

Semantic and Syntactic Principles in Second Language Acquisition: The Case of Negative Polarity Items¹

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Abstract: This paper states that semantic factors influence the acquisition of the syntax of negative polarity items in the language faculty in second language acquisition under full access to Universal Grammar. Based on the results of elicited production tasks which were conducted on Japanese university students learning English, I will demonstrate that semantic and syntactic principles work simultaneously from the viewpoint of *Antiveridicality* proposed in Giannakidou (1998, 2000) and that of *Feature Checking* under the framework of the Minimalist Program proposed in Chomsky (1993, 1994, 1995, 2000).

Key words: negative polarity items, L2 acquisition, full access, Feature Checking, Antiveridicality

1. Introduction

This paper demonstrates that semantic factors influence the acquisition of the syntax of negative polarity items in the language faculty in second language acquisition under the full access hypothesis that L2 learners' initial state is UG like L1 learners. First, I will explore which proposed model is proper for L2 acquisition. Second, I will analyze the results of elicited production tasks conducted on Japanese university students learning English. Then, I will show that semantic and syntactic principles function simultaneously from the viewpoint of Antiveridicality proposed in Giannakidou (1998, 2000) and that of Feature Checking under the framework of the Minimalist Program proposed in Chomsky (1993, 1994, 1995, 2000).

The organization of this paper is as follows: Section 2 will touch on the L2 acquisition model and the theoretical framework and assumptions for the elicited production tasks. Section 3 will introduce the designs of the elicited experiments. Section 4 will analyze the results of the experiment production and will suggest the mechanism of the language faculty for L2 acquisition. Section 5 will state concluding remarks.

2. Theoretical Presuppositions

2.1 UG-based L2 Model

Within the framework of generative grammar, several UG-based models have been proposed on L2 acquisition.² In this subsection, I will briefly review Full Access

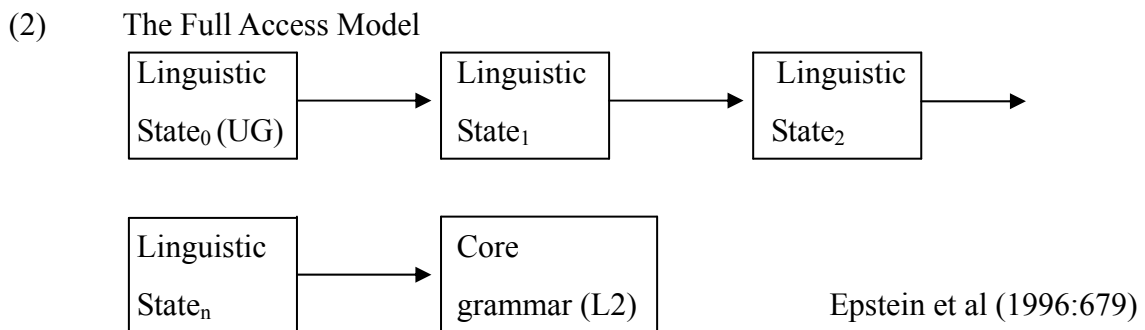
¹ I am grateful to Kleanthes Grohmann for his invaluable comments on this paper. All remaining errors belong to me.

² Vainikka and Young-Scholten (1996) suggest Minimal Trees, in which only L1 lexical categories exist in the L2 initial state and functional categories gradually emerge with access to UG. Eubank (1996) proposes the Valueless Features Hypothesis: the inert features of L1 lexical and functional categories are replaced by L2 feature strength and L2-like grammar is acquired. Schwartz and Sprouse (1996) advocate the Full Access/Full Transfer hypothesis, which means that L1 lexical and functional categories, features,

(without Transfer) Hypothesis among them. Epstein, Flynn, and Martohardjono (1996) suggest the full complement of lexical and functional categories, features and feature strength. Under this model, no properties of functional categories gradually develop but rather the L2-like grammar is finally acquired via UG. This model explains not only the process of bilingual acquisition but also the data in (1) collected from Turkish child learners of English. Within the first three months, their word order, (1a)-(1d), is similar to that of Turkish, which is head-final in lexical and functional projections. As (1e)-(1h) show, they present the English word order for about four months. It can be assumed from this fact that the L2 grammar of Turkish child learners converged into English grammar via UG through exposure to English.

