Arbitrary Pronouns Are Not That Indefinite*

Luis Alonso-Ovalle
University of Massachusetts at Amherst

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.

\[(1)\]
\[
\begin{align*}
\text{a. } & \text{PRO}_\text{arb} \text{ smoking is dangerous.} \\
\text{b. } & \text{En ese restaurante, pro}_\text{arb} \text{ trabajas como un esclavo.} \\
& \text{In that restaurant pro}_\text{arb} \text{ work:2s like a slave} \\
& \text{‘In that restaurant, you work like a slave.’} \\
\text{c. } & \text{Pro}_\text{arb} \text{ llaman a la puerta.} \\
& \text{pro}_\text{arb} \text{ knock:3PL to the door} \\
& \text{‘Somebody is knocking at the door.’}
\end{align*}
\]

Chierchia 1984 argues against the very existence of PRO\text{arb}, which he takes to be a mere reflection of second order predication. I will cast doubts about the existence of pro\text{arb}. In what follows, I show that there is no need to appeal to pro\text{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\text{arb} and takes it to be an indefinite pronoun (Condoravdi, 1989; Kim, 1991). In section 2 I show that the generic readings of pro\text{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 proarb 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.

\[(2)\]
\[
\begin{align*}
\text{a. } & \text{En ese restaurante, pro trabajaste como un esclavo.} \\
& \text{In that restaurant pro work:2SPAST like a slave} \\
& \text{‘In that restaurant, you (addressee) worked like a slave.’} \\
\text{b. } & \text{En ese restaurante, pro trabajaron como esclavos.} \\
& \text{In that restaurant pro work:3SPAST like slaves} \\
& \text{‘In that restaurant, they worked like a slaves.’}
\end{align*}
\]

---

\(^1\) I am very grateful to Reineke Bok-Bennema, Donka Farkas, Lyn Frazier, Kyle Johnson, Paula Menéndez-Benito, Barbara Partee, Maria Luisa Rivero, audiences in Barbara Partee’s Fall 99 UMass seminar and two Going Romance anonymous reviewers. Thanks to Jean-Yves Pollock and Georges Rebuschi for pointing out that syntactic position distinguishes generic and indexical readings of the second person singular French pronoun. Thanks to Irene Heim and Kai von Fintel for being so generous with their teaching and materials. I am indebted to Barbara Partee for more advice, help and encouragement than I could acknowledge. Usual disclaimers apply.

\(^1\) 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.

© Luis Alonso Ovalle 2001
1. **Proarb as a Heimian Indefinite.**

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

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)  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>A Spaniard likes coffee ~ Most Spaniards like coffee</td>
<td>b.</td>
<td>LF: [Gn_{s,x} [x is a Spaniard &amp; s is of the relevant kind] [x likes coffee in s]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c.</td>
<td>A Spaniard has just arrived ~ There is a Spaniard that as just arrived</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d.</td>
<td>LF: [\exists_{s,x} [x is a Spaniard &amp; s is of the relevant kind] [x arrives in s]</td>
</tr>
</tbody>
</table>

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 proarb is taken to be an indefinite, (3iii) assures that the ‘arb’ index be not a current discourse referent.

(3)  

Let ‘arb’ be a distinguished index, restricted to null elements.

(i) \[[proarb]_F^g = g(arb)\]

(ii) \(g(arb)\) is defined iff \(g(arb)\) is human

(iii) \(arb \notin \text{Dom}(F)\)

The HIA is quite a natural analysis for proarb, 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, proarb has existential force in episodic sentences and quasi-universal force in generic ones.

(4)  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>proarb llaman por teléfono.</td>
<td>b.</td>
<td>LF: (\exists_{x} [x \text{ is human}] [x \text{ is calling on the phone}])</td>
</tr>
<tr>
<td></td>
<td>proarb call-3pl by phone</td>
<td>c.</td>
<td>En América, normalmente cuando proarb llaman por in America usually when proarb drive-3PL by teléfono, proarb disparan a la gente highway proarb shoot-3PL to the people</td>
</tr>
<tr>
<td></td>
<td>‘Somebody is calling on the phone’.</td>
<td>d.</td>
<td>(Gn_{s,x} [x \text{ is human&amp;s is a phone call&amp; s is in America}] [x \text{ shoots around in s}])</td>
</tr>
</tbody>
</table>

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 proarb right away: according to (3i) proarb contributes to the LF a free variable. A familiar default

---

2 *HIIH* refers to this analysis of proarb, 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 \(F, [[\phi]]_F^g = \text{def} \) the extension of \(\phi\) w.r.t \(F\). \(\text{Dom}(F)\) retrieves from each file its indices. See Heim 1982 for the concept of file.*

© Luis Alonso Ovalle 2001
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 proarb 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 proarb differ from those of regular indefinites in several respects.

