L2 Acquisition of a Semantic Parameter

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1. Introduction

In this paper, I will report on an experimental study investigating the Bare Noun/Proper Name parameter (Longobardi 1991, 1994, 1996, 2001, to appear) and its L2 acquisition. It has been noticed that English and Italian mass or bare plural nouns (bare nouns, BNs) have identical syntactic form and distribution, but differ in available interpretations, the Italian meaning being a subset of the English meanings. On the other hand, proper names (PNs) display cross-linguistic constant meaning but variable word order. Longobardi argues that variation in this respect can be accounted for by a parameter that is set to one value in English and another one in Italian. In this way, the parameter is responsible for purely syntactic effects (word order) in one area of the grammar and purely semantic effects (presence or absence of an interpretation) in another area of the grammar.

This parameter allows us to test acquisition of interpretation in the absence of supporting changes in the overt syntax. Most of the parameters that have been studied so far (e.g., the verb movement parameter, the null subject parameter, the head directionality parameter, etc.), have looked at L2 acquisition of syntactic effects and their accompanying morphology. Looking at a "purely semantic parameter" will allow us to by-pass the purported difficulties in mapping overt morphology onto functional projection representations (see Prévost and White's (2000) Missing Surface Inflection Hypothesis, a.o.) Unimpeded acquisition in the interpretive domain will indirectly support accounts of this type. It would also directly support unconstrained access to UG in adulthood.

2. The data
2.1. The first semantic contrast

In English, the subject bare NP has both a generic (Gen) and an existential meaning (Ex), while in Italian it has only the existential meaning.

(1) *White elephants will undergo the Final Judgment tomorrow at 5.*   **Ex/Gen**

(2) *Elefanti di colore bianco passerano il Giudizio Universale domani alle 5.*   **Ex/#Gen**
    elephants of color white undergo-FUT the Final Judgment tomorrow at 5
    'White elephants will undergo the Final Judgment tomorrow at 5.'

A pertinent paraphrase of the Italian sentence in (2) would be: "There are **some** white elephants that will appear at the Final Judgment tomorrow at 5". The English sentence in (1) has the same reading but also the reading "**All** white elephants (as a species) will undergo the Final Judgment tomorrow at 5."

2.2. *The second semantic contrast*

The second semantic contrast has to do with anaphoric binding.

(3) *Large cats think very highly of themselves.* **Distr/Kind**

(4) *Gatti di grossa taglia hanno un'alta opinione di se stessi.* **Distr/ #Kind**
cats of large dimensions have a high opinion of self
'Large cats think very highly of themselves.'

The distributive reading of (3) says that each individual large cat has a high opinion of itself only, although they may not think highly of the species in general. The kind reading of the same sentence is that every large cat has a high opinion of all large cats as a species, although they may not have a high opinion of individuals within the species, including their personal selves. The distributive reading is available in Italian, but the kind reading is not.

The two purely semantic contrasts are related to the same underlying property, or happen to be two manifestations of that property.

2.3. *The syntactic contrast*

The word order contrast parametrically related to the semantic contrasts above is exemplified with proper names modified by adjectives. In English, such names follow the adjective (5), while in Italian the names can precede the adjective as in (6):

(5) *Ancient Rome/*Rome ancient was destroyed by the barbarians.*

(6) *Roma antica/*Antica Roma fu distrutta dai barbari.*
Rome ancient/ancient Rome was destroyed by barbarians
'Ancient Rome was destroyed by the barbarians.'

3. The analysis

(7)
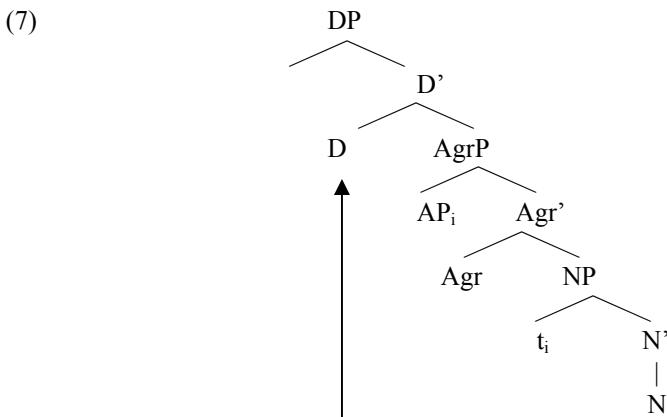
The parameter can be expressed in terms of the standard N-to-D head movement analysis as in (7) above. It unifies the syntactic and semantic behavior of PNs and BNs. Before explaining exactly how the movement from N to D works in the two languages, let's look at some of the nominals' properties (following Longobardi 2001, to appear):