- (1a) I something eating.
 (1b) Would you like to outside ball playing?
 (1c) Finish no.
 (1d) Play no.
 (1e) You eating apple.
 (1f) I am talking very very fast.
 (1g) I not eat cornflake.
 (1h) I don't know where I go.
- Haznedar (1997:247-251)

I will follow the Full Access (without Transfer) proposed in Epstein et al. (1996). That is, I will assume that learners acquire their second language via UG without any L1 influence as shown in the diagram in (2).



2.2 The Language Faculty in L1 Acquisition

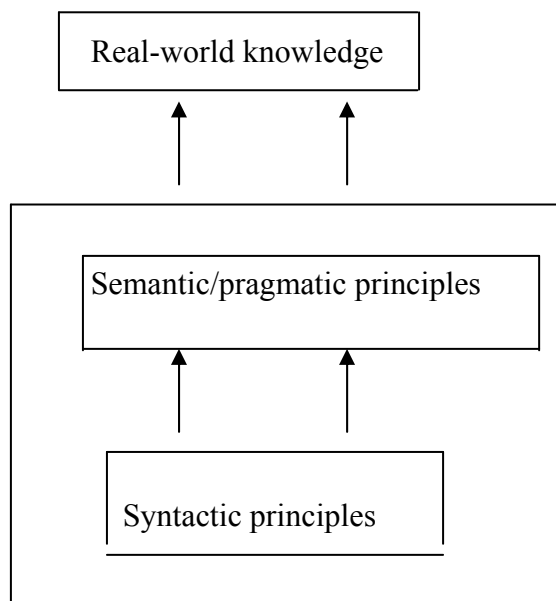
The UG-based Modularity Matching Model (4), proposed in Crain and Thornton (1998: 31), accounts for the relation between linguistic representation and linguistic performance. This model is summarized as follows.

- (3a) Unlike other cognitive systems such as real-world knowledge, the language faculty independently operates in accordance with its own principles and rules.
 (3b) Assuming that children have the same language-processing system as adults, their processing capacities and memory limitations are speculated to be similar to those of adults.
 (3c) First, syntactic representations are built and then semantic and pragmatic representations are formed in the hierarchically organized language apparatus.

and feature strength appear in the L2 initial state and that L2 learners restructure functional properties by way of UG in exposure of L2 input.

Only final outputs from the language faculty touch real-world knowledge.

(4) The Modularity Matching Model



The Language Faculty

As Crain and Thornton (1998) claim, limited linguistic experiences are helpful only to choose parametric values proper to the target language (L1). In other words, this model can account for so-called Plato's problem (= poverty of stimulus) that children produce infinite sentences based on finite linguistic experiences. Moreover, it can explain the fact that children gradually converge to adult grammar, abandoning their temporary grammar in their development and maturation with positive evidence as a cue. For these reasons, I will presuppose this model and will design the experiments in order to investigate the inner function of the language faculty in second language acquisition.

2.3 The Theoretical Framework

Giannakidou (1998) states, on one hand, that affective polarity items (APIs) are sensitive to nonveridicality, as defined in (5).³ On the other hand, she claims that negative polarity items (NPIs) are the subset of APIs are sensitive to antiveridicality (6) and comply with the licensing condition (7), which allows NPIs to be licensed in antiveridical sentences.⁴

- (5) *Licensing condition for affective polarity items*: An affective polarity item α will be licensed in a sentence S if and only if S provides some expression γ which is *nonveridical*, and α is in the scope of γ . (Giannakidou 1998:141)

³ Following Klima (1964), Giannakidou (1998,2000) defines that *affective* means being undetermined. As for the details of [+affective] features, see Klima (1964).

⁴ Giannakidou (2000) simplifies the licensing conditions as to polarity items. This paper adopts the versions of Giannakidou (1998), as discussed in the text. For details, see Giannakidou (2000).

- (6) *Antiveridicality*: In a context, c (where $c = \langle \text{cg}(c), W(c), M, s, h, w_0, f, \dots \rangle$), an operator Op is antiveridical if and only if it holds that:

$\llbracket Op p \rrbracket_c = 1 \rightarrow 0$ in some epistemic model $M(x) \in c$. (Giannakidou 1998:142)

- (7) *Licensing condition for negative polarity items*

A negative polarity item α will be licensed in a sentence S

if and only if S is *antiveridical*.

(Giannakidou 1998:141)

Based on (5)-(7), Giannakidou concludes that *not* and *without* are always antiveridical, as in (8a) and (8b), whereas *before* can be veridical and antiveridical. In the case of (8c) where *before* is antiveridical, NPIs are not directly licensed as seen in (7) but are indirectly licensed as in (9-ii).

