Modal Indefinites

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Roadmap

Modal Displacement

(1) (According to our evidence), John might be the murderer.

(2) (Given the rules of the house), Sally must be in bed by ten.

Modal Domains

(3) John might be the murderer.

$\rightsquigarrow$ There is a possible world compatible with our evidence in w_0 where John is the murderer.

(4) Sally must be in bed by 10.

$\rightsquigarrow$ In all the worlds where the rules in w_0 are obeyed, Sally is in bed by 10.

Modal Flavours

(5) John might be at home right now.

(6) You must be in bed by ten.

(7) To arrive in time, you should run.

(8) Peter can lift 20 kg.

(9) ...

Modal Flavours

(10) John might be at home right now. (Epistemic)

(11) You should be in bed by ten. (Deontic)

(12) To arrive in time, you should run. (Goal)

(13) Peter can lift 20 kg. (Ability)

(14) ...

Modal Displacement

- Modality in natural language has been extensively studied.

For recent overviews, see Portner 2009 and Hacquard 2011.

- But until relatively recently, the study of modality focused on the verbal domain.

Modality in the Nominal Domain

- In recent years, a body of work on modality within the DP has emerged.

See for instance, work on modified numerals (e.g., Büring 2008, Geurts and Nouwen 2007, Nouwen 2010, Schwarz 2011, Coppock and Brochhagen 2013), modal free relatives (e.g., Rawlins 2008, 2015, Dayal 1997, von Fintel 2000b, Condoravdi 2005, 2015, Tredinnick 2005, Heller and Wolter 2011), *too* constructions (Heim 2000, Meier 2003, Hacquard 2006), modal adjectives (Larson 2000, Schwarz 2006a, Abusch and Rooth 1997), and modal indefinites.

Modality in the Nominal Domain

(15) John bought at least four books.

(16) John bought some book or other.

(17) Whatever book John bought was very expensive.

(18) John took whatever book was handy.

(19) John's book was too expensive.

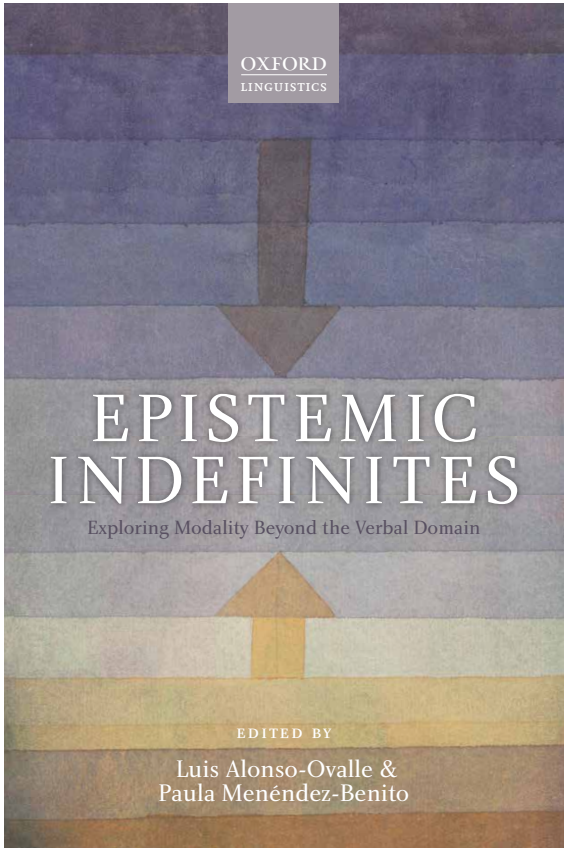
(20) John bought the wrong book. (Schwarz, 2006b)

(21) The suspects are in custody at two unknown / undisclosed / unspecified / unexpected locations.
(Abusch and Rooth, 1997)

Zooming in: Modal Indefinites

- Existential items that convey modal content.
- Cross-linguistically common (Haspelmath, 1997).

Epistemic Indefinites



(22) Juan compró algún libro.
Juan bought ALGÚN book
'Juan bought some book or other.'

(23) Juan bought some book.

(24) Juan has irgendein Buch gekauft.
Juan has IRGENDEIN book bought
'Juan bought some book or other.'

