

Arbitrary Pronouns Are Not That Indefinite*

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Defining structural constraints on coindexing proved fruitful. Its semantic import, however, remains unclear.¹ Syntactic work in the late seventies and early eighties extended the use of indexing to capture the ‘arbitrariness’ of examples like (1a) (Chomsky and Lasnik 1977, Chomsky 1980), (1b) or (1c) (Suñer 1983). The semantic import of this type of indexing is not less unclear.

- (1) a. PRO_{arb} smoking is dangerous.
b. En ese restaurante, pro_{arb} trabajas como un esclavo.
In that restaurant pro_{arb} work:2S like a slave
‘In that restaurant, you work like a slave.’
c. Pro_{arb} llaman a la puerta.
pro_{arb} knock:3PL to the door
‘Somebody is knocking at the door.’

Chierchia 1984 argues against the very existence of PRO_{arb}, which he takes to be a mere reflection of second order predication. I will cast doubts about the existence of pro_{arb}. In what follows, I show that there is no need to appeal to pro_{arb} to derive the arbitrary flavor of (1b-c). In section 1 I review and argue against an analysis that assumes the existence of pro_{arb} and takes it to be an indefinite pronoun (Condoravdi, 1989; Kim, 1991). In section 2 I show that the generic readings of pro_{arb} in examples like (1b) can be derived from the interaction of the indexical (2a) or definite readings of pro (2b) with the type of quantification associated with generic sentences. Section 3 shows that the existential reading of pro_{arb} in examples like (1c) can be traced back to their asserting the existence of an eventuality of the type assumed to have agents without making any claim whatsoever about its agent.

- (2) a. En ese restaurante, pro trabajaste como un esclavo.
In that restaurant pro work:2SPAST like a slave
‘In that restaurant, you (addressee) worked like a slave.’
b. En ese restaurante, pro trabajaron como esclavos.
In that restaurant pro work:3SPAST like slaves
‘In that restaurant, they worked like a slaves.’

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¹ In fact clarifying the semantic import of indexing remains a core issue within theories of the syntax-semantics interface, see Heim 1998 and references quoted there.

1. Pro_{arb} AS A HEIMIAN INDEFINITE.

Condoravdi 1989 and Kim 1991 independently admit the need for pro_{arb} and propose that it is a heimian indefinite. I will dub this predominant analysis of pro_{arb} ‘the Heimian Indefinite Analysis’ (HIA).²

Heimian indefinites contribute to LF a free variable that is bound by other operators in the sentence. The free variable is bound by the implicit generic operator ‘Gn’ in (2b) and existentially by default in (2d). This explains why the quantificational force of the indefinite varies from (2a) to (2c).

- (2) a. A Spaniard likes coffee ~ Most Spaniards like coffee
 b. LF: $Gn_{s,x}$ [x is a Spaniard & s is of the relevant kind] [x likes coffee in s]
 c. A Spaniard has just arrived ~ There is Spaniard that as just arrived
 d. LF: $\exists_{s,x}$ [x is a Spaniard & s is of the relevant kind] [x arrives in s]

I take (3) to be a fair explicit rendition of the HIA. In the spirit of Heim 1982, the ‘arb’-index, which is restricted to null elements, contributes a free variable to LF. (3ii) assures that the denotation of the variable **be** human and, since pro_{arb} is taken to be an indefinite, (3iii) assures that the ‘arb’ index be not a current discourse referent.³

- (3) Let ‘arb’ be a distinguished index, restricted to null elements.
 (i) $[[pro_{arb}]]^g_F = g(arb)$
 (ii) $g(arb)$ is defined iff $g(arb)$ is human
 (iii) $arb \notin Dom(F)$

The HIA is quite a natural analysis for pro_{arb} , given that this element apparently displays the well attested quantificational variability effects of indefinites (henceforth *QVE*) that (2) partially illustrates. As the Spanish examples in (4) show, pro_{arb} has existential force in episodic sentences and quasi-universal force in generic ones.