(8) Ho incontrato **Maria**/**te**
I met Maria/you.

(9) a.　Bevo sempre **vino**.
　　　'I always drink wine.'
　　b.　Ho mangiato **patate**.
　　　'I ate potatoes.'

Proper Names as in (8)
✓　have singular and count reading;
✓　denote definite (unique in the discourse) and specific entities, i.e., they denote objects (constants);
✓　have a free distribution;
✓　have widest possible scope (no operator can take them within their scope);
✓　are rigid designators in the sense of Kripke (1980) (they denote the same entity in all conceivable worlds);
✓　raise N-to-D if the latter does not contain an overt determiner in Italian while they do not raise N-to-D in English.
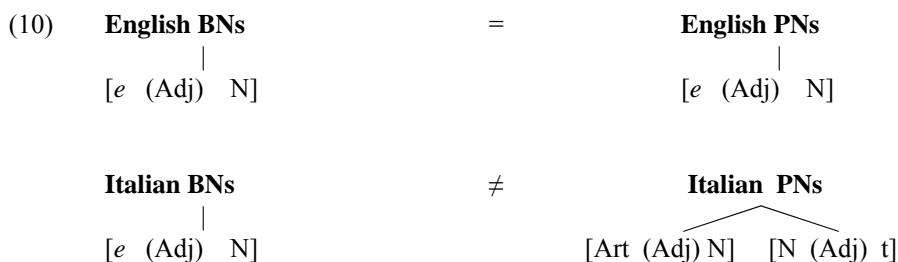
Bare Nouns as in (9), on the other hand,
✓　have plural or mass reading;
✓　have an indefinite interpretation;
✓　have the narrowest possible scope;
✓　have non-rigid designation;
✓　never raise N-to-D.

　　It is not the case that Italian BNs cannot be interpreted generically at all. Here are two available strategies for a nominal expression to obtain a generic reading in natural language: The expression can either refer directly to kinds, in which case it exhibits **referential genericity**; or it can be an indefinite, a variable existentially or generically bound by an independently provided operator (called **quantificational genericity**, since the nominal expression generalizes over objects (Gerstner & Krifka 1987).

　　Since they are indefinites, hence subject only to quantificational genericity, Italian BNs can be generic in habitual reading sentences, or in the scope of adverbs like *always* or *often*. English BNs, on the other hand, are systematically ambiguous between the quantificational interpretation and the truly referential generic interpretation.

　　Now we are in a position to define the parameter: In Italian the referential feature of the D position is strong, therefore overt movement from N-to-D is necessary. In English, referential status can be assigned to nominals with no overt determiner. The referential feature in D is weak, hence no pre-spell-out movement to D is necessary (see 7 above). (10) offers one more illustration of the possible configurations.

(10)　**English BNs**　　　　　=　　　　　**English PNs**
　　　　　|　　　　　　　　　　　　　　　　　|
　　　[*e*　(Adj)　N]　　　　　　　　　　　[*e*　(Adj)　N]

　　　Italian BNs　　　　　≠　　　　　**Italian　PNs**
　　　　　|
　　　[*e*　(Adj)　N]　　　　　[Art　(Adj) N]　　[N　(Adj)　t]

　　But what is the link to BN interpretation? Italian PNs and BNs can only refer directly (to objects and kinds, respectively) if they have an overtly filled D. For PNs, the referring strategy is satisfied either by a D filled with an article, or by N-to-D movement. For BNs, the strategy can never be satisfied, since they remain low in the structure. That is why they may be quantificationally generic in the scope of Gen type operators but never referentially generic.

