w(x)\ \&\ \text{TAKE}_w(x)(e')]}_{\text{existential component}}\ \&$

$\underbrace{\forall y\left[\ \text{CARD}_w(y) \rightarrow \exists w' \in \mathbf{f}(e_1)\ \exists e''\left[\begin{array}{c} \text{TAKE}_{w'}(y)(e'') \\ \& \\ \text{fulfills}_{w'}(e'', e_1) \end{array}\right]\ \right]}_{\text{modal component}}$

- "$\text{fulfills}_{w'}(e'', e)$": e'' fulfills the normative part of e.

Target Truth Conditions Derived

1. Existential component:

    There is a past event e of Juan taking a card in w, and

2. Modal component:

    for every (relevant) card y in w,
    there is a world in $f(e)$ where an event e' of Juan taking y
    fulfills d_e.

- $f(e)$ = set of worlds where d_e is fulfilled.

- Accessing the decision by projecting a modal domain from
  the event argument of the verb.

Roadmap

Agentivity Restrictions Derived

(8)   La levadura rompió un molde   cualquiera.
        the yeast   broke a baking pan CUALQUIERA
        'The yeast broke an unremarkable baking pan.'

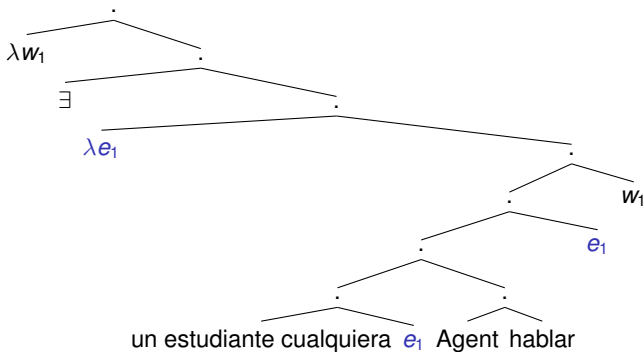- Only evaluative reading.

Predicted

- The event argument of the verb is not caused by a decision to act.
- Not an acceptable anchor: it does not have any sub-event that establishes normative conditions (goals, obligations).
- Random choice reading is blocked.

(9)   Habló un estudiante cualquiera.
        spoke a   student   CUALQUIERA

- Only evaluative reading.

Subject Position

(10)   ⟦Agent⟧ $= \lambda x.\lambda e.\text{AG}(e) = x$ (Kratzer, 1996)

(11)   ⟦[Agent [hablar]]⟧ $= \lambda x.\lambda e.\lambda w.\text{TALK}_w(e)$ & $\text{AG}(e) = x$

Predicted Truth Conditions

(12) Habló un estudiante cualquiera.
      spoke a student CUALQUIERA

1. Existential component:

> There is a (past) event e of a student x speaking in w_0.

2. Modal component:

- For every relevant student y in w_0, there is a world in $f(e)$ where an event e' of y speaking fulfils x's decision.

Assuming an intensional version of Kratzer's (1996) Event Identification Rule

A Contradiction

(13)   Modal Condition: For every relevant student y in w_0,
        there is a world in $f(e)$ where an event e' of y speaking
        fulfils x's decision

- Suppose that there are two students, a and b, and b spoke.
- The modal component requires that there be worlds where
  an event of a speaking fulfills b's decision.
- But only events whose agent is b can fulfill a decision to
  act d_e by b.

A Contradiction

- The modal component yields a contradiction as long as there are two or more relevant students.

- Non-singleton domains required: our target example is odd if the domain contains just one relevant card.

(14)   Juan cogió una carta cualquiera.
        Juan took a   card CUALQUIERA

Contradictions and Ungrammaticality

- Gajewski (2002): sentences that are contradictory in virtue of their logical structure are ruled out by the grammar.

    - Recent applications: Fox and Hackl 2006; Abrusán 2006; Gajewski 2008; Menéndez-Benito 2005, 2010; Chierchia 2013.

- Adopting some version of Gajewski's proposal the random choice reading of sentences where *uno cualquiera* fills the agent role will be ruled out.

The Subject-Object Asymmetry

- *Uno cualquiera* introduces possible events that have the same agent as the actual event (because they must fulfil the actual agent's decision to act).
- These events need to vary with respect to one of the the event participants.

The Subject-Object Asymmetry

- In object position, the theme must vary.

   The agent's decision will be compatible with the agent acting upon any of the individuals in the extension of *NP*.

- In subject position, the agent must vary.

   This clashes with the requirement that their agent be the same as the agent of the actual event.

Roadmap

- Recall: *uno cualquiera* allows for harmonic interpretations with some modals but not with others.

Prediction 1: Harmonic Readings

- On the harmonic interpretation, *uno cualquiera* has the same modal domain as the higher modal.
- In the framework we are adopting, all modals project their domain from anchors.

⤳ Prediction: The harmonic interpretation will arise if *uno cualquiera* projects their domain from the same anchor as the higher modal, using the same mode of projection.

Prediction 2: Modal Selectivity

- Different modals require different types of anchors (see e.g., Hacquard 2006, 2009; Kratzer 2012, 2011, 2013a).
- *Uno cualquiera* requires its anchor to be an event with normative conditions.