- (4) a. Pro_{arb} llaman por teléfono.
 pro_{arb} call-3pl by phone
 ‘Somebody is calling on the phone’.
 b. LF: \exists_x [x is human] [x is calling on the phone]
 c. En América, normalmente cuando pro_{arb} llaman por
 in America usually when pro_{arb} drive-3PL by
 teléfono, pro_{arb} disparan a la gente
 highway pro_{arb} shoot-3PL to the people
 ‘In America, most people shoot around when they make phone calls.’
 d. $Gn_{s,x}$ [x is human&s is a phone call& s is in America][x shoots around in s]

Similar contrasts are shown in Condoravdi 1989 for Modern Greek and in Chierchia 1995 for Italian. The HIA explains existential (4a) and generic (4b) readings of pro_{arb} right away: according to (3i) pro_{arb} contributes to the LF a free variable. A familiar default

² *HIH* refers to this analysis of pro_{arb} , not to Heim’s analysis of indefinites. Cinque (1988:fn29) attributes the HIA to Luigi Rizzi (p.c.).

³ Notation: $\forall \phi$, variable assignment g and file F , $[[\phi]]^g_F =_{def}$ the extension of ϕ w.r.t F . $Dom(F)$ retrieves from each file its indices. See Heim 1982 for the concept of file.

existential quantifier binds this variable in episodic sentences like (4a). A quasi-universal implicit quantifier ‘Gn’ binds it in generic sentences like (4b).

The HIA is an appealing analysis in that it unifies the existential and generic readings of pro_{arb} under the single assumption that it is a free variable. Nevertheless, I will argue against it on the basis that both the generic and existential readings of pro_{arb} differ from those of regular indefinites in several respects.

To start with, if the HIA is right, in view of (3), we expect pro_{arb} to have existential readings in the episodic counterparts of generic sentences. This is not always so. Second person pro^4 has quasi-universal force in generic sentences but it is a regular indexical in episodic ones:

- (5) a. It: In questo ristorante pro_{arb} mangi bene (e pro_{arb} paghi poco)
 In this restaurant pro_{arb} eat:2S well and pro_{arb} pay:2S few
 ‘In this restaurant you eat well and don’t pay a lot.’ [Generic ‘you’]
- b. It: In questo ristorante pro hai mangiato bene (e
 In this restaurant pro AUX eat:PASTPART well and
 hai pagato poco.
 AUX PASTPART few
 ‘In this restaurant you (addresse) have eaten well and haven’t paid a lot.

Second, the pattern in (3) is not general enough to conclude that pro_{arb} *always* behaves as an indefinite. For one, indefinites can not only have existential and (quasi-)universal (or generic) readings, but, unlike pro_{arb} , are also sensitive to the full range of possible quantificational readings. Contrast (6a) with (6b). While in (6a) the indefinite inherits the quantificational force of the adverbial quantifier, in (6b) pro_{arb} does not. However, nothing in the HIA prevents the free variable that pro_{arb} introduces from getting bound by the adverbial quantifier.

- (6) a. (En las fiestas de ese departamento) raras veces un estudiante bebe vino
 In the parties of that department few times a student drink:2s wine
 ‘In the parties of that department, few students drink wine.’
- b. (En las fiestas de ese departamento) raras veces pro_{arb} bebes vino.
 In the parties of that department few times pro_{arb} drink:2s wine
 ‘In the parties of that department, people rarely drink wine.’
 (Not: ‘In the parties of that department few people drink wine’.)

The existential reading of pro_{arb} differs from the existential readings of ordinary indefinites. For starters, the former is restricted to non-derived subjects (Jaeggli 1986, Cinque 1988):

- (7) a. Sp: Pro están siendo golpeados.
 pro be:3PL being beaten
 ‘They are being beaten.’ [Not: ‘somebody is being beaten’].
- b. It: Pro sono venuti a vedere.
 pro be:3PL came:PASTPART to see

⁴ Henceforth ‘pro2’. Third person plural *pro* would be referred to as ‘pro3’.

‘They have come to see.’ [Not: ‘somebody has come to see.’]

