

A Feature-based Analysis of Negative Polarity Items in English Comparative and Interrogative Clauses

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1. Introduction

Song (2011) proposes a licensing mechanism of negative polarity items (NPIs) in terms of the Agree system in Chomsky (2000, 2001), by paying attention to the roles of focus features as well as negative features. This paper suggests that the mechanism works for NPIs in English comparatives and interrogatives as well, and it can give a principled account for the facts that (i) NPIs are licensed in clausal comparatives, but not in phrasal comparatives; (ii) NPIs are licensed in *yes-no* questions, but not in *wh*-questions. This paper only deals with weak NPIs such as *any* and *ever*.

2. Theoretical Background

In the seminal work on negation by Klima (1964), it is suggested that the environments in which NPIs occur include negatives, interrogatives, restrictives, conditionals, and adversatives, and they are characterized by a morphosyntactic feature [Affective], which triggers the occurrence of NPIs¹. Along the lines of Klima's analysis, Song (2011) proposes that negative markers like *not* have an interpretable affective feature (henceforth, an [i-Aff] feature), while NPIs have an uninterpretable affective feature (henceforth, a [μ -Aff] feature). Evidence in support of the assumption

that the affective feature on NPIs is uninterpretable comes from sentences like (1). That the answer *anything* is unacceptable here suggests that NPIs cannot express negation independently.

- (1) What have you seen? * Anything! (Roberts (2007: 65))

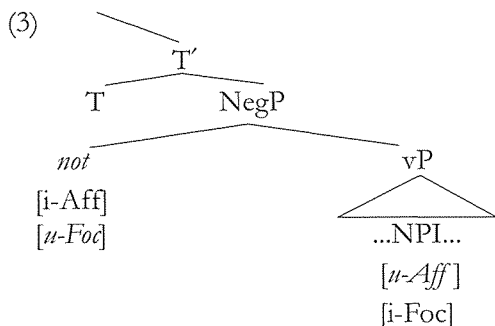
Under Chomsky's (2000, 2001) Agree system, both a probe and a goal must bear uninterpretable features to be active for Agree. Therefore, if we are to develop a mechanism of NPI licensing where negative markers enter into an Agree relation with NPIs, it is necessary to assume that besides an affective feature, there is another kind of feature which is interpretable on NPIs, but is uninterpretable on negative markers.

To figure out what the relevant feature is, we should notice Klima's (1964) observation that the NPI *any* can be licensed by *only* as a focus adverb, as shown in (2).

- (2) Only young writers ever accept suggestions with *any* sincerity.
(Klima (1964: 311))

Given that the function of a focus adverb is to specify that the element it is associated with is interpreted as a focus (see Traugott (2006) and the references therein), it is reasonable to assume that both a focus adverb and the element it licenses bear a focus feature. Then, it will follow that NPIs also bear a focus feature, especially an interpretable focus feature (henceforth, an [i-Foc] feature), because they can be licensed by focus adverbs.

With this in mind, let us return to the licensing of NPIs in negatives. As shown in the structure in (3) with the negative marker *not* and NPI, suppose that *not* is generated in the head of NegP with an [i-Aff] feature and an uninterpretable focus feature (henceforth, [μ -Foc] feature)², whilst the NPI bears a [μ -Aff] feature and an [i-Foc] feature. In the system of Chomsky (2000, 2001), the two items enter into an Agree relation and the [μ -Foc] feature on *not* and the [μ -Aff] feature on the NPI are deleted, with the result that the NPI is successfully licensed.



(Song (2011: 151))

3. NPIs in Comparative Clauses

3.1. Facts

As is well-known, comparatives are classified into two categories: the construction in (4), where the comparative particle *than* is followed by a phrase, is termed phrasal comparative; the construction in (5), where *than* is followed by a clause, is termed clausal comparative. Hankamer (1973) argues that *than* in phrasal comparatives is a preposition, whereas *than* in clausal comparatives is a complementizer.

(4) Moscow is older *than* *Washington*. (cf. Hoeksema (1983: 403))

(5) The Sahara was hotter *than* *I had expected it would be*.