In English no overt movement happens in the DP, because it need not. The constant or variable status of D need not be encoded at PF but only at LF. Hence, English BNs do not need to rise overtly to D to refer to kinds directly (that is, to be referentially generic).

Languages resort to a **unified** strategy in assigning object and kind-reference to nominal structures. However, these strategies can be parameterized across languages. Object-referring nouns may occur without a phonetically filled D iff kind-referring nouns can. Ultimately, the parameter has to do with whether or not the constant or variable status of D must be encoded in the PF or not: in Romance, an empty D always gives rise to a variable, in Germanic it need not.

Contexts in which English BNs CAN be generic but Italian BNs CANNOT include:
- episodic sentences: *White elephants raised a lot of curiosity in the past*.
- kind-level sentences: *White elephants have become extinct.*
- stative individual-level sentences: *States of large size are prosperous*.

4. Predictions for second language acquisition

The referential genericity of English BNs is not overtly taught at the advanced level of college classroom instruction. However, it was impossible to ascertain the linguistic background of all the non-native participants, since they were at the college level of English, and they had come from various academic backgrounds. The PNs word order is taught, and is abundantly present in the input to ESL learners.

The two manifestations of the parameter, the syntactic and the semantic side, are superficially not related. There is no *a priori* reason to suppose that a learner who has acquired one aspect of the parameter would necessarily know the other. They are underlyingly unified, however, by the BN/PN parameter. If this parameter is part of UG, and if UG is available and active in L2A, then knowledge of interpretations (invisible before spell-out) and knowledge of noun movement (visible) will co-occur in interlanguage grammar. For the Italian learners of English (the direction I report on in this paper), the acquisition process involves an extension of the grammar: they are adding one meaning that is unavailable from their L1.

5. The study
5.1. Participants

Seventy-six Italian learners of English and 24 native controls participated. They were tested in Trieste, Italy and in Iowa City, IA. All were college students, aged between 18 and 25. All Italian native speakers had started learning English after the age of 12, mean age of first acquisition 13.5.

5.2. Tasks

A written Truth Value Judgment Task (Crain and McKee, 1985) and a Grammaticality Judgment task were administered. An independent measure of proficiency (a cloze test) was also given.

The TVJT consisted of pairs of stories and test sentences. Each test sentence appeared twice, once under a story supporting an existential interpretation of the nominal (*some white elephants*) and a second time under a story supporting a generic interpretation (*all white elephants*). There were eight story-sentence pairs in the Bare Noun Interpretation Condition and the same number in the Anaphoric Binding Condition. Sixteen fillers were also included. They were needed to counterbalance the sixteen True answers that were expected in the ESL test, since in English both interpretations are available.

(11) Examples of two story-sentence pairs:

Existential (∃) story
In a story that I read, God summons all the animal species to appear in front of him for the Final Judgment. He is going to judge them in groups. Elephants will be divided in two groups: brown elephants and white elephants. Some white ones will see God at 4, other white ones will face him at 5. The brown ones will write a petition.

        At 5, the Creator is going to see white-colored elephants.   True   False

Generic (∀) story
In a story that I heard somewhere, some animals ask for God's help. He is to decide who is right. A number of white elephants are arguing with some brown elephants about whose color is better. God is going to see them separately: the white ones at 5 and the brown ones at 6.

        At 5, the Creator is going to see white-colored elephants.   True   False

Distributive reading story
Cats are strange animals. The large ones think that they are smart and handsome. At the same time, they consider all other large cats to be very ugly. Is this because they feel threatened by the members of their own species? I wonder...

        Large cats have a very high opinion of themselves.   True   False

Kind reading story
I don't like small cats, but I adore large ones. The thing I like most about them is this: they think that every large cat in the world is smart and handsome. They just like each other very much. What a happy group of animals!

        Large cats have a very high opinion of themselves.   True   False

The GJ task included five grammatical and five ungrammatical sentences in the Proper Name Movement Condition as the examples in (5) and (6), and another ten sentences in the N-over-AP Movement Condition (see examples in (12)). There were ten fillers as well, bringing up the number of sentences to 30.