Moreover, unlike ordinary indefinites, pro_{arb} consistently avoids wide scope:

- (8) a. Sp: No pro_{arb} llaman a la puerta.
No pro_{arb} knock:3PL to the door
‘Somebody is (/they are) not knocking at the door.’ $\neg\exists / * \exists \neg$
- b. Sp: Pro_{arb} están llamando a cada puerta.
 Pro_{arb} be:3PL knocking to each door
‘Somebody is (/they are) knocking at each door.’ $\forall\exists / * \exists\forall$
- c. Sp: Pro es posible que pro_{arb} estén llamando a la puerta.
It is possible that pro_{arb} be: SUBJ knocking at the door
‘Maybe somebody is (/they are) knocking at the door.’ $\diamond\exists / * \exists \diamond$

Note also that, unlike ordinary indefinites, the generic readings of *pro* are crosslinguistically difficult to get in the absence of an explicit restrictor-like expression (Jónsson 1992), quite often a pseudo-locative in the left periphery. The ‘arbitrary’ reading is much harder to get in (9) than in (1c), if not impossible at all.

- (9) Pro_{arb} trabajas como un esclavo.
 pro_{arb} work:2S like a slave
‘You (addressee) usually work like a slave.’

Finally, pro_{arb} does not obey the regular anaphoric patterns of indefinites. Clause (3iv) of the HIA predicts that (10) should be possible.⁵

- (10) Pro_{arb} llaman a la puerta. Pro_{arb} piden ayuda.
 Pro_{arb} knock:3PL to the door pro_{arb} ask-for:3PL help
‘Somebody is (/They are) knocking at the door. He is (/They are) asking for help.’

The previous examples show that the range of readings of pro_{arb} differs from that of regular indefinites. This casts doubts on the validity of the HIA and asks for an alternative analysis. In what follows, I show that there is no need to postulate the existence of pro_{arb} to derive the ‘arbitrariness’ of examples like (1b) and (1c). Revisiting the semantics of regular *pro* and appealing to the interaction of *pro* and the semantics of the sentences in which it occurs can just do the job.

I start by distinguishing two types of arbitrary readings: (i) the generic type illustrated in (11a) and (12a) and (ii) the existential type illustrated in (13).⁶ The generic reading is associated with generic sentences whose episodic counterparts license either indexical, in the case of pro_2 (11b), or regular definite readings, in the case of pro_3 (12b). The existential type is associated with episodic sentences and, as illustrated by (7), is restricted to non-derived subjects.

- (11) a. (En las fiestas de ese departamento) raras veces pro_{arb} bebes vino.

⁵ As one anonymous reviewer points out, most generalizations carry over to unstressed English ‘arbitrary’ *they* and *you*. However, I will be cautious and avoid hasty extrapolations. English unstressed ‘arbitrary’ pronouns merit further attention on themselves. Just to point one difference, English ‘arbitrary’ *they* disallows the anaphoric pattern exemplified in (10) (Barbara Partee, p.c.).

⁶ For a discussion of the alleged arbitrary readings of 1st person plural *pro*, see Alonso-Ovalle (2000).

- In the parties of that department few times pro_{arb} drink:2s wine
 ‘In the parties of that department, people rarely drink wine.’
- b. (En las fiestas de ese departamento raras veces pro bebiste vino.
 In the parties of that department few times pro drink:2SPAST wine
 ‘In the parties of that department, you (addressee) rarely drank wine.’
- (12) a. (En las fiestas de ese departamento) raras veces pro_{arb} beben vino.
 In the parties of that department few times pro_{arb} drink:3PL wine
 ‘In the parties of that department, people rarely drink wine.’
- b. (En las fiestas de ese departamento) raras veces pro bebieron vino.
 In the parties of that department few times pro drink:3PLPAST wine
 ‘In the parties of that department, they rarely drank wine.’
- (13) Pro_{arb} mataron a Juan
 Pro_{arb} kill:3plpast to Juan
 ‘Somebody killed John’.

Next, I derive the generic readings illustrated in (11a) and (12a) from the regular indexical and definite readings of pro illustrated in (11b) and (12b). In section 3, I show that there is no need to appeal to pro_{arb} to derive the existential readings of examples like (13).