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

(5) a. It: In questo ristorante proarb mangi bene (e proarb paghi poco)
In this restaurant proarb eat:2s well and proarb 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 proarb always behaves as an indefinite. For one, indefinites can not only have existential and (quasi-)universal (or generic) readings, but, unlike proarb, 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) proarb does not. However, nothing in the HIA prevents the free variable that proarb 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 proarb bebes vino.
In the parties of that department few times proarb 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 proarb 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, proarb consistently avoids wide scope:

(8) a. Sp: No Proarb llaman a la puerta.
   No Proarb knock:3PL to the door
   ‘Somebody is (/they are) not knocking at the door.’ ¬∃ / *∃ ¬
   b. Sp: Proarb están llamando a cada puerta.
      Proarb be:3PL knocking to each door
      ‘Somebody is (/they are) knocking at each door.’ ∀∃ / *∃∀
   c. Sp: Pro es posible que Proarb estén llamando a la puerta.
      It is possible that Proarb be: SUBJ knocking at the door
      ‘Maybe somebody is (/they are) knocking at the door.’ ◊∃ / *◊∃

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) Proarb trabajas como un esclavo.
    proarb work:2S like a slave
    ‘You (addressee) usually work like a slave.’

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

(10) Proarb llaman a la puerta. Proarb piden ayuda.
    Proarb knock:3PL to the door proarb 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 proarb 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 proarb 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 pro2 (11b), or regular definite readings, in the case of pro3 (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 proarb 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 proarb 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 proarb beben vino.
In the parties of that department few times proarb 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) Proarb mataron a Juan
Proarb 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 proarb 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 (s0).7 I will also use a partial function ℜ that retrieves from a situation the individuals that are part of it. By stipulation, ℜ(s0) = {cs,ca}. 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 cs to ca in s0 iff its denotation yields the True when evaluated with respect to a supersituation of s0.

With this ingredients, we devise the lexical entries for pro2 and pro3 in (14). Unlike its overt counterpart tú (that always denotes ca), pro2 picks up an individual in s/r (provided she is not the speaker of s/r, if there is one). Pro3 picks up a plurality, provided that it belongs to s but not to s0.

(14) ∀s/r, ∀s, ∀g,

a. [[tú]]s/r,s,g = ca

7 Notation: for any s0: cs =def the speaker, ca =def the hearer.
b. \[\left[\text{pro}_2\right]^{s/r,g} = \left[\left(\mathcal{R}(s/r) - \{x \in \mathcal{R}(s/r): x \text{ is the speaker of } s/r\}\right)^8\right]\]

Where \(\mathcal{F}\) ranges over the set of functions \(f: \varphi(D_e) \to D_e\)

c. \[\left[\text{pro}_3\right]^{s,r,g} = g(1), g \text{ is only defined if } g(1) \text{ is a plurality and } g(1) \in (\mathcal{R}(s) - \mathcal{R}(s_0))\]

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:3 PLPAST
    ‘They drank’

Consider first the schematic LFs in (16).

(16) PAST\text{episodic} Tú/Pro2/Pro3 drink

We add the following lexical entry to our inventory:

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

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, proarb trabajas como un esclavo.
    In that restaurant proarb work:2s like a slave
    ‘In that restaurant, you (generic) work like a slave.’

b. En ese restaurante, proarb trabajan como esclavos.
    In that restaurant proarb 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 Fintel 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 restrictor\(^9\) 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 \(\mathcal{R}(s/r) - \{x: x \text{ is the speaker of } s/r\} = \mathcal{R}(s/r)\).

9 Minimal situations raise serious ontological concerns, but I have no better alternative to offer at this point.
(20) Let PROTO_s =def {s': s' is a situation prototypical w.r.t. s}

∀s/r,∀s',∀g, ∀<[[φ]]_s,[[ψ]]> ∈ D<s,t>,

[[ Gn ϕ ψ ]]s/r,s',g = 1 iff most situations s: s ∈ (min (PROTO_s ∈ [[φ]]_s/r,s,g ),

s ∈ {s'':∃s''(s''≤s'''& s''''∈ {s'': s''' ∈ ([[φ]]_s/r,s,g ∩ [[ψ]]_s )))

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 ca 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 ca nor ca) 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:φ(s)}) =def the set of minimal φ-situations, r(s) = {s': s' is f-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 ∈ [[φ]]_r =def any s such that [[φ]]_r(c) (s) = 1). See Alonso-Ovalle (2000) for an extension to A-quantification based on von Fintel (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.
If you lived in Italy, you would buy lots of clothes.

Now we have a semantics for the indexical-definite/generic readings of proarb. 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 ‘proarb’, 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 gana\(^{13}\)

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 proarb come 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. □∀e[activity’ (e) → ∃x[agent’(x,e)]]
    b. ∀e[knock-at-the-door’(e) → activity’ (e)]
       ∃e[knock-at-the-door’(e)] → ∃x[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 proarb.

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 proarb has to cover.

REFERENCES


CASIELLES


Chierchia, Gennaro. 1984. Topics in the syntax and semantics of infinitives and gerunds. Amherst, MA:GSLA.


Heim, Irene. 1982. The semantics of definite and indefinite NPs. Amherst, MA: GLSA.


Luis Alonso-Ovalle
Department of Linguistics
South College
University of Massachusetts at Amherst
Amherst, MA 01002
<luisalo@acad.umass.edu>