- ⇝ Existential Claim: Juan bought a book.
- ⇝ Modal Component: The speaker does not know which book Juan bought.

Epistemic Indefinites

- See, for instance, Farkas 2002b, 2006, Kratzer and Shimoyama 2002; Aloni and Port 2010/2013, 2015; Alonso-Ovalle and Menéndez-Benito 2003, 2008, 2010, 2011a, 2013a, Alonso-Ovalle and Shimoyama 2014; Giannakidou and Quer 2013; Jayez and Tovena 2002, 2008; Chierchia 2006b, 2013; Fălăuş 2009, 2011a,b, 2014; Sudo 2010, Kaneko 2011, among many others.

- For a recent collection of papers and an overview of the state of the art, see Alonso-Ovalle and Menéndez-Benito 2015.

Random Choice Indefinites

(25) Juan compró un libro cualquiera.
Juan bought a book CUALQUIERA
'Juan bought a random book.'

- ⇝ Existential Component: Juan bought a book.
- ⇝ Modal Component: Juan chose indiscriminately.

Evokes alternative, non-actual, actions that the agent could have taken.

Random Choice Indefinites

- See, e.g., Choi 2007; Kim and Kaufmann 2007; Choi and Romero 2008; Rivero 2011a,b; Alonso-Ovalle and Menéndez-Benito 2011b, 2013b; Chierchia 2013; Fălăuş 2015, 2014.

Gaps in the Paradigm

- Modal verbs express a wide variety of modal meanings.

(26)
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).

Some Questions

- What is the source of the modal effect triggered by indefinites?
- To what extent does the modality conveyed by indefinites pattern with the modal contents attested in the verbal domain?
- What motivates the gaps in the paradigm?

This Course: Preview

1. Discussing two approaches to epistemic indefinites.
   - The Implicature Approach
   - ℹ Alonso-Ovalle and Menéndez-Benito 2003, 2008, 2010, 2011a; Chierchia 2006b, 2013; Fălăuş 2009, 2011a,b, 2014
   - The Conceptual Cover Approach
   - ℹ Aloni and Port 2010/2013, 2015
2. Outcome: neither approach captures whole range of data.
   - (If there is time: sketching a possible way of reconciling the two approaches)
3. My current work on random choice indefinites (with Alonso-Ovalle).
4. Sketching a new research agenda for modal indefinites.

Today

- Descriptive part: The profile of epistemic indefinites.
- Theoretical part: Introducing the implicature account.

Roadmap

For More Info...

- For further discussion, and for additional parameters of variation see Alonso-Ovalle and Menéndez-Benito 2015.

Roadmap

The Epistemic Effect

(27) María se casó con algún médico.
María married with ALGÚN doctor
'María married some doctor.'

- ⇝ The speaker doesn't know which doctor María married.
- ⇝ The worlds compatible with what the speaker knows vary with respect to the doctor María married.

The Epistemic Effect

(28) María se casó con algún médico, ♯ en concreto
María married with ALGÚN doctor, namely
con el doctor Pérez.
with the doctor Pérez
'María married some doctor, namely doctor Pérez.'

(29) a. A: María se casó con algún médico
María married with ALGÚN doctor
'A: María married some doctor.'

b. B: ♯ ¿Con quién?
With whom?
'B: Who?'

The Distribution of the Epistemic Effect

- The epistemic effect is absent in some embedding configurations.
- Caveat: data are fragmentary.

Downward Entailing Contexts

(30) No es verdad que Juan salga con alguna chica del
Not is true that Juan dates with alguna girl of-the
departamento.
department
'Juan is not dating any girl in the department.'

- Cannot mean that Juan is dating a girl and the speaker knows who.

Reported, e.g., for Spanish *algún* (Alonso-Ovalle and Menéndez-Benito, 2010), Romanian *vreun* (Fălăuş, 2009, 2011a,b, 2014), Japanese *wh-ka* indeterminates (Alonso-Ovalle and Shimoyama, 2014) and French *un quelconque* (Tovena and Jayez, 2006).