- (8a) Frank didn't bring flowers. \rightarrow

It is not the case that Frank brought flowers.

- (8b) Jacob spoke without opening his eyes. \rightarrow

It is not the case that Jacob opened his eyes.

- (8c) Ruth died before she saw her grandchildren. \rightarrow

It is not the case that Ruth saw her grandchildren. Giannakidou (1998:142-143)

- (9) *Licensing conditions for affective option for APIs*

i. An affective polarity item α will be licensed in a sentence S

if and only if S provides some expression γ which is nonveridical, and α is in the scope of γ .

ii. In certain cases, α may be licensed indirectly in S if and only if

S gives rise to a negative implicature ϕ , and α is in the scope of negation in ϕ .

Giannakidou (1998:149)

Ota (1980) points out that *before* and C^0 (complementizer, which introduces interrogatives) are less negative than *not*, which displays overt negative context. Ota orders sentences with overt negative context, interrogatives, and *before*-clauses as in (10). *Before*-clauses are the lowest in negativity whereas sentences with *not* are the highest. This is why *without*-phrases and *not*-clauses obey the direct licensing condition (7) while interrogative sentences and *before*-clauses fulfill the indirect licensing condition (9-ii).

- (10) sentences with overt negative context (e.g. *not*) > interrogatives > *before*-clauses

In addition, I will presuppose feature checking advocated in the Minimalist Program as a core principle. Kawashima and Kitahara (1992) claim that [+NEG] features are checked off as in (11). In order to account for *without*-clauses, I will suggest the revised version of "[+NEG] Feature Checking" as seen in (12).⁵

- (11) Checking Principle

Morphological features must be checked off.

Kawashima & Kitahara (1992:141)

⁵ Since Chomsky (1993), morphological features have been called formal features.

- (12) [+NEG] Feature Checking (Revised)
- i. [_{NegP} NPI_[+NEG] [_{Neg'} Neg_[+NEG] ...]] Kawashima & Kitahara (1992:142)
 - ii. [_{CP} NPI_[+NEG] [_{C'} C_[+NEG] [_{IP}...]]] Kawashima & Kitahara (1992:145)
 - iii. [_{PP} NPI_[+NEG] [_{P'} P_[+NEG] [_{IP}...]]]

As observed in (12a), [+NEG] features are checked between the spec and the head of NegP within IP, thereby licensing the NPIs. In (12b), [+NEG] features are checked between the Spec and the head of CP and NPIs are licensed. In (12c), [+NEG] features are checked between the Spec and the head of PP, which is specified for [+NEG] by the negative complementizer and possesses IP as its internal structure, in order to license the NPIs.⁶

3. The Design of the Elicited Production

3.1 Target Sentences

From the syntactic viewpoint, there is a difference between Japanese and English with respect to licensing NPIs: on one hand, both subject and object NPIs are symmetrically licensed in Japanese IPs. On the other hand, only object NPIs are licensed in English IPs.⁷ In order to test whether syntactic and semantic principles function in the same time, IPs with subject NPIs, which are excluded only by syntactic principles, will not be taken into consideration and the target sentences will be limited to IPs, CPs, and PPs with object NPIs as exemplified by (13).

- (13a) John didn't buy anything.
- (13b) Did you meet anyone?
- (13c) Mary died before she saw any of her grandchildren.
- (13d) The man got out without taking anything.

3.2 Experimental Hypothesis and Expected Results

Under the above theoretical framework, I suggest the following experimental hypothesis.