2. THE INDEXICAL-DEFINITE VS. GENERIC TYPE.

Generality forces me to design a single lexical entry for pro to derive both its indexical (or definite) and ‘arbitrary’ readings. Alonso-Ovalle (2000) shows that this cannot be done within a classical two-dimensional semantics that assigns to each LF a function from contexts to intensions (Kaplan 1979), if indices are either worlds or world-time pairs. I will now show that a different ontology allows a single lexical entry.

Instead of worlds, our model contains *parts* of worlds such that for each part or *situation* s there is a unique maximal situation with respect to s : its world (Kratzer 1989). Then I make use of a distinguished situation: the situation of utterance (s_0).⁷ I will also use a partial function \mathfrak{R} that retrieves from a situation the individuals that are part of it. By stipulation, $\mathfrak{R}(s_0) = \{c_s, c_a\}$. LFs are interpreted with respect to a reference situation (s/r), an index (s) and a variable assignment g . Our Truth definition says that an LF ϕ is uttered truthfully by c_s to c_a in s_0 iff its denotation yields the True when evaluated with respect to a supersituation of s_0 .

With this ingredients, we devise the lexical entries for pro_2 and pro_3 in (14). Unlike its overt counterpart $tú$ (that always denotes c_a), pro_2 picks up an individual in s/r (provided she is not the speaker of s/r , if there is one). Pro_3 picks up a plurality, provided that it belongs to s but not to s_0 .

- (14) $\forall s/r, \forall s, \forall g,$
 a. $[[tú]]^{s/r, s, g} = c_a$

⁷ Notation: for any s_0 : $c_s =_{\text{def}}$ the speaker, $c_a =_{\text{def}}$ the hearer.

- b. $[[\text{pro2}]]^{s/r,s,g} = [g(\mathbb{F})] (\mathfrak{R}(s/r) - \{x \in \mathfrak{R}(s/r): x \text{ is the speaker of } s/r\})^8$
 Where \mathbb{F} ranges over the set of functions $f: \wp(D_e) \rightarrow D_e$
- c. $[[\text{pro3}_1]]^{s/r,s,g} = g(1)$, g is only defined if $g(1)$ is a plurality and $g(1) \in (\mathfrak{R}(s) - \mathfrak{R}(s_0))$

By using the lexical entries in (14) we can derive the indexical and definite readings of *pro2* and *pro3* in episodic sentences exemplified in (15).

- (15) a. Tú/pro bebiste
 You/pro drink:2SPAST
 ‘You drank’.
- b. Pro bebieron
 pro drink:3PLPAST
 ‘They drank’

Consider first the schematic LFs in (16).

- (16) PAST_{episodic} Tú/Pro2/Pro3 drink

We add the following lexical entry to our inventory:

- (17) $[[\text{PAST episodic } \phi]]^{s/r,s} = [[\phi]]^{s_0,s < s_0}$

Our truth definition plus the semantics for *tú* correctly predicts an utterance of (16) to be true in s_0 iff c_a drank in s , and $s < s_0$. We correctly predict (16) with *pro2* to be truth-functionally equivalent to one containing *tú*. Finally, (16) with *pro3* is to be true in s_0 iff a plurality of people which is in $s < s_0$ and does not contain c_s nor c_a , drinks in s .

We can also correctly derive the generic readings associated with generic sentences containing *pro2* and *pro3*:

- (18) a. En ese restaurante, *pro*_{arb} trabajas como un esclavo.
 In that restaurant *pro*_{arb} work:2S like a slave
 ‘In that restaurant, you (generic) work like a slave.’
- b. En ese restaurante, *pro*_{arb} trabajan como esclavos.
 In that restaurant *pro*_{arb} work:3PL like slaves
 ‘In that restaurant, they work like slaves.’

For that purpose, it is assumed that a proposition is a set of situations and that adverbial quantification (A-quantification) amounts to relating two propositions (von Stechow 1995). Propositions in the nuclear scope are interpreted with respect to situations of the type defined by the restrictor. The schematic LF in (19) corresponds to the examples in (18).