Co-variation Contexts: Universals

(31) Todos los profesores están bailando con algún estudiante.
All the professors are dancing with ALGÚN student

- Scenario: L looks through to the window and sees that every professor is dancing with a different student. He can see very well who is dancing with whom.
- L can felicitously utter (31) in this context.
- No ignorance effect.

Reported for Spanish *algún* (Alonso-Ovalle and Shimoyama, 2014; Alonso-Ovalle and Menéndez-Benito, forthcoming) and Japanese *wh-ka* indeterminates (Alonso-Ovalle and Shimoyama, 2014).

Compare: No Co-variation

(32) Todos los profesores están bailando con algún estudiante.
All the professors are dancing with ALGÚN student

- Scenario: L looks through to the window and sees that all the professors are dancing with a student (the professors form a ring and the student is dancing in the middle). L can see the student very well.
- L cannot felicitously utter (32) in this context.
- Ignorance effect.

Roadmap

Roadmap

Types of Ignorance

- Epistemic indefinites can express different types of ignorance.

Types *vs.* Tokens

- Some epistemic indefinites can express both type- and token-ignorance.

(33) a. There's some plant growing through the wall of my room.

b. The hackers implanted a virus into some file on this computer.

(Weir, 2012)

- Others are specialised on one of these uses: contrast between Japanese *dore-ka* ('which-ka') and *nani-ka* ('what-ka') (Alonso-Ovalle and Shimoyama, 2014).

Types *vs.* Tokens

- Scenario: J and L are hiking in the woods. As they go down a steep hill, they see a troop of mushrooms. J's hand inadvertently touches one. She clearly sees the mushroom that she touched, but she does not know what class of mushroom it is.

(34) # Dore-ka kinoko-ni sawat-ta.
which.one-KA mushroom-DAT touch-past
'I touched a mushroom.'

(35) Nani-ka kinoko-ni sawat-ta.
what-KA mushroom-DAT touch-past
'I touched a mushroom.'

(Alonso-Ovalle and Shimoyama, 2014)

What Counts as (not) Knowing Who?

- Scenario: L and P are visiting the Math Department. They have never seen any of the professors there. They see an individual (who can be inferred to be a professor) dancing on his desk.

(36) Look! Some professor is dancing on the table!

(37) # ¡Mira! Algún profesor está bailando encima de
Look! ALGÚN professor is dancing on of
la mesa!
the table!

(Alonso-Ovalle and Menéndez-Benito, 2003)

- Aloni and Port (2010/2013): parallel contrast between *irgendein* ($\approx$ *some*) and Italian *un qualche* ($\approx$ *algún*).

Roadmap

Epistemic Indefinites Under Modals

- Variation with respect to worlds introduced by the modal.

(38) Juan debe estar en alguna habitación.
Juan must be in ALGUNA room
'Juan must be in some room.'

$\rightsquigarrow$ epistemic alternatives vary wrt to which room.

(39) Tenemos que contratar a algún candidato.
We-must that hire A ALGÚN candidate
'We must hire some candidate.'

$\rightsquigarrow$ deontic alternatives vary wrt to which candidate (no obligation to hire a particular one).

Interaction with Modals

- Epistemic indefinites can impose restrictions
  1. on the types of modals that they can combine with.
  2. on the range of interpretations they give rise to when they are in the scope of a modal operator.

Distribution

- Some epistemic indefinites can be interpreted under deontic and epistemic modals. E.g, Spanish *algún*.
- Others are ungrammatical under deontic modals. (See, e.g., Farkas 2002a, Fălăuş 2009, 2011a,b, 2014 on Romanian *vreun*, and Šimík forthcoming on Czech *-si* indefinites.)

Blocked under Deontics

(40) * Trebuei să mă înscriu la vreun curs până
must SUBJ REFL register at VREUN class until
mâine.
tomorrow
'I have to register for a class by tomorrow.'

(Fălăuş, 2014)

Licensed under Epistemics

(41) Cu numele lui, trebuie să fie vreun aristocrat.
with name-the his must subj be VREUN aristocrat
'Given his hame, he must be some aristocrat.'
(Fălăuş, 2014)

Interpretation

- Some epistemic indefinites have been reported to have a different range of interpretations under different modals.
- E.g., German *irgendein* (Port 2010, Lauer 2010, Aloni and Port 2010/2013).