(cf. Hoeksema (1983: 403))

As pointed out by Horn (1972), the free choice *any*, like other universal quantifiers, can be modified by adverbs like *almost* or *nearly*, as shown in (6).

(6) a. Almost *all* dogs like meat.

b. Almost *any* dog can bark. (cf. Hoeksema (1983: 403))

This contrasts with the unacceptability of *almost* in front of existential quantifiers, as shown in (7).

(7) a. *Almost *some* boys were swimming.

b. *Almost *a* dog was barking. (cf. Hoeksema (1983: 409))

Since the NPI *any* is regarded as the counterpart to the positive polarity

item *some*, it should belong to the same category of existential quantifiers as *some*. Therefore, it is predicted that the NPI *any* cannot be modified by *almost* or *nearly*; this is indeed the case, as shown in (8), where *almost* and *nearly* in front of *anyone* render the sentences ungrammatical.

- (8) a. They didn't talk to (*almost) *anyone*.
 b. The police doubt that (*nearly) *anyone* is in the bank safe.
 (Hoeksema (1983: 409))

Turning now to the occurrence of *any* in comparatives, one way of telling whether it is the NPI *any* or free choice *any* is to place *almost* or *nearly* before it. First, the grammaticality of the following examples indicates that *any* occurring in phrasal comparatives is the free choice *any* and NPIs cannot be licensed in phrasal comparatives.

- (9) a. This girl is smarter than almost *any* boy.
 b. One diamond is more valuable than almost *any* number of bricks.
 c. This movie is more important than nearly *anything* by Antonioni.
 (Hoeksema (1983: 409))

In contrast, the following example shows that *any* occurring in clausal comparatives cannot be preceded by *almost*, suggesting that it is the NPI *any* and NPIs can be licensed in clausal comparatives.

- (10) Susan is lovelier than (*almost) *anyone* expected her to be.
 (cf. Hoeksema (1983: 424))

The same contrast is also observed with other NPIs like *ever*. In (11a), which contains a phrasal comparative, *ever* can be modified by *almost*, while *ever* cannot be modified by *almost* in (11b), which contains a clausal comparative.

- (11) a. Housing affordability is better than (almost) *ever*.
 b. I love you than I could (*almost) *ever* say.

Why can NPIs appear in clausal comparatives, but not in phrasal comparatives? Among the previous studies on this issue, Hoeksema (1983) suggests that comparative adjectives or adverbs denote a Boolean

homomorphism in phrasal comparatives, while they denote an anti-additive function in clausal comparatives. Since anti-additivity can trigger NPIs (see note 1), it follows that only clausal comparatives can license NPIs. On the other hand, Zepter (2003) proposes that the licensing condition on NPIs is that they be contained in a particularly strong statement. Since clausal comparatives, but not phrasal comparatives, could possibly contain a strong statement, only the former may license NPIs. However, it should be noted that both Hoeksema's (1983) and Zepter's (2003) analyses are descriptive and simply a statement of the relevant facts. Therefore, the remainder of this section attempts to provide a principled explanation of the contrast in NPI licensing between phrasal comparatives and clausal comparatives.

3.2. The Feature Specification of Comparatives and NPI Licensing

Recall from section 2 that the NPI *any* has a [μ -Aff] feature and an [i-Foc] feature, entering into an Agree relation with negative markers, as schematized in (3). On the other hand, the free choice *any* apparently does not need licensing via Agree, so it has no formal features.

Next, if we are to achieve a unified analysis of NPI licensing, it is necessary to assume that all types of affective contexts share the same formal features. Given that negative markers bear an [i-Aff] feature and a [μ -Foc] feature (see section 2), it will follow that the comparatives discussed here, especially clausal comparatives which license NPIs, should also involve an [i-Aff] feature and a [μ -Foc] feature. Then, a question will arise which element bears these formal features in clausal comparatives. As shown in (12) and (13), phrasal comparatives and clausal comparatives share the comparative form of an adjective or adverb, so it cannot be the locus of these formal features. Since the most fundamental difference between the two types of comparatives lies in the nature of *than*, suppose that the complementizer *than* in clausal comparatives bears an [i-Aff] feature and a [μ -Foc] feature, whereas the prepositional *than* in phrasal

comparatives bears no formal features.