- (19) Gn [in that restaurant] [pro2/pro 3 work like a slave]

I take an utterance of a generic LF to be True iff most situations s that are minimal *prototypical* situations in the restrictor⁹ are extended to situations s' that belong to the set of situations of the type in the restrictor *and* in the nuclear scope.

⁸ If s/r has no speaker, then $\mathfrak{R}(s/r) - \{x:x \text{ is the speaker of } s/r\} = \mathfrak{R}(s/r)$.

⁹ Minimal situations raise serious ontological concerns, but I have no better alternative to offer at this point.

- (20) Let $\text{PROTO}_s =_{\text{def}} \{s' : s' \text{ is a situation prototypical w.r.t. } s\}$ ¹⁰
 $\forall s/r, \forall s', \forall g, \forall \langle [[\phi]], [[\psi]] \rangle \in D_{\langle s, t \rangle}$
 $[[\mathbf{Gn} \phi \psi]]^{s/r, s', g} = 1$ iff most situations $s : s \in (\min (\text{PROTO}_{s \in [[\phi]]} \cap [[\phi]]^{s/r, s, g}),$
 $s \in \{s'' : \exists s''' (s'' \leq s''' \& s''' \in \{s'''' : s'''' \in ([[\phi]]^{s/r, s, g} \cap [[\psi]]^{s \in [[\phi]]/r, s, g})\})\}$

Then, an utterance of (18a) is true iff most prototypical situations of this restaurant s can be extended to situations s' that make true the proposition that a person in s works like a slave. A variant of (18a) containing *tú* instead of *pro2* is true iff most prototypical situations of that restaurant s are situations s' that make true the proposition that c_a works like a slave. Finally, (18b) with *pro3* is true iff most prototypical situations of that restaurant s are such that a plurality that is part of the participants in s (which does not include c_s nor c_a) works as a slave in s . The predictions are correct.

Several facts follow. First, even if you can't fix the *s/r* parameter, you can understand the proposition expressed by a sentence containing *tú*, unlike one containing *pro2*. Now, let B. find this note in an unknown department's hall:

- (21) a. Aquí tú no pintas nada.
 Here you not are considered at all
 'Here, you are not considered.'
 b. Aquí pro no pintas nada.
 Here pro not are considered at all
 'Here, you are not considered.'

Both (21a) and (21b) are ambiguous between a generic and episodic reading. Given the character of *tú*, under any reading, B. will take the proposition expressed by the note to be one about the addressee of the note. However, given the character of *pro2*, B will only feel insulted under the episodic LF. **Similar contrasts apply to *pro3* and its overt counterpart.**

Also, while (22a) is a contradiction, (22b) is a contingency.

- (22) a. Aquí tú pintas mucho y (tú) no pintas nada
 Here you are considered a lot and you not considered at all
 'Here, they respect you and they don't.'
 b. Aquí pro pintas mucho y pro no pintas nada
 Here pro are considered a lot and pro not considered at all
 'Here, they respect you and they don't.'

Finally, we correctly expect 'arbitrary readings' to appear also in conditionals, but only with *pro2*:

¹⁰ $\min (\{s : \phi(s)\}) =_{\text{def}}$ the set of minimal ϕ -situations, $f(s) = \{s' : s' \text{ is } f\text{-accessible from } s\}$, s/r in the nuclear scope is restricted to be a situation of the type defined by the restrictor (notational preference: $s \in [[\phi]]/r =_{\text{def}}$ any s such that $[[\phi]]_s(c)(s) = 1$). See Alonso-Ovalle (2000) for an extension to A-quantification based on von Stechow (1995), where minimality of situations in the restrictor and conservativity is argued for. It remains to define what counts as a prototypical situation w.r.t to a situation s , where we have no description whatsoever of s . **EXPLAIN THE REVIEWER WORRIES: a sentence in the progressive entails this, but not the other way round**

- (23) Si tú estuvieras viviendo en Italia, (tú) comprarías mucha ropa
 If you be:PASTSUBJ2S living in Italy, you would buy lots of clothes
 ‘If you lived in Italy, you would buy lots of clothes.’ [‘You’ = c_a].