Total Variation with Deontics

(42) Mary muss irgendeinen Arzt heiraten.
Mary must IRGENDEIN doctor marry
(Kratzer and Shimoyama, 2002)

$\rightsquigarrow$ Free Choice Effect: all the doctors are permitted options.

Partial Variation with Epistemics

(43) Juan muss in irgendeinem Zimmer im Haus
Juan must in IRGENDEIN room in-the house
sein.
be
'Juan must be in some room of the house.
(Aloni and Port, 2010/2013)

$\rightsquigarrow$ Partial Variation: At least two rooms are epistemic possibilities.

Roadmap

The Implicature Approach

- There is a family of approaches that — building on Kratzer and Shimoyama 2002 — derive the epistemic effect as a quantity implicature linked to constraints on the domain of quantification.

ℹ Alonso-Ovalle and Menéndez-Benito 2003, 2008, 2010, 2011a; Chierchia 2013; Fălăuş 2009, 2011a,b, 2014

- I will illustrate this type of approach with AO & MB's (2008, 2010) account of *algún*.

Background: Quantity Implicatures

(44) Juan ate some of the cookies.

(45) Assertion: Juan ate at least some cookies.

(46) Competitor: Juan ate all of the cookies.

- Why didn't the speaker utter (46) (stronger)? (Quantity)
- It must be because she cannot commit to it (Quality)

Background: Quantity Implicatures

- Primary Implicature:

  (47) The speaker is not sure that J. ate all of the cookies.

- Secondary implicature:

  (48) The speaker thinks that J. did not eat all of the cookies.

- If the speaker is well informed . . . .

  (49) Juan did not eat all of the cookies.

The Epistemic Effect as an Implicature

1. Reinforcements.
2. Disappearance in downward entailing contexts.

Reinforcements

- Implicatures can be reinforced without redundancy:

  (50) John ate some of the cookies, but not all.

- The epistemic effect of *algún* can also be reinforced:

  (51) Juan sale con alguna chica del
  Juan dates with alguna girl of-the
  departamento, pero no sé con quién.
  department, but not I-know with who
  'Juan is dating some girl in the department, but I don't know who.'

Downward Entailing Contexts

- Quantity-based implicatures disappear in downward entailing contexts

ℹ Gazdar 1979; Horn 1989; Chierchia 2001

(52) It is not true that John ate some cookies. He ate none.

Downward Entailing Contexts

- The epistemic effect of *algún* disappears in downward entailing contexts.

(53) No es verdad que Juan salga con alguna chica
Not is true that Juan dates with alguna girl
del departamento.
of-the department
'Juan is not dating any girl in the department.'

Downward Entailing Contexts

- The epistemic effect of *algún* disappears in downward entailing contexts.

(54) Pedro duda que Juan salga con alguna chica
Pedro doubts that Juan dates with alguna girl
del departamento.
of-the department
'Pedro doubts that Juan is dating any girl in the department.'

Deriving the Epistemic Effect

- If the epistemic effect is an implicature, it should be derivable by general conversational principles.
- AO & MB: *algún* imposes a constraint on its domain of quantification that triggers a pragmatic competition with other domains.
- Building on Kratzer and Shimoyama's (2002) account of *irgendein* under modal operators.
- Coming up next: summarizing Kratzer and Shimoyama 2002.

Irgendein: A Free Choice Effect

(55) Mary muss irgendeinen Arzt heiraten.
Mary must IRGENDEIN doctor marry
(Kratzer and Shimoyama, 2002)

- On the narrow scope reading of the indefinite, (55) indicates that Mary is allowed to marry any doctor.
- Free Choice Effect: all the doctors are permitted options.

The Free Choice Effect

(56) Domain of doctors: {Dr. Abad, Dr. Báez, Dr. Cabal}

(57) Free Choice effect:

a. Mary is allowed to marry Dr. Abad,
b. she is allowed to marry Dr. Báez, and
c. she is allowed to marry Dr. Cabal.

Free Choice and Quantifier Domains

- Kratzer and Shimoyama: the Free Choice effect is linked to a constraint on the domain of quantification.

