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This paper is an exploratory study on the syntactic structure of English, Korean and Chinese. Based on the minimalist approach proposed by Adger (2003), the study attempts to discover the relationships of the syntactic structure among the three languages via analyzing unergative sentence, unaccusative sentence and transitive sentence in these languages from a comparative perspective. This paper makes comparative analysis on the syntactic structure of English, Korean and Chinese, which brings out implication for the study of languages in the different typological types.

Keywords: English, Korean and Chinese word order, movement, a minimalist approach

Introduction

The languages of the world present us with a vast array of structural similarities and differences. In order to make a detailed description of the similarities or differences, we might look for the structural features that all or most languages have in common; or we might focus our attention on the features that differentiate them. In the former case, we are searching for language “universals”; in the latter case, we are involving ourselves in “typology” (Crystal, 1997).

In Chomsky’s view, the aim of linguistics is to go beyond the study of individual languages, to determine what the universal properties of language are, and to establish a “universal grammar” that would account for the range of linguistic variation that is humanly possible. Typologists typically study a wide range of languages as part of their enquiry, and tend to make generalizations that deal with the more observable aspects of structure, such as word order, word classes and types of sound. In contrast, universalists rely on in-depth studies of single language, especially in the field of grammar—English in particular—and tend to make generalizations about the more abstract, underlying properties of language (Crystal, 1997). If they are searching for “universals”, the focus on single language seems strange. The detailed study of single language is inevitably going to produce a distorted picture.

Relying on deep studies of single languages, in particular, English as a common language of exemplification, Adger (2003) stated that the cross-linguistic variation arises because of the parameterization of properties of the distribution of features in the clause which is set by universal syntactic principles (the Hierarchy of Projections, and the projection properties of heads under Merge). However, without a typological perspective, it is not possible to anticipate the extent to which our sense of priorities will be upset, because typologists have argued that languages are unpredictably irregular and idiosyncratic (Crystal, 1997).
According to the comparison of the formal similarities which exist in different languages, linguistic typologists have divided the languages into three types: isolating, inflecting and agglutinative languages. Although the typical classification has some evident problems, typological questions are of undoubted interest, especially in relation to the search for language universals. In the isolating languages, like Chinese, all the words are invariable and grammatical relationships are shown through the use of word order. Korean has many characteristics of agglutinative languages that words are built up out of a long sequence of units, which each unit expresses a particular grammatical meaning. English used to be considered as one of the inflecting languages that grammatical relationships are expressed by changing the internal structure of the words. English is in fact a three-in-one language. English and Chinese have the characteristic of isolating languages. Therefore, the ways to express grammatical relationships are similar, such as word order. And English and Korean have the characteristic of agglutinating languages.

This paper attempts to discover the syntactic structure of English, Korean and Chinese by analyzing unergative sentence, unaccusative sentence and transitive sentence in the three languages from a comparative perspective.

**A Comparison Between the English, Korean and Chinese Unergative Sentence**

In this section, the author describes the steps of movement of the English, Korean and Chinese unergative sentences.

**English Unergative Sentence**

Example 1: He was not crying (see Figure 1).

![Figure 1: The movement of English unergative sentence.](image)

The following are the detailed description of the movement of English unergative sentences:

- **Step 1**: Merge $v$ with $vP$ to satisfy the strong uninterpretable feature $[uV^*]$;
- **Step 2**: Merge $v'$ with subject in the specifier of little $vP$ (i.e., the base subject position);
- **Step 3**: Merge the progressive auxiliary “was” with $vP$. The auxiliary “was” has an interpretable categorial feature $Prog$, and it therefore projects $ProgP$;
Step 4: Merge Neg with ProgP;
Step 5: Merge T with NegP;
Step 6: Based on the distribution of the sentential negative head, raise the progressive auxiliary to adjoin T. Because, as the first auxiliary of a sentence, the tense feature on Prog is strong, it needs to be checked locally;
Step 7: T bears a case feature, the past tense feature, uninterpretable Ø features, an EPP (Extended Projection Principle) feature.
Agree:
(1) T[nom]-subject NP [u-case]→ T[nom]-NP[nom] (the case feature of T values the case feature on NP and the features are checked);
(2) T[past]- Prog [uInf:]→ T[past]-Prog [uInf: past] (the tense feature of T values the uninterpretable inflectional feature on Prog and the features are checked);
(3) T receives its value of Ø feature from the subject NP: T[uO]-NP[sing]→T[uO: sing]—NP[sing]
   T values the Ø features of Prog:T[uO: sing]-Prog [uInf:]→T[uO: sing]-Prog [uInf: sing]
Step 8: The interpretable feature Prog on auxiliary values the [uInf:] feature of little v, so that little v ends up being pronounced as “-ing”;
Step 9: Raise Subject NP from specifier of little v to specifier of TP to satisfy the strong EPP feature [uN*].