(12) Susan is lovelier than (almost) *anyone*. (free choice *any*)

(13) Susan is lovelier than *anyone* expected her to be. (NPI *any*)

(Hoeksema (1983: 424))

The Agree operation taking place in clausal comparatives is illustrated in (14); the derivation converges because the $[u\text{-Foc}]$ feature on *than* and $[u\text{-Aff}]$ feature on *anyone* are deleted under the Agree relation between the two elements.

(14) Susan is lovelier than _{$[u\text{-Foc}]$ $[i\text{-Aff}]$} anyone _{$[i\text{-Foc}]$ $[u\text{-Aff}]$} expected her to be.
┌───────────┐
Agree
└───────────┘

On the other hand, phrasal comparatives cannot license NPIs, as illustrated in (15); the derivation crashes because no Agree relation is established with *anyone* and hence its $[u\text{-Aff}]$ feature cannot be deleted.

(15) *Susan is lovelier than anyone _{$[i\text{-Foc}]$ $[u\text{-Aff}]$} . (NPI *any*)
┌───────────┐
Do not Agree
└───────────┘

3.3. Consequences

So far, we have argued that it is not the comparative form, but the complementizer *than* that licenses NPIs. It is therefore predicted that NPIs cannot occur in contexts which have the comparative form, but not the complementizer *than*. This is indeed the case, as shown in (16) and (17), where the comparative adjectives take the sentential complements without the complementizer *than*.

(16) a. It is better to do *something* rewarding.

b. * It is better to do *anything* rewarding. (NPI reading)

(17) a. It is better that *some* rules are added to prevent abuse.

b. * It is better that *any* rules are added to prevent abuse.

(NPI reading)

A further consequence of the present analysis is that it accounts for the occurrence of NPIs not only in comparatives with *-er/more*, but in *as*-comparatives as well. This is a significant advantage over the analysis

based on the concept of downward entailment that NPIs are licensed in downward entailing contexts (e.g. Linebarger (1981)). Consider the following examples, which show that comparatives with *-er/more* are downward entailing, but *as*-comparatives are not.

(18) It rains more often than I eat bread. \Rightarrow It rains more often than I eat whole-wheat bread. (Linebarger (1981: 139))

(19) It rains as often as I eat bread. \nRightarrow It rains as often as I eat whole-wheat bread. (Linebarger (1981: 139))

However, no difference is observed between the two types of comparatives in NPI licensing: like comparatives with *-er/more*, *as*-comparatives can license NPIs when they are clausal comparatives, as shown in (20). This poses a serious problem for the analysis of NPI licensing based on downward entailment. Moreover, the contrast in (20) shows that the prepositional *as* and the complementizer *as* behave differently in NPI licensing, which is parallel to the contrast between the prepositional *than* and the complementizer *than* observed above.

- (20) a. Susan is as lovely **as** (almost) *anyone*. (free choice *any*)
 b. Susan is as lovely **as** (*almost) *anyone* expected her to be. (NPI *any*)

This fact can be accounted for by extending to *as*-comparatives the analysis of comparatives with *than* proposed in the previous section. Assuming that the complementizer *as* bears an [i-Aff] feature and a [*u-Foc*] feature like the complementizer *than*, the derivation of (20b) will be as in (21), where *as* enters into an Agree relation with *anyone*, deleting the [*u-Foc*] feature on *as* and the [*u-Aff*] feature on *anyone*. On the other hand, if the prepositional *as* bears no formal features like the prepositional *than*, it cannot license NPIs and hence only a free choice reading is available to *anyone* in (20a).

- (21) Susan is as lovely as_{[u-Foc][i-Δff]} anyone_{[i-Foc][u-Δff]} expected her to be.
Agree

4. NPIs in Interrogative Clauses

4.1. Facts

It is interesting to notice that NPIs can occur in *yes-no* (polar) questions, but *wh*-questions generally resist the occurrence of NPIs, as shown in the contrast between (22a, b) and (22c-h).