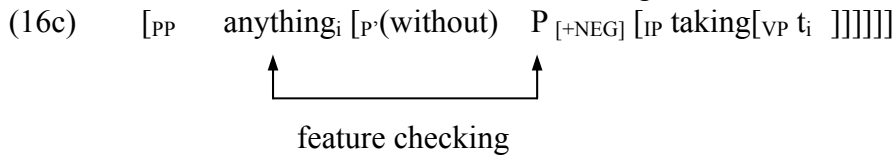
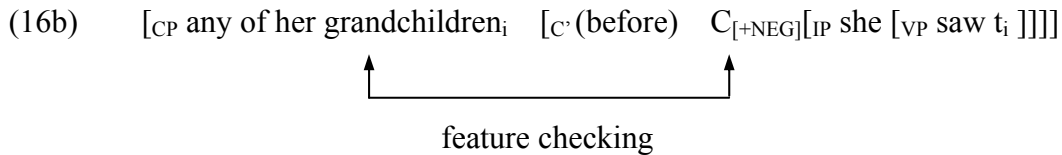
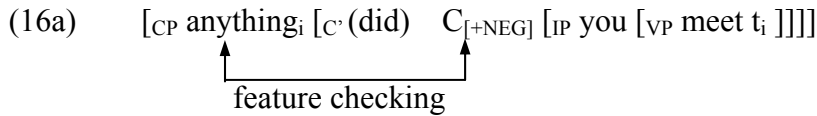
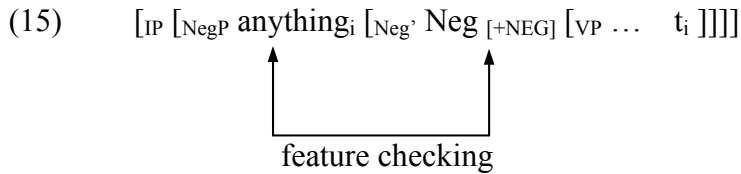
- (14) Experimental Hypothesis
L2 Learners comply with [+NEG] feature checking and licensing conditions based on non/anti veridicality simultaneously.

If semantic principles worked after syntactic principles like L1 case, the derivations would be roughly divided into two types as observed in (15) and (16). In (16a), an NPI moves to the Spec of NegP within IP for [+NEG] feature checking. In (16a) and (16b), NPIs move to the Specs of CPs in order to check [+NEG] features. In (16c), an NPI moves to the Spec of PP for [+NEG] feature checking. The movement of (15) is shorter than those of (16a), (16b), and (16c).

⁶ For example, *after that Bill left* is ungrammatical. For this reason, PP can be generally considered to take IP as its complement (Norbert Hornstein, personal communication).

⁷ English NPIs are asymmetrically licensed as follows. For details, see Haegeman (1995:70-71).

- (i) I did not see anyone.
- (ii) *Anyone did not go there.



In short, the former derivation is more economical than the latter ones.⁸ For this reason, I predict (17) concerning the correct rates on elicited production tasks.

(17) Expected Result

**not*-clauses › interrogatives, *before*-clauses, *without*-phrases

3.3 The Design of the Experiments

The details of the subjects are shown in (18). Each experiment, whose sample stimuli are translated from the actual Japanese version into an English one for convenience, is depicted in (19)-(22).

(18) Subjects:

- (i) freshmen at Tokyo University of Marine Science and Technology with 352.3 as their TOEIC average score
- (ii) freshmen at Hosei University with 439.7 as their TOEIC average score

(19) Experiment 1

Target sentence: John didn't buy anything.

Sample stimuli:

John went to a department store to buy a tie. He looked around and tried many ties.

But he didn't like them. Finally,

'John-wa nani-mo kawa-nakat-ta.' (Translate this into English).

(20) Experiment 2

Target sentence: Did you meet anybody in Tokyo Disneyland?

Sample stimuli:

Linda and her younger sister went to Tokyo Disneyland. They were beside themselves with enjoying many attractions and vehicles. When they came back home, their mother asked them.

Tokyo Dizuniirando-de pro (=you) dareka-ni at-ta?

(Translate this into English.)

⁸ For the details of economy on derivation, see Chomsky (1991).

(21) Experiment 3

Target sentence: Mary died before she saw any of her grandchildren.

Sample stimuli:

Mary was looking forward to having her grandchildren, who are now five years old and three years old. However, she suffered from cancer and died seven years ago.

‘Marii-wa dono mago nimo awanai uchini naku-nat-ta.’

(Translate this into English.)

(22) Experiment 4

Target sentence: The man got out without taking anything.

Sample stimuli: One evening, a man broke into a convenience store. Immediately a store clerk rang a burglar alarm. Then,

‘Sono otoko-wa nani-mo torazuni nigesatta.’ (Translate this into English.)

4. Results and Discussion

Since the study focuses on [+NEG] feature checking and the licensing conditions on non/anti veridicality, minor mistakes with respect to tense, auxiliaries, and so on are ignored throughout and are included in correct answers.⁹ The results of these four experiments are as follows.