Korean Unergative Sentence

Example 2: Korean: 그는 울지 않고 있었다.
Romanization: Geuneun ulji anko isseotta.
He-NOM cry-NEG-PROG-PAST.
Meaning: “He was not crying”.

The following are the detailed description of the movement of Korean unergative sentences:
Step 1: Merge v with vP to satisfy the strong uninterpretable feature [uV*];
Step 2: Merge v’ with subject in the specifier of little vP (i.e., the base subject position);
Step 3: Merge progressive inflection “goitta” [Prog] with vP, and it therefore projects ProgP;
Step 4: Merge negative inflection “jianta” with ProgP, and it therefore projects NegP;
Step 5: Merge T with NegP;
Step 6: Raise the progressive inflection to adjoin T. We assume that the tense feature on Prog is strong in Korean, it needs to be checked locally;

Agree:
(1) T[nom]-subject NP[u-case]→ T[nom]-NP[nom] (the case feature of T values the case feature on NP);
(2) In Korean, when uninterpretable inflectional features are valued as tense, they are not always strong. The main lexical verb occurs before the negation, the auxiliary verb occurs after the negation because in Korean, tense feature on v is strong and the tense feature on auxiliary is weak. We can not raise the whole little v complex to T;
(3) Solution: Since Korean is an agglutinative language that words are built up out of a long sequence of units, which each unit expressing a particular grammatical meaning, we assume that the interpretable feature of Prog on “goita” values the uninterpretable inflectional feature of little v; the interpretable feature of Past on “eutta” values the uninterpretable inflectional feature of little v, so that little v ends up being pronounced as “-jiangoisseotta” (negative-progressive-past).
Step 7: Raise subject NP from specifier of little v to specifier of TP to satisfy the strong EPP feature [uN*].

Chinese Unergative Sentence
Example 3: Chinese:  ൵ृंcaa (see Figure 3).
Romanization: Ta -meivou-zai ku.
He-NEG-PROG cry.
Meaning: “He is not crying”.

The following are the detailed description of the movement of Chinese unergative sentences:
Step 1: Merge v with vP to satisfy the strong uninterpretable feature [uN*];
Step 2: Merge v’ with subject in the specifier of little vP (i.e., the base subject position);
Step 3: Merge zai[prog] with vP, and it therefore projects ProgP;
Step 4: Merge meivou [neg] with ProgP, it therefore projects NegP;
Step 5: Merge T with NegP;
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Agree:
(1) $T[\text{nom}]$-subject NP[ucase] $\rightarrow$ $T[\text{nom}]$-NP[nom] (the case feature of $T$ values the case feature on NP);
(2) In Chinese, both main verb and the auxiliary appear to the right of negation (i.e., Neg first), because the uninterpretable tense feature is always valued as weak on both auxiliaries and on $v$.

Step 6: The interpretable feature of Prog on “zai” values the uninterpretable inflectional feature of little $v$; the interpretable feature of Past on $T$ values the uninterpretable inflectional feature of little $v$, so that little $v$ ends up being pronounced as “–meiyouzai” (negative-progressive-past);

Step 7: Raise subject NP from specifier of little $v$ to specifier of TP to satisfy the strong EPP feature $[uN^+]$.

To sum up, EPP features on $T$ is strong in all of the three languages, so the Subject needs to be raised to the specifier of TP. However, the three languages show the different properties of parameterization of feature strength. In English, the auxiliary occurs before the negation and the main verb occurs after the negation because the uninterpretable tense feature on auxiliary is strong and the uninterpretable tense feature on $v$ is weak. Contrary to English, the Korean main verb occurs before the negation and the auxiliary occurs after the negation because the uninterpretable tense feature on auxiliary is weak and the uninterpretable tense feature on $v$ is strong. In Chinese, the uninterpretable tense feature is weak both on auxiliary and on $v$, so the negation comes before the auxiliary and the main verb.