- (22) a. Have you bought John any books?
 b. Have you bought a book to any students?
 c. *Who have bought John any books?
 d. *What have you bought to any students?
 e. *When have you bought John any books?
 f. *Where have you bought John any books?
 g. *Why have you bought John any books?
 h. *How have you bought John any books?³

There exist some cases where NPIs occur in *wh*-questions. These cases tend to be interpreted rhetorically, whereas NPIs in *yes-no* questions can be used in information seeking contexts (Progovac (1993), Ladusaw (1997), and Hoeksema (2006)).

The Chinese data in (23) also provide evidence that NPIs can only occur in *yes-no* questions. In Chinese, *shenme* serves as either a *wh*-word meaning ‘what’ or an NPI meaning ‘anything’. In (23a), the NPI reading of *shenme* is not available, because NPIs cannot be licensed in *wh*-questions. On the other hand, the NPI reading of *shenme* is possible in (23b), which is a polar question marked by the *yes-no* question particle *ma*.

- (23) a. Shei shuo-le shenme?
 who say-_{ASP} what
 ‘Who said what?’
 b. Shei shuo-le shenme ma?

who say_{-ASP} anything Q_{yes-no}

‘Is there anybody who said something?’

(NPI reading, a *yes-no* question)

‘Nobody said anything.’ (NPI reading, a rhetorical question)

There is some disagreement on whether NPIs can be licensed in *wh*-questions in English. Some of my informants suggested that NPIs cannot occur in non-rhetorical *wh*-questions or information seeking questions. Since rhetorical questions and information seeking questions should be treated separately (see Han (2002)), I would therefore take the general observation that NPIs can only occur in *yes-no* questions as a premise of the following discussion, despite the complexities involved.

4.2. Analysis

4.2.1. The *Yes-No* Question

Since NPIs can be licensed in *yes-no* questions, it follows from the present analysis that there are matching features, namely an [i-Aff] feature and a [μ -Foc] feature, in a position c-commanding NPIs in *yes-no* questions. Given that the illocutionary force of questions lies in C (Chomsky (1995)) and is related to making questions affective in the sense of Klima (1964), it is reasonable to assume that an [i-Aff] feature and a [μ -Foc] feature are located in C in *yes-no* questions. Moreover, following the standard analysis that C in questions bears a Q-morpheme (Chomsky and Lasnik (1977), Huang (1982), Lasnik and Saito (1984), and Radford (2009)), suppose that the Q-morpheme in C bears these formal features. Then, the derivation of (22a) will be as in (24) (with T-to-C movement of *have* omitted).

(24) [_{CP} [_C ϕ _{[μ -Foc][i-Aff]]] [_{TP} you have bought John any_{[i-Foc][μ -Aff]] books]]}}

Agree

As shown in (24), the Q-morpheme, which is phonetically null and hence represented as ϕ , enters into an Agree relation with *any*, deleting the [μ -Foc] feature on ϕ and the [μ -Aff] feature on *any*. The derivation converges and NPIs are successfully licensed in *yes-no* questions⁴.

4.2.2. The *Wh*-Question

Let us begin by considering the feature specification of *wh*-phrases. There have been a number of studies observing the syntactic, semantic, and phonological similarities between a focus and a *wh*-phrase. First, *wh*-phrases are required to appear in the designated structural position for foci in languages like Hungarian, Chadic, and Malayalam (Brody (1990), Tuller (1992), Jayaseelan (2003), and Kim (2006)). Thus, *wh*-movement in these languages is an instance of focus movement, which will suggest that *wh*-phrases carry a focus feature that enables them to occupy the same position as foci.

Second, the semantics of questions closely resembles that of sentences with a focus, in that a focus evokes alternatives like a *wh*-phrase in a question. According to Kim (2006), the focus semantic value of a sentence is the set of propositions obtained by replacing the focus with alternatives of the same type.

- (25) $[[\text{John}]_F \text{ left}]^f$
 = {that John left, that Bill left, that Amelie left, ...}
 = $\{p : p = \lambda w. x \text{ left in } w/x \in D\}$ (Kim (2006: 525))

In much the same way, the denotation of a *wh*-question is the set of propositions corresponding to its potential answers.