(12) a. My sister likes fresh blueberries.
      b. *Apples green are my dad's favorite fruit.

The cloze test was intended as a language proficiency measure. It consisted of a text relating a story, in which every seventh word was taken out and replaced with a blank. There were 40 blank spaces, which the participants had to fill in with one word only. The scoring procedure used the exact match method: if a blank was filled with the exact word as in the original text, one point was given; if no word was supplied, or even if the supplied word was meaningful but not the one used in the original text, no point was given. Native speakers scored between 21 and 31, so Italian learners of English were divided into two groups. Those who scored above 21 (in the NS range) were classified as Advanced learners (range 21-29, mean = 24.43), those who scored 20 and below were placed into the High Intermediate group (range 11-20, mean = 16.2).

5.3. Results

General Linear Model ANOVA was performed on the results of the TVJT. There was a main effect for reading ($F(3, 91) = 52.05$, $p < .0001$), and a meaning by group interaction ($F(6, 184) = 4.79$, $p < .001$). Table 1 gives the percentages of acceptance of each interpretation in the participant groups.

Table 1: Acceptance of interpretation in Truth Value Judgment Task (in per cent)

Groups	Bare Noun interpretation		Anaphoric Binding	
	Generic (∀) reading	Existential (∃) reading	Kind reading	Distributive reading
Controls	91	75	80	88
High Interm	88	55	83	85
Advanced	87	48	83	93

Looking at the two conditions separately, it seems that the Anaphoric Binding Condition worked a bit better, allowing for stories that could support more clearly the two readings available in English. There are no statistical differences between the two learner groups and the controls in accuracy of performance. The distributive reading was slightly, but not significantly, preferred by all groups.

In the case of the Bare Noun Interpretation Condition, the generic reading was preferred by all groups ($F(1, 93)= 104.1$, $p <.0001$). Recall that the existential reading is the one available in Italian and in English while the generic reading is the one only available in English. The Italian learners of English have not only acquired it, but they actually prefer it over their native interpretation. There are no significant differences between groups on the generic reading in this condition. On the existential reading, the two learner groups do not differ between themselves, but they differ significantly ($p<.0001$) from the natives.

Table 2: Accuracy on Grammaticality Judgment Task (in per cent)

Groups	*N-to-D in proper names		*N-over-AP movement	
	Gr	Ungr	Gr	Ungr
Controls	97	96	100	98
Hi Interm	96	98	99	99
Advanced	96	96	99	100

Table 2 reports the accuracy percentage on the GJ task. The two learner groups and the controls are at ceiling in their knowledge that N-to-D movement and N-over-AP movement are not permitted in English. There are neither group nor condition effects in the data.

6. Discussion

It can safely be assumed that knowledge of the syntactic aspect of the Bare Noun/Proper Name parameter (the English weak feature in D) has been acquired by all learners. In other words, all learners know that in English overt movement of the N head is prohibited even though their native Italian requires it.

Furthermore, Italian learners of English at high intermediate and advanced levels of proficiency are able to correctly interpret ambiguous English bare nouns. They have acquired (two related) interpretations that are not available in their native grammar: They allow bare nouns to refer to kinds directly, without the intermediacy of external generic operators. Learner and native speaker accuracy do not differ on the two important readings (the ones that are unavailable in Italian).

Thus, the learners are apparently aware of the unified strategy languages use in assigning object and kind-reference to nominal structures. These results are compatible with the parametric analysis proposed by Longobardi.

The findings suggest that semantic interpretations not available in the L1 are nevertheless fully available to the high intermediate and advanced adult learners, and that feature strength in the DP is acquirable.

The findings also address the issue of adult second language performance. If we assume that second language competence is acquirable, as certainly suggested by the results of this one and other experiments on the acquisition of semantics, then we can ask why second language performance

lingers behind competence. My explanation would attribute this discrepancy to the other factors mediating between mental representation and output, namely, the syntax-morphology mapping. Whenever no such mapping is involved, and the correct phrase structure with the target FC values activated interfaces directly with interpretation, adult L2 learners perform like native speakers.

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