A Comparison Between the English, Korean and Chinese Unaccusative Sentence

In this section, the author describes the steps of movement of the English, Korean and Chinese unaccusative sentences.

**English Unaccusative Sentence**

Example 4: Water boiled (see Figure 4).

![Figure 4. The movement of English unaccusative sentence.](image)

The following are the detailed description of the movement of English unaccusative sentences:

Step 1: “Boil” takes a single theme argument, and therefore merges with it projecting VP, in accordance with the UTAH (Identical thematic relationships between predicates and their arguments are represented syntactically by identical structural relationships when items are merged);

Step 2: The output of Step 1 then combines with the version of little $v$ which lacks a specifier and [acc]; “boil” raises to this $v$ to satisfy the $[uV^+]$;

Step 3: (1) Merge $T[uN^+]$, nom, past] with the output of Step 2, (2) [nom] on $T$ values case feature on “water”, so even though this NP is merged in object position, it receives nominative case from $T$, (3) [past] on
T values \([u\text{Infl:}]\) on \(v\), so that \(v\) ends up being pronounced as “-ed”, and (4) \([uN^*]\) (EPP feature) on \(T\) is also checked with the \(N\) feature of “water”. Since \([uN^*]\) is strong, triggers movement of this NP into specifier TP.

**Korean Unaccusative Sentence**

Example 5: Korean: 물이 끓었다 (see Figure 5).

Romanization: Muli kkeureotta.

Water-NOM boil PAST.

Meaning: “Water boiled”.

The following are the detailed description of the movement of Korean unaccusative sentences:

Step 1: “Kkeulta” takes a single theme argument, and therefore merges with it projecting VP, in accordance with the UTAH. Identical thematic relationships between predicates and their arguments are represented syntactically by identical structural relationships when items are merged;

Step 2: The output of Step 1 then combines with the version of little \(v\) which lacks a specifier and \([\text{acc}]\); \(kkeulta\) raises to this \(v\) to satisfy the \([uV^*]\);

Step 3: (1) Merge \(T[uN^*, \text{nom, past}]\) with the output of Step 2, (2) \([\text{nom}]\) on T values case feature on “mul-I”, so even though this NP is Merged in object position, it receives nominative case from T, (3) \([\text{past}]\) on T values \([u\text{Infl:}]\) on \(v\), so that \(v\) ends up pronounced as -eotta[past], and (4) \([uN^*]\) (EPP feature) on T is also checked with the \(N\) feature of “mul-I”. Since \([uN^*]\) is strong, it triggers movement of this NP into its specifier.

**Chinese Unaccusative Sentence**

Example 6: Chinese: 水开-le (see Figure 6).

Romanization: Shui kai-le.

Water boil-PERF.

Meaning: “Water boiled”.

The following are the detailed description of the movement of Chinese unaccusative sentences:

Step 1: “Kai” takes a single theme argument, and therefore merges with it projecting VP, in accordance with the UTAH. Identical thematic relationships between predicates and their arguments are represented syntactically by identical structural relationships when items are merged;

Step 2: The output of Step 1 then combines with the version of little \(v\) which lacks a specifier and \([\text{acc}]\); \(kai\) raises to this \(v\) to satisfy the \([uV^*]\);
Step 3: Merge le[perf] with vP, it therefore projects PerfP;

![Diagram of movement of Chinese unaccusative sentence.]

Figure 6. The movement of Chinese unaccusative sentence.

Step 4: (1) Merge T[uN*, nom, past] with the output of Step 2, (2) [nom] on T values case on shui, so even though this NP is Merged in object position, it receives nominative case from T, (3) [past] on T values [uInfl:] on v, [perf] on le values [uInfl:] on v, so that v ends up being pronounced as -le[perfect], and (4) [uN*] (EPP feature) on T is also checked with the N feature of water. Since [uN*] is strong, it triggers movement of this NP into specifier of TP.

In accusative sentence, the strong [uN*] feature triggers movement of NP into its specifier of TP in all of the three languages. And the [past] on T values [uInfl:] on v, so that v ends up with -ed [past] in English, -eotta [past] in Korean and -le [perfect] in Chinese.