- (26) Who left?
 {that John left, that Bill left, that Amelie left, ...}
 $\{p : p = \lambda w. x \text{ left in } w/x \in D\}$ (Kim (2006: 526))

Third, *wh*-phrases phonologically pattern with foci in that they are both stressed. This is particularly clear in languages where *wh*-phrases and indefinites share the same morphology. For example, the following examples show that in German and Korean, a *wh* in-situ must be stressed in order to be interpreted as a question word, while it is interpreted as an indefinite without stress. This fact also reveals that there is a close connection between *wh*-phrases and indefinites: they are both existential quantifiers, only differing in the presence/absence of a *wh*-feature (as well

as stress).

- (27) a. Wer hat WAS gelesen? (German)
 Who has what read
 ‘Who read what?’
 b. Wer hat was gelesen?
 Who has what read
 ‘Who read something/anything?’ (Kim (2006: 525))
- (28) a. Mira-ka MWUES-ul masi-ess-ni? (Korean)
 Mira-NOM what-ACC drink-PAST-Q
 ‘What did Mira drink?’
 b. Mira-ka mwues-ul masi-ess-ni?
 Mira-NOM what-ACC drink-PAST-Q
 ‘Did Mira drink something/anything?’ (Kim (2006: 525))

These similarities to foci will lead us to assume that *wh*-phrases bear an [i-Foc] feature. Moreover, given that they belong to the category of existential quantifiers of which NPIs are also a member, it is natural to assume that *wh*-phrases share the same formal features as NPIs, namely a [*u-Aff*] feature and an [i-Foc] feature. Then, the structure of (22c) before *wh*-movement will be as in (29), where C is occupied by the Q-morpheme whose feature specification is the same as that in *yes-no* questions (except the EPP feature triggering *wh*-movement, which is omitted here).

- (29) * $[_{CP} [C \phi_{[i-Foc][u-Aff]}] [_{TP} who_{[i-Foc][u-Aff]} [T' have\ bought\ John\ any_{[i-Foc][u-Aff]} books]]]$
- Agree

In (29), ϕ enters into an Agree relation with *who*. This renders *who* inactive for Agree, but it intervenes between ϕ and *any* in the sense of the Defective Intervention Constraint suggested by Chomsky (2000): in the structure where α c-commands β and β c-commands γ , inactive β blocks matching between the probe α and the goal γ . Therefore, ϕ cannot enter into an Agree relation with *any*, so the derivation crashes with the [*u-Aff*] feature left undeleted. The same result is obtained if an NPI is

generated structurally higher than a *wh*-phrase: in this case, ϕ enters into an Agree relation with the NPI, which blocks matching between ϕ and the *wh*-phrase. Hence, the ungrammaticality of NPIs in *wh*-questions is accounted for under the present analysis.

5. Conclusion

This paper has adopted the licensing mechanism of NPIs proposed in Song (2011) in terms of the Agree system in Chomsky (2000, 2001) to analyze NPIs in English comparative and interrogative clauses. Section 3 has proposed the licensing mechanism of NPIs in comparative clauses and has accounted for the fact that NPIs can occur in clausal comparatives, but not in phrasal comparatives. Section 4 has proposed the licensing mechanism of NPIs in interrogative clauses and has given an explanation for the occurrence of an NPI in a *yes-no* question, but not in a *wh*-question. In both comparatives and interrogatives, NPIs enter into an Agree relation with an element in C, allowing a unified treatment of NPI licensing in the two types of clauses. If the arguments in this paper are on the right track, they lend further support to the Feature-based analysis of NPI licensing proposed in Song (2011) and highlight the necessity of a syntactic approach to NPIs.

NOTES

¹ NPIs are classified as in (i), according to Zwarts (1997) and van der Wouden (1997).

- (i) a. Superstrong NPIs:
licensed only by anti-morphic contexts (overt/sentential negation),
e.g. *until*, *either*, and *in* + indefinite time expression.
- b. Strong NPIs:
licensed by anti-morphic and anti-additive contexts (expressions like *nobody*,

never, and without),

e.g. *lift a finger* and *give a damn*.

c. Weak NPIs:

licensed by anti-morphic, anti-additive, and monotone decreasing contexts,

e.g. *ever, at all, and any*.

See (ii) for the definitions of the key terms used in (i).