⇝ Prediction: When the anchor of the modal does not meet this requirement, the harmonic reading will be blocked.

Up Next: Some Case Studies

- Coming up next: working through some case studies.

Case Study 1: Orders

(15)   Come here!

- Anchor of the modal: ordering event (see Hacquard (2006) on performative modals).
- This anchor has an (improper) part with normative conditions (the order itself).

Case Study 1: Orders

(16)   ¡Compra un libro cualquiera!
         Buy   a   book CUALQUIERA

- Intuition: Harmonic interpretation possible.

(17)   a.   In all the worlds where the order is obeyed, you
               buy a book, and
         b.   for every (relevant) book y, there is a world where
               the order is obeyed and you buy y.

- Harmonic interpretation predicted: The anchor of the
  modal is a valid anchor for *uno cualquiera*.
- Additional prediction: embedded random choice reading.

Structure
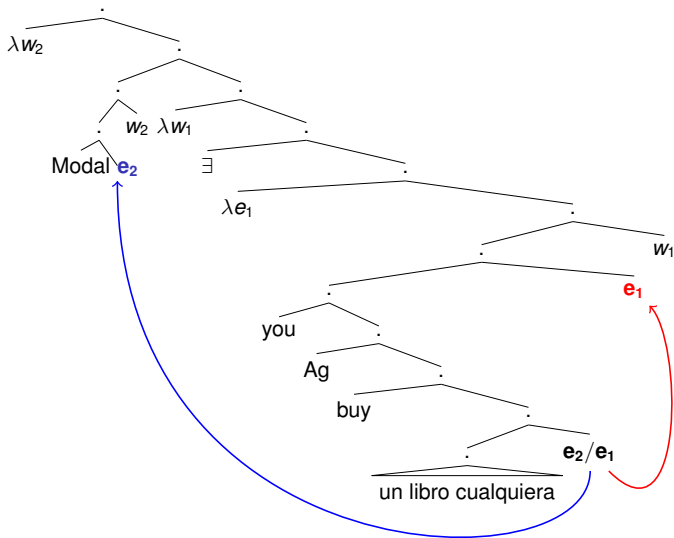
Prediction: Ambiguity

- If the anchor of *uno cualquiera* is the anchor of the modal.
⤳ Harmonic Reading

  - If the anchor of *uno cualquiera* is the event argument of the verb
⤳ Embedded Random Choice Reading.

Harmonic Interpretation

$$\lambda w.e_2 \leq w \ \& \ \forall w' \in \mathbf{f}_{\mathrm{Mod}}(e_2) \exists e \begin{bmatrix} \exists x[\mathrm{BOOK}_{w'}(x) \ \& \ \mathrm{BUY}_{w'}(x)(e) \ \& \ \mathrm{AG}(e)(a)] \\ \\ \& \\ \\ \forall y \begin{bmatrix} \mathrm{BOOK}_{w'}(y) \\ \rightarrow \\ \exists w'' \in \mathbf{f}_{\mathrm{UC}}(e_2) \ \exists e' \begin{bmatrix} \mathrm{BUY}_{w''}(y)(e') \\ \& \\ \mathrm{AG}(e')(a) \\ \& \\ \mathrm{fulf}_{w''}(e', e_2) \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

- $\mathrm{f}_{\mathrm{UC}}(e_2) = \mathbf{f}_{\mathrm{Mod}}(e_2)$ = worlds where the order is given and obeyed.

Embedded Random Choice

$$\lambda w. e_2 \leq w \ \& \ \forall w' \in \mathbf{f}_{\text{Mod}}(e_2) \exists e \left[\begin{array}{c} \exists x[\text{BOOK}_w(x) \ \& \ \text{BUY}_{w'}(x)(e) \ \& \ \text{AG}(e)(a)] \\ \\ \& \\ \\ \forall y \left[\begin{array}{c} \text{BOOK}_{w'}(y) \\ \rightarrow \\ \exists w'' \in \mathbf{f}_{\text{UC}}(e) \ \exists e' \left[\begin{array}{c} \text{BUY}_{w''}(y)(e') \\ \& \\ \text{AG}(e')(a) \\ \& \\ \text{fulfill}_{w''}(e', e) \end{array} \right] \end{array} \right] \end{array} \right]$$

- $\text{f}_{\text{UC}}(e)$ = worlds compatible with d_e
- Requirement to take an indiscriminate decision.

Embedded Random Choice

(18)   María are I are at a restaurant. She has been looking
        at the menu for 20 minutes. Exasperated, I say:

(19)   ¡Escoge un plato cualquiera!
          Pick   a   dish CUALQUIERA

- A request to choose indiscriminately.

- Thanks to Laia Mayol for pointing out the relevance of this kind of
  scenario.

Embedded Random Choice

- Hard to find scenarios where the embedded random choice interpretation obtains but the harmonic one does not.

- 'Pathological scenarios': Scenarios where an agent is required to make an indiscriminate decision, but where not every outcome is allowed.