**A Comparison Between English, Korean and Chinese Transitive Sentence**

In this section, the steps of movement of the English, Korean and Chinese unergative sentences will be described.

**English Transitive Sentence**

Example 7: Tom has eaten the apple (see Figure 7).
The following are the detailed description of the movement of English transitive sentences:

Step 1: Merge *eat* with NP to satisfy the uninterpretable c-selectional feature \([uN]\) on V;
Step 2: Merge the result of Step 1 with the little \(v[\text{Infl}]: \[uV^*, \text{acc}\] \); raise *eat* to adjoin \(v\) to satisfy the \([uV^*]\) feature on \(v\); Object bears an unvalued uninterpretable \([\text{case}]\) feature; Agree takes place \((v\ values\ [\text{case}]\ on \ Object as \ [\text{acc}]\));
Step 3: Merge Subject in the specifier of little \(vP\) \(\text{(i.e., the base subject position)}\);
Step 4: Merge *has\[\text{perf}\]* with \(vP\). The progressive auxiliary has an interpretable categorical feature Perf, and it therefore projects PerfP;
Step 5: Merge T and PerfP;
Step 6: Based on the distribution of the sentential negative head, raise the Perf auxiliary has to adjoin T. Because, as the first auxiliary of a sentence, the tense feature on Perf is strong, it needs to be checked locally;
Step 7: T bears a case feature, the present tense feature, uninterpretable Ø features, an EPP feature;
Agree:
(1) T[nom]-subject NP[\text{case}]\(\rightarrow\)T[nom]-NP[nom] \(\text{(the case feature of T values the case feature on NP)}\);
(2) T[pres]-Perf \([\text{Infl}: \text{pres}]\to\)T[pres]-Perf[\text{Infl}: \text{pres}];
(3) T receives its value of Ø feature from the subject NP: T \([u\text{Ø}]\text{-NP}\[\text{sing}\]→T \([u\text{Ø}: \text{sing}]\text{-NP}[\text{sing}]\text{.}
T values the Ø features of Perf: T \([u\text{Ø}: \text{sing}]\text{-Perf}\[\text{Infl}: \text{sing}]\to\)T\([u\text{Ø}: \text{sing}]-\text{Perf}[\text{Infl}: \text{sing}]
Step 8: The interpretable feature Perf on “has” values the \([\text{Infl}]:\) feature of little \(v\), so that little \(v\) ends up being pronounced as “-en”;
Step 9: Raise Subject NP from specifier of little \(v\) to specifier of TP to satisfy the strong EPP feature \([uN^*]\).

**Korean Transitive Sentence**

Example 8: Korean: 톰이 그 사과를 먹어버렸다 (see Figure 8).

Romanization: Teomi geu sagau-eul meotte-eoberida-eotta.

Tom-NOM the apple-ACC eat-PERF-PAST.

Meaning: “Tom had eaten the apple.”

The following are the detailed description of the movement of Korean transitive sentences:

Step 1: Merge “meotta” with NP to satisfy the uninterpretable c-selectional feature\([uN]\) on V;
Step 2: Merge the result of Step 1 with little \(v[\text{Infl}]: \[uV^*\], \text{acc}\) \); raise *meotta* to adjoin \(v\) to satisfy the \([uV^*]\) feature on \(v\); Object bears an unvalued uninterpretable \([\text{case}]\) feature; Agree takes place \((v\ values\ [\text{case}]\ on \ Object as \ [\text{acc}]\));
Step 3: Merge subject in the specifier of little \(vP\) \(\text{(i.e., the base subject position)}\);
Step 4: Merge *eobreorida* [\text{perf}] with \(vP\), and it therefore projects PerfP;
Step 5: Merge *eotta* [\text{past}] with PerfP;
Agree: (1) T[nom]-subject NP[\text{case}]\(\rightarrow\)T[nom]-NP[nom] \(\text{(the case feature of T values the case feature on NP)}\), and (2) The interpretable feature of Perf on *eobreorida* values the uninterpretable inflectional feature of little \(v\); the interpretable feature of Past on “eotta” values the uninterpretable inflectional feature of little \(v\), so that little \(v\) ends up being pronounced as “-eobreorida” (perfect-past).
Step 6: Raise Subject NP from specifier of little \(v\) to specifier of TP to satisfy the strong EPP feature \([uN^*]\).
Chinese Transitive Sentence

Example 9: Chinese: ณँचӹ व औँप (see Figure 9).
Romanization: Tangmu chidiao-le nage ping guo.
Meaning: "Tom eat up-PERF the apple."