- (ii) a. A function f is decreasing iff, given $a \subseteq b$, $F(b) \subseteq F(a)$.
- b. A function f is anti-additive iff $F(a \vee b) = F(a) \wedge F(b)$.
- c. A function f is anti-morphic iff anti-additive and additionally $F(a \wedge b) = F(a) \vee F(b)$, i.e. iff F is a classical negation.

(\subseteq : a subset of or equal to, \wedge : and, \vee : or.)

² The existence of a focus feature in negatives is also suggested by Watanabe (2004) and Tubau Muntaña (2008).

Watanabe (2004) proposes to explain the parametric variation in negatives among three languages. According to him, concord items in West Flemish like *niemand* ‘nobody’ and *geen-NP* ‘no-NP’ do not bear focus morphology. On the other hand, in Modern Greek and Japanese, focus morphology, i.e. stress in Modern Greek and the particle *mo* in Japanese, is an indispensable element of concord items. Accordingly, Watanabe posits that a negative quantifier has a [μ -*Foc*] feature only optionally in West Flemish, whereas it always bears a [μ -*Foc*] feature in Modern Greek and Japanese.

On the basis of data from strict negative concord varieties of non-standard English, Tubau Muntaña (2008) suggests that *never* should be characterized as a negative marker with an interpretable negative feature and a [μ -*Foc*] feature.

³ The judgments of these examples are obtained with the help of a few native speakers of English. There is judgment variation among them concerning the acceptability of (some of) these examples. For example, one of the informants suggested that (22g, h) are less unacceptable than (22c-f). This paper somewhat idealizes the relevant judgments, putting aside complexities such as this.

⁴ An important theoretical question to ask at this juncture is how ϕ and *any* should enter into an Agree relation despite the fact that the v^*P phase boundary intervenes between these two elements. It might be possible that the object moves covertly to Spec- v^*P , which is a position accessible from C (cf. Phase-Impenetrability Condition (Chomsky (2000))), thereby allowing the Agree relation between ϕ and *any*.

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Synopsis

A Feature-Based Analysis of Negative Polarity Items in English Comparative and Interrogative Clauses

Wei Song

This paper analyzes NPIs in English comparative and interrogative clauses in terms of the licensing mechanism of NPIs proposed in Song (2011).

Section 2 gives an overview of Song (2011), in which it is proposed that an affective element like *not* bears a [μ -Foc] feature and an [i-Aff] feature, whilst an NPI bears an [i-Foc] feature and a [μ -Aff] feature. In the system of Chomsky (2000, 2001), the two items enter into an Agree relation and the [μ -Foc] and [μ -Aff] features are deleted, with the result that the NPI is licensed.

Section 3 provides the licensing mechanism of NPIs in comparative clauses. Horn (1972) observes that the free choice *any*, like other universal quantifiers, can be modified by adverbs like *almost* or *nearly*, whilst the NPI *any*, like other existential quantifiers, cannot be modified by such adverbs. Therefore, the fact that they can modify *any* in phrasal comparatives, but not in clausal comparatives leads us to assume that NPIs can only occur in clausal comparatives. Given the mechanism introduced in section 2, it is proposed that the complementizer *than* bears an [i-Aff] feature and a [μ -Foc] feature, whilst the prepositional *than* bears no relevant formal features. The complementizer *than* enters into an Agree relation with an NPI, resulting in the deletion of the [μ -Foc] and [μ -Aff] features. The latter part of section 3 discusses consequences of the present analysis. First, it accounts for the fact that NPIs do not occur in comparative clauses lacking the complementizer *than*. Second, it also applies to *as*-comparatives, whose behavior cannot be accounted for under a semantic approach based on downward entailment.

Section 4 provides the licensing mechanism of NPIs in interrogative clauses, accounting for the fact that NPIs are more likely to occur in *yes-no* questions than in *wh*-questions. It is proposed that in *yes-no* questions the interrogative morpheme in C enters into an Agree relation with the NPI it c-commands, whereas in *wh*-questions the *wh*-phrase blocks the Agree relation

between the interrogative morpheme and the NPI due to the Defective Intervention Constraint.

If the arguments in this paper are on the right track, they lend further support to the feature-based analysis of NPI licensing proposed in Song (2011) and highlight the necessity of a syntactic approach to NPIs.