(23) The Result of Experiment 1

The correct rate: 48.78% (120/246)

The data from the subjects:

John didn’t buy anything. (84)

John hadn’t bought anything. (2)

John hadn’t buy anything. (1)

John wouldn’t buy anything. (1)

John don’t buy anything. (1)

John didn’t buy anything of those. (1)

John didn’t buy any tie. (2)

John didn’t buy any ties. (1)

John doesn’t buy anything. (4)

John didn’t bought anything. (2)

John wasn’t bought anything. (4)

John don’t buy anyone. (1)

John didn’t buy anyone. (3)

John haven’t bought anyone. (1)

John didn’t bought anyone. (12)

(24) The Result of Experiment 2

The correct rate: 31.88% (73/229)

The data from the subjects:

Did you meet anyone/anybody in Tokyo Disneyland? (35)

Did you see any character in Tokyo Disneyland? (1)

⁹ Many subjects offer *John bought nothing*. According to Patricia Hironymous (personal communication), *nothing* tends to be used with focus in the contrastive context (i). For this reason, the sentence below is not included in my analysis.

(i) I bought a shirt and suit; Dianne bought some shoes; but John bought nothing.

- Did you come across anyone in Tokyo Disneyland? (1)
 Did you see anyone/anybody in Tokyo Disneyland? (16)
 Did you visit anyone? (1)
 Did you saw anyone in Tokyo Disneyland? (2)
 Did you met anybody in Tokyo Disneyland? (4)
 Have you seen/met anyone in Tokyo Disneyland? (7)
 Had you seen anyone? (1)
 Do you meet anyone in Tokyo Disneyland? (2)
 Do you see anyone in Tokyo Disneyland? (1)
 Are you met anyone in Tokyo Disneyland? (1)
 You meet anyone in Tokyo Disneyland? (1)
- (25) The Result of Experiment 3
 The correct rate: 6.25% (14/224)
 The data from the subjects:
 Mary died before she met any of her grandchild. (1)
 Mary died before she met any grandchildren. (1)
 Mary died before she met any grandchild. (1)
 Mary died before she met any her grandchild. (2)
 Mary died before she met any other grandchild. (1)
 Mary died before she meet/see any grandchild. (2)
 Mary had died before she saw any grandchild. (2)
 Mary had died before she saw any grandchildren. (1)
 Mary dead before she meet any grandchild. (1)
 Mary died before she meets any grandchild. (1)
 Mary passed away before she meets any grandchild. (1)
- (26) The Result of Experiment 4
 The correct rate: 14.61% (32/219)
 The data from the subjects:
 The man got out without taking anything. (27)
 The man get out without take anything. (1)
 The man got out without to take anything. (1)
 The man got out without taking any stuffs. (1)
 The man got out without taking anyone. (1)
 The man get out without taking anyone. (1)

As the above data show, adult L2 learners of English carry out [+NEG] feature checking after they acquire its clausal architecture. As (23) shows, the correct rate of Experiment 1 is higher than any other experiment, which means that the learners obey syntactic principles. From the fact that the correct rates of Experiment 2, Experiment 3, and Experiment 4, whose target sentences involve the same distance of movement, are not identical, we can guess that the licensing conditions based on non/anti veridicality work, too.¹⁰

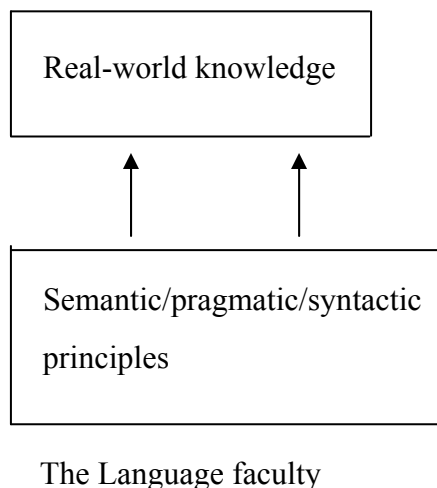
- (27) not > interrogative > without-phrase > before-clause

¹⁰I would like to express my thanks to Harald Clahsen for suggesting that I should take the complexity of the target sentences into consideration. Following his invaluable advice, I will reanalyze the data from these experiments on another occasion.

5. Concluding Remarks

Summing up the above analyses and arguments, adult L2 learners have full access to UG like L1 learners. On the other hand, unlike L1 acquisition, syntactic and semantic principles operate simultaneously in the language faculty as illustrated in (28). This is why L2 learners present lower correct rates in experiments than L1 learners.

(28) The Modularity Matching Model in L2



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