The following are the detailed description of the movement of Chinese transitive sentences:

Step 1: Merge chidiao with NP to satisfy the uninterpretable c-selectional feature [uN] on V;
Step 2: Merge the result of Step 1 with little V [uInfl: uV*, acc]; raise chidiao to adjoin to V to satisfy the [uV*] feature on V; Object bears an unvalued uninterpretable [case] feature; Agree takes place (V values [case] on Object as [acc]);
Step 3: Merge Subject in the specifier of little V (i.e., the base subject position);
Step 4: Merge Vp with le which has an interpretable categorical feature Perf, and it therefore projects PerfP;
Step 5: Merge T [past] with PerfP;
   Agree: (1) T[nom]-subject NP [uCase] → T [nom]-NP [nom] (the case feature of T values the case feature on NP), and (2) The interpretable feature of Perf on le values the uninterpretable inflectional feature of little V; the interpretable feature of Past on T values the uninterpretable inflectional feature of little V, so that little V ends up being pronounced as “-le” (past-perfect).

Step 6: Raise Subject NP from specifier of little V to specifier of TP to satisfy the strong EPP feature [uN*].

In brief, Subject NP is raised from specifier of little V to specifier of TP to satisfy the strong EPP feature [uN*] in English, Korean and Chinese transitive sentences. However, In English sentence, based on the distribution of the sentential negative head, the Perf auxiliary has needs to be raised to adjoin T. Since the tense feature on Perf is strong, it needs to be checked locally. The interpretable feature Perf on has values the [uInfl:] feature of little V, so that little V ends up with [past-perfect]. On the contrary, in Korean and Chinese, the case feature of T values the case feature on NP. The interpretable feature of Perf values the uninterpretable inflectional feature of little V and the interpretable feature of Past values the uninterpretable Inflectional feature of little V, so that little V ends up with [perfect-past].
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Conclusion

Adger (2003) concluded that the Hierarchy of Projection is $T > (\neg) > (\text{Perf}) > (\text{Prog}) > v > V$, and stated that it is universal, relying on in-depth studies of single language—in particular, English as a common language of exemplification. We can see from the minimalist approach analysis on unergative, unaccusative and transitive sentences in English, Korean and Chinese that Korean and Chinese do not have the same linearization of the basic head-complement structures as that of English. It is because the three languages have different parameterization of distribution features in the clause, as shown in the following table (see Table 1):

<table>
<thead>
<tr>
<th>Feature Strength</th>
<th>English</th>
<th>Korean</th>
<th>Chinese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tense on Aux.</td>
<td>strong</td>
<td>weak</td>
<td>weak</td>
</tr>
<tr>
<td>Tense on $v$</td>
<td>weak</td>
<td>strong</td>
<td>weak</td>
</tr>
<tr>
<td>EPP on $T$</td>
<td>strong</td>
<td>strong</td>
<td>strong</td>
</tr>
<tr>
<td>Word order</td>
<td>S-Aux-Neg-V-O</td>
<td>S-O-V-Neg-Aux</td>
<td>S-Neg-V-Aux-O</td>
</tr>
</tbody>
</table>

From this comparative analysis, it can be seen that in English the auxiliary occurs before the negation, but the main verb occurs after the negation, because the uninterpretable tense feature on auxiliary is strong and the uninterpretable tense feature on $v$ is weak. Secondly, in Korean, the main verb occurs before the negation, but the auxiliary occurs after the negation because the uninterpretable tense feature on auxiliary is weak and the uninterpretable tense feature on $v$ is strong. Thirdly, in Chinese, both the auxiliary and the main verb occur after the negation, because the uninterpretable tense feature is always values as weak both on auxiliary and on $v$. Fourthly, EPP features on $T$ is strong in English, Korean, and Chinese. So in the three languages, Subjects need to be raised to the specifier of TP, that is Subjects come before the Verb in three languages.

References