Quantifier Domains

- Quantifiers are often contextually restricted.

  (58) (After a party) Every student had a good time.
  Domain: the set of students at the party.

- Domain restrictions via subset selection functions (see e.g., von Fintel 2000a, Kratzer 2003, and Kratzer 2005).

  (59) Every student had a good time.

  (60) LF: [[[Every f][student]] [had a good time]]

  (61) $f(\llbracket \textit{student} \rrbracket)$ = the students at the party

Shifting the Domain

- Determiners can impose constraints on the type of selection function they combine with.
- Domain widening: *f* yields maximal domains.

(Kadmon and Landman, 1993)

(62) I didn't see ANY students.

- Domain shrinking: *f* yields minimal (singleton) domains.

(Schwarzschild, 2002)

(63) A certain student came to see me.

Exploiting Domain Shifts

- Domain widening has been argued to be responsible for the distribution of NPIs (e.g., Kadmon and Landman 1993; Chierchia 2006a).
- Domain shrinking has been been linked to exceptional scope patterns. (See Schwarzschild 2002 on singleton indefinites).

Irgendein as a Domain Widener

- Kratzer and Shimoyama: *Irgendein* is a domain widener.
- *Irgendein Arzt*: f yields the set of all the doctors in the world of evaluation (rather than a subdomain thereof).

(64) a. $[\![ein_D\ Mann]\!]^{w,g}=$
$\{x : x \text{ is a man in } w \ \&\ x \in g(D)\}$

b. $[\![irgendein_D\ Mann]\!]^{w,g} =$
$\{x : \exists g'[x \text{ is a man in } w \ \&\ x \in g'(D)]\}=$
$\{x : x \text{ is a man in } w\}$

(Kratzer and Shimoyama, 2002)

Avoiding False Claims

- Assumption: Domain widening is a costly operation, only motivated when it helps convey additional information (cf. Kadmon and Landman 1993).
- Domain widening can be exploited to signal that alternative, more specific, claims are false.
- Upon hearing *irgendein Arzt*, the hearer concludes that the speaker chose the widest domain of quantification possible (the set of all doctors) because any smaller domain would have led to a false claim.

What Was Said

(65) Mary muss irgendeinen Arzt heiraten.
Mary must IRGENDEIN doctor marry.

(66) In all acc. worlds, M. marries somebody in {A, B, C}

What Could Have Been Said

(67) Competitors:

a. In all acc. w, M. marries somebody in {A, B}
b. In all acc. w, M. marries somebody in {A, C}
c. In all acc. w, M. marries somebody in {B, C}
d. In all acc. w, M. marries somebody in {A}
e. In all acc. w, M. marries somebody in {B}
f. In all acc. w, M. marries somebody in {C}

- From the fact that *irgendein* was used, the hearer concludes that all the competitors are false.

A Quantity Implicature

- The speaker said that in all accessible worlds, M. has to marry somebody in {A, B, C} (the biggest domain).
- Why didn't she choose the domain {A, B}, which would have resulted in a more informative claim? (M. of Quantity)
- It must because that claim is false (M. of Quality).
- Repeating the reasoning for all the sub-domains: all the competitors are false. Mary is not obliged to marry a doctor in {B, C}, she is not obliged to marry a doctor in {C} . . .

The Free Choice Effect

(68) Assertion: M. is obliged to marry somebody in {A, B, C}

(69) Implicature: M. is not obliged to marry somebody

a. in {A, B}
b. in {A, C}
c. in {B, C}
d. in {A}
e. in {B}
f. in {C}

(70) Free Choice Effect:

a. Mary is allowed to marry A, and
b. Mary is allowed to marry B, and
c. Mary is allowed to marry C

Possible Extension to Epistemic Effects

"Our analysis should carry over to the epistemic cases, (...) assuming that declarative sentences have assertoric operators that might trigger implicatures relating to the common ground of the conversation" (Kratzer and Shimoyama, 2002)

Coming Up Next

- Deriving the epistemic effect of *algún* via a competition between domains.

AO & MB 2008, 2010

- Empirical claim: the epistemic effect of *algún* is weaker than free choice.
- Theoretical claim: this effect is traced back to a constraint weaker than domain widening.