Now we have a semantics for the indexical-definite/generic readings of *pro*_{arb}. I still owe the reader an account of the existential readings. Next, I sketch one.

3. UNDERSPECIFIED EVENTUALITIES

Kratzer 1996 presents a most attractive rendition of the widespread assumption that external arguments are independent of their verbs. According to her, they are introduced by a functional head (VoiceP) interpreted as a dyadic predicate, satisfied by pairs of individuals and events if the individual fulfills the description of the predicate with respect to the event. Basically, VPs express properties of events and VoicePhrases can specify these properties by overtly expressing thematic relations.¹¹

The hypothesis I would like to suggest is that episodic sentences containing an indefinite like *pro*₃ denote existentially quantified events without making any claim whatsoever about their agents. (1b), for instance, would denote the True if there is an eventuality that can be truthfully described as an eventuality of knocking at the door (running at *s*₀). This particular instance of ‘*pro*_{arb}’, then, makes no semantic contribution.

The claim is compatible with different implementations. A possibility is to define an operation on LFs (‘Drop Voice’(DV)) that optionally deletes VoiceP when headed by ‘agent’.¹² If DV were defined only when headed by ‘agent’, then, as expected, neither subjects of passives nor those of ergative verbs would license ‘arbitrary’ readings. This seems to be the case. Interestingly enough, where an agent headed Voice-Phrase is present, ‘arbitrariness’ is blocked:

- (24) Pro llaman a la puerta de mala gana¹³
 Pro knock:3PL to the door reluctantly
 ‘They (definite) are reluctantly knocking at the door.’

The same blocking effect obtains with other types of rationale/volitional complements and agent-oriented free adjuncts:

- (25) a. Pro llaman a la puerta para PRO sorprenderme
 pro knock:3PL at the door to PRO surprise me
 ‘They (def.) knock the door to give me a surprise.’
 b. Pro están arreglando el teléfono para PRO cobrar el seguro.
 pro be:3PL repairing the phone to PRO collect the insurance
 ‘They are repairing the phone to collect the insurance.’
 c. Pro entusiasmados por tal tarea, pro arreglaron el teléfono

¹¹ In order to be sure that the VP and VoiceP express a property of *the same* event, Kratzer resorts to a variety of a regular predicate conjunction principle (‘Event Identification’).

¹² For all I know, it would also be possible for an agent headed VoiceP not to have been projected at all in the syntax. I will let this question open, since is a very theory-laden one.

¹³ Avoid VP-modifier readings.

pro delighted by such task, pro repair:3PLPAST the phone
 ‘Delighted with such a task, they repaired the phone.’

But then, where does the indefiniteness flavor of pro_{arb} comes from? I claim that it is just an entailment of the truth-conditions that our semantics assigns to these ‘underspecified’ LFs. Since it can be shown that the entailment survives different illocutionary forces, it is just the kind of semantic entailment one wants to specify as a meaning postulate:

- (26) a. $\Box \forall e[\text{activity}'(e) \rightarrow \exists x[\text{agent}'(x,e)]]$
 b. $\forall e[\text{knock-at-the-door}'(e) \rightarrow \text{activity}'(e)]$
 $\exists e[\text{knock-at-the-door}'(e)] \rightarrow \exists x[\text{agent}'(x,e)]$

Activities, after all, happen to have agents.

4. CONCLUSIONS.

The main issue at stake is that the HIA does not predict the whole range of meanings that the ‘arb’-indexing is intended to cover. I have shown that it covers at least two distinct interpretations that can be fruitfully analyzed separately: (a) the indexical-definite/generic type and (b) the existential type.

The HIA captures the existential and generic readings by assuming (i) that the existential reading is just an instance of a regular heimian indefinite that gets existentially bound by default, (ii) that there is no explicit connection between the definite/indexical readings and the generic/indefinite readings of pro_{arb} .

In my account, there is no need for assuming that *pro* as a regular indexical or definite is essentially different from the arbitrary cases: I have provided a single lexical entry that covers both cases and derives the minimal set of empirical generalizations a theory of pro_{arb} has to cover.

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