(20) King Cruel is known for his sadistic tendencies. He wants his servant to bring him a book at random, but he will punish her if she brings him any book other than the Black Magic Compendium.

(21) ¡Tráeme   un libro cualquiera!
     Bring-me a book CUALQUIERA

(22)   John must be happy.

- Anchor of the modal: evidence situation.
- A possible evidence situation: a situation containing a smiling John.
- No normative conditions.

Case Study 2: Epistemic Modals

(23) Juan tiene que haber ido a ver una película
   Juan must that have gone to see UNA film
   cualquiera.
   CUALQUIERA.

- Intuition: Harmonic interpretation (24) impossible.

  (24) a. In all the worlds compatible with our evidence, Juan went to see a movie,
     b. for every (relevant) movie y, there is a world compatible with our evidence where Juan went to see y.

- Predicted: The anchor of the modal is not a valid anchor for *uno cualquiera*

(25)   Given his strength, John can climb this mountain.

- Anchor of the modal: a situation containing John at the time of evaluation (cf. Kratzer 2012).

Case study 3: Ability Modals

(26)   Dada su fuerza física,   Juan puede levantar una
        given his strength physical, Juan can   lift   UNA
        cualquiera   de estas piedras.
        CUALQUIERA of these stones
        'Given his physical strength, Juan can lift a random
        stone.'

- Intuition: Harmonic interpretation impossible ((26) cannot mean that Juan is able to lift any of these stones).
- Predicted: The anchor of the modal is not a valid anchor for *uno cualquiera*

An Issue: Epistemic Possibility

(27) Según   nuestra evidencia, el asesino   puede
      according to our   evidence   the murderer can
      ser un prisionero cualquiera.
      be UN prisoner   CUALQUIERA
      'The murderer can be any prisoner.'
                                    (adapted from Rivero 2011a)

- Can (marginally?) convey that according to our evidence, any prisoner might be the murderer (harmonic reading).
- Not predicted.

A Suggestion

- Apparent harmonic reading might be an inference drawn on the basis of the unremarkable interpretation.
- Unremarkable reading: the murderer can be an unremarkable prisoner (a prisoner that does not stand out among the prisoners).
- If even an unremarkable prisoner can be the murderer, the more remarkable ones will be possibilities too.
- This may lead us to infer that any prisoner can be the murderer.

(28)   El asesino tiene que ser un preso   cualquiera.
       the murderer has to be UN prisoner CUALQUIERA
       'The murderer has to be an unremarkable / average
       prisoner.'

- Lacks a harmonic reading.
- ↛ Any prisoner could be the murderer.

(29)   El asesino tiene que ser un preso   cualquiera.
         the murderer has to   be UN prisoner CUALQUIERA
         'The murderer has to be an unremarkable / average
         prisoner.'

- The murderer *has to* be an unremarkable prisoner.
- Remarkable prisoners are not possibilities.

Roadmap

Concluding Summary

- Proposal: The modal domain of *uno cualquiera* is anchored to an event with normative conditions.
- Parallelism with other cases of sub-lexical modality.

1. Random Choice Reading: projecting from the event argument of the verb.
2. Harmonic Readings: projecting from the anchor of the modal.
3. Modal Selectivity: constraints on the modal anchor.

- Many questions remain . . .

- Is the interpretation of *uno cualquiera* predictable for the semantics of *un* and *cualquiera*?

ℹ️ See Chierchia 2013 for a compositional analysis of *un qualsiasi / un qualunque*.

- Desiderata: distributional restrictions (cf. Rivero 2011a,b).

(30) * {muchos/ algunos/ todos/ los/ estos} libros
      {many/   some/   all/   the/ these} books
      cualesquiera
      CUALESQUIERA

(31) *{este/ ese/ aquel/ el} libro cualquiera
      {this/ that/ AQUEL/ the} book CUALQUIERA

Unremarkable Reading

- How can we characterize the unremarkable reading?
- Can the unremarkable reading and the random choice reading be traced back to a common source?

Full Modal Paradigm

- Can our account for the interaction of *uno cualquiera* and modals be extended to the full paradigm of modal auxiliaries?

- To answer this question, we would need a fully developed typology of modal anchors.

- Beyond *uno cualquiera* . . .

A Research Agenda

- Hypothesis: Like verbal modals, modal indefinites

1. are anchored to an event or situation.
2. can select for particular types of anchors.

Typological Desiderata

- If so we should be able to trace back (at least some of the) attested variation in the class of modal indefinites to the constraints these items place on their anchors.

Gaps in the Paradigm

- Modal verbs express a wide variety of modal meanings.

  (32) a. John might be at home right now.   (Epistemic)
        b. You should be in bed by ten.   (Deontic)
        c. To arrive in time, you should run.   (Goal)
        d. Peter can lift 20 kg.   (Ability)
        e. ...

- When unembedded, modal indefinites can only express epistemic or random choice modality (Haspelmath, 1997).

- The restrictions on the type of modal contents that modal indefinites can express in non-modal sentences might be due to the limited set of modal anchors that these sentences make available.

To be continued . . .

- The slides for this course are heavily based on a number of joint presentations with Luis Alonso Ovalle.

Funding

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