Weaker than Free Choice

(71) Juan and Lola are playing hide-and-seek. Juan is hiding. Lola knows that Juan is inside the house. She knows that Juan is not in the bedroom, but, as far as she knows, Juan could be in any of the other rooms.

- Lola does not know where Juan is, but not all the rooms are epistemic possibilities for her.

Partial Ignorance

(72) Juan está en alguna habitación de la casa.
Juan is in ALGUNA room of the house
'Juan is in some room of the house.'

- Appropriate in the hide-and-seek scenario, where not all the rooms are epistemic possibilities for the speaker.
- No (epistemic) Free Choice effect!

The Anti-singleton Constraint

- *Algún* requires its domain to contain more than one individual.

(73) $[\![algún]\!] =$
$\lambda f.\lambda P_{\langle e,t\rangle} : |f(P)| > 1.\lambda Q_{\langle e,t\rangle}.\exists x[(f(P))(x) \;\&\; Q(x)]$

ℹ Cf. Fălăuş (2009)

Motivation for the Constraint

(74) Juan compró {un/#algún} libro que resultó ser
Juan bought { UN / ALGÚN } book that turned-out be
el más caro de la librería.
the most expensive of the bookstore
'Juan bought a book that turned out to be most expensive one in the bookstore.'

Motivation for the Constraint

(75) Pedro contrató a {un/♯algún} candidato que
Pedro hired A { UN / ALGÚN } candidate that
resultó ser el más interesante de los que se
turned-out be the most interesting of the that SE
presentaron.
presented
'Pedro hired a candidate that turned out to be the most interesting of the ones that applied.'

Pragmatic Competition

- Speaker chooses an anti-singleton indefinite (marked) to signal that she cannot commit to a claim where the domain is restricted to a singleton.
- This will yield partial, rather than total, ignorance.

Working Through an Example

(76) Juan está en alguna habitación de la casa
Juan is in ALGUNA room of the house
'Juan is in some room of the house.'

- Assumption: assertions are implicitly modalized (see Chierchia 2006a, 2013 for the same assumption).

(77) ASSERT (J. está en alguna habitación de la casa)

(78) $[\![\text{ASSERT}(p)]\!]^c =$
In all the worlds compatible with what the speaker of c knows, p is true.

Working Through an Example

(79) Juan está en alguna habitación de la casa
'Juan is in a room of the house.'

(80) Domain = {bedroom, bathroom, living room, study}

(81) In all accessible worlds, J. is in a room within the domain of rooms picked out by *f*.

(82) $|f(\{\text{bedroom}, \text{bathroom}, \text{living room.study}\})| > 1$

- Let us assume *f*(D) = {bedroom, bathroom, study}

Pragmatic Competitors

(83)
a. In all acc, worlds, J. is in a room in {bedroom}
b. In all acc. worlds, J. is in a room in {study}
c. In all acc. worlds, J. is in a room in {bathroom}

Pragmatic Reasoning

- Speaker picked the domain {bedroom, study bathroom}.
- Why didn't she choose any of the competitors, which would have more informative? (Quantity)
- Because she believes they are false (Quality).

Pragmatic Reasoning

(84) In all the worlds compatible with what the speaker knows . . . .

a. J. is in a room in {bedroom}
b. J. is in a room in {study}
c. J. is in a room in {bathroom}

- Negating the competitors:

(85) a. Sp. is not convinced that J. is in the bedroom.
b. Sp. is not convinced that J. is in the study.
c. Sp. is not convinced that J. is in the bathroom.

$\rightsquigarrow$ The speaker does not know what room Juan is in.

- Requires only partial ignorance.

Taking Stock

- Variability across worlds linked to a constraint on the domain of quantification.
- Different domain constraints yield different degrees of variability.
- Domain widening gives rise to total variation (Kratzer and Shimoyama, 2002).
- The anti-singleton constraint yields partial variation.

The Distribution of the Epistemic Effect

- The epistemic effect is absent in some embedding configurations.

Recall: Downward Entailing Contexts

(86) No es verdad que Juan esté en una habitación de la casa.
Not is true that Juan is in a room of the house
'Juan is not in a room of the house.'

DE Contexts: Predictions

- In DE contexts, all the competitors will be entailed by the assertion.

(87) (In all acc. worlds) Juan is not in a room in {bedroom, study, bathroom}

(88) a. (In all acc. worlds) Juan is not in the bedroom.
b. (In all acc. worlds) Juan is not in the study.
c. (In all acc. worlds) Juan is not in the bathroom.

- Competitors are less informative than the assertion.
- No quantity implicature is expected to arise.

$\rightsquigarrow$ No epistemic effect.

Co-variation Contexts: Universals

(89) Todos los profesores están bailando con algún estudiante.
All the professors are dancing with ALGÚN student

- Scenario: L looks through to the window and sees that every professor is dancing with a different student. He can see very well who is dancing with whom.
- L can felicitously utter (89) in this context.
- No ignorance effect.

Compare: No Co-variation

(90) Todos los profesores están bailando con algún estudiante.
All the professors are dancing with ALGÚN student

- Scenario: L looks through to the window and sees that all the professors are dancing with a student (the professors form a ring and the student is dancing in the middle). L can see the student very well.
- L cannot felicitously utter (90) in this context.
- Ignorance effect.

Working Through An Example

(91) Todos los profesores están bailando con algún estudiante.

'Every professor is dancing with some student.'

(92)
a. D-students = {Juan, Sara, Lola, Carlos}
b. In all acc. worlds, every professor is dancing with a student in the domain of students picked out by *f*.
c. $|f(\{\text{Juan}, \text{Lola}, \text{Sara}, \text{Carlos}\})| > 1$

- Let's assume that *f*(D-students) = {Juan, Sara, Lola}

Pragmatic Competitors

(93)
a. In all acc. worlds, every professor is dancing with a student in {Juan}
b. In all acc. worlds, every professor is dancing with a student in {Lola}
c. In all acc worlds, every professor is dancing with a student in {Sara}

Co-Variation: Predictions

(94) Speaker is not convinced that

a. every professor is dancing with {Juan}
b. every professor is dancing with {Lola}
c. every professor is dancing with {Sara}

- Rules out situations where all the professors are dancing with the same student and the speaker knows who.
- Compatible with situations where different professors are dancing with different students and the speaker can identify the pairs.

$\rightsquigarrow$ Predicts the lack of ignorance effect in co-variation contexts.

Aside: Another Restriction on f

- The correct prediction only holds if f is not parametrized.
- If f were parametrized (i.e. if it took an extra individual argument) . . .

  (95) Every professor x is dancing with a student in $f_x(\{y : y \text{ is a student}\})$

  (96) For any x, $f_x(\{y : y \text{ is a student}\})$ is not a singleton.

- We would have pragmatic competitors like

  (97) Prof. A is dancing with Sara and Prof. B is dancing with Juan and Prof. C is dancing with Marta.

- Wrongly predicts ignorance in co-variation contexts.

Roadmap

Discussion

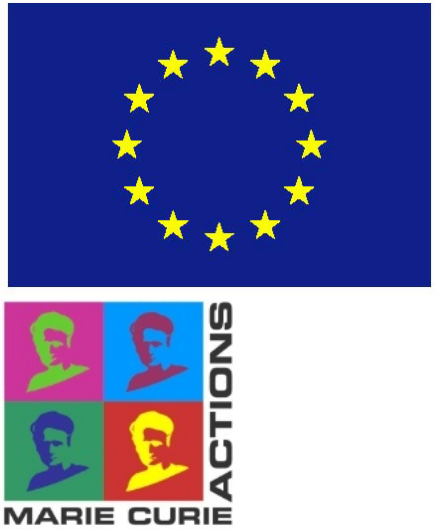
- Recall the parameters of variation we discussed:
  1. Types of ignorance
     - Type *vs.* token.
     - Ways of knowing who.
  2. Interaction with modals.
     - Limited distribution.
     - Different interpretation.
- Which parameters of variation might be accounted for with the tools provided by the implicature account?

Coming Up Next

- Extensions of the implicature account (Tuesday)
- Assessing the implicature account (Wednesday)
- An alternative to the implicature account (Wednesday)

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

Funding



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