

Subject: Proposal to add formal aliases to U+11EC through U+11EF  
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As N3172 was accepted, the characters U+11EC, U+11ED, U+11EE, and U+11EF are given aliases.  
<http://www.unicode.org/L2/L2007/07075-n3172.pdf>

- 11EC    ᄂᆞ    HANGUL JONGSEONG IEUNG-KIYEOK  
              = yesieung-kiyeok
- 11ED    ᄂᆞᆫ    HANGUL JONGSEONG IEUNG-SSANGKIYEOK  
              = yesieung-ssangkiyeok
- 11EE    ᄂᆞᆯ    HANGUL JONGSEONG SSANGIEUNG  
              = ssangyesieung
- 11EF    ᄂᆞᆯᆫ    HANGUL JONGSEONG IEUNG-KHIEUKH  
              = yesieung-khieukh

In fact, these characters need to be given formal aliases, instead of general aliases.

## Rationale

1. The Korean standard KS X 1026-1 specifically says the following:  
[https://standard.go.kr/KSCI/lmx/lawFullScreen.do?ks\\_no=KSX1026-1&reform\\_no=01#537660](https://standard.go.kr/KSCI/lmx/lawFullScreen.do?ks_no=KSX1026-1&reform_no=01#537660) (requires additional plugin to view)

8.2 바뀐 한글 낱자의 순서와 이름  
(ISO/IEC 10646:2003 - Amendment) 5 부터는 표 10 과 같이 U + 11EC~U + 11EF 까지 4 개의 한글 낱자에 대하여 주석(annotation)을 통하여 그 이름이 바뀌었다.

표 10 — 이름이 바뀐 한글 낱자

11EC ㅇ기	한글 종성 이음-기역(옛이음-기역) HANGUL JONGSEONG IEUNG- KIYEOK(YESIEUNG-KIYEOK)
11ED ㅇ기	한글 종성 이음-쌍기역(옛이음-쌍기역) HANGUL JONGSEONG IEUNG- SSANGKIYEOK(YESIEUNG-SSANGKIYEOK)
11EE ㅇㅇ	한글 종성 쌍이음(쌍옛이음) HANGUL JONGSEONG SSANGIEUNG(SSANGYESIEUNG)
11EF ㅇ키	한글 종성 이음-키음(옛이음-키음) HANGUL JONGSEONG IEUNG- KHIEUKH(YESIEUNG-KHIEUK)

이는 'ㅇ(이음)'으로 시작하는 잘못된 옛한글 낱자의 이름을 'ㅇ(옛이음)'으로 바로잡은 것으로서, 이들 네 개의 한글 낱자는 ㅇ에 속하는 것이 아닌, ㅇ에 속하는 것으로 구현하고 처리해야 한다. 따라서 한글 폰트를 작성할 때에는 글꼴의 모양을 ㅇ으로 만들어야 하며, 정렬을 할 때에도 ㅇ 뒤쪽으로 순서가 지정되어야 한다.

The English translation of this section is available in N3422:  
<http://www.unicode.org/L2/L2008/08225-n3422.pdf#page=19>

## 8.2 The order and names of changed letters

The names of four Hangul letters U+11EC ~ U+11EF are changed by way of annotations in ISO/IEC 10646:2003 - Amendment 5, as shown in Table 10.

Table 10. Hangul Letters whose names are changed.

11EC ㅇ기	한글 종성 이음-기역(옛이음-기역) HANGUL JONGSEONG IEUNG-KIYEOK(YESIEUNG-KIYEOK)
11ED ㅇ기	한글 종성 이음-쌍기역(옛이음-쌍기역) HANGUL JONGSEONG IEUNG-SSANGKIYEOK(YESIEUNG-SSANGKIYEOK)
11EE ㅇㅇ	한글 종성 쌍이음(쌍옛이음) HANGUL JONGSEONG SSANGIEUNG(SSANGYESIEUNG)
11EF ㅇ켜	한글 종성 이음-키음(옛이음-키음) HANGUL JONGSEONG IEUNG-KHIEUKH(YESIEUNG-KHIEUK)

This was to change the incorrect names of Old Hangul letters beginning with ㅇ (IEUNG) to names beginning with ㅇ (YESIEUNG). These four letters need be implemented and processed by treating that they do not belong to ㅇ (IEUNG) but belong to ㅇ (YESIEUNG). Therefore, when we make a font, their glyphs should be ㅇ (YESIEUNG) and, in sorting, their order should be after ㅇ (IEUNG).

In fact, the last part of this translation is a little bit wrong (everything else in this section is correctly translated).

Original text in Korean version	정렬을 할 때에도 ㅇ 뒤쪽으로 순서가 지정되어야 한다.
Translation in N3422	in sorting, their order should be after ㅇ (IEUNG).
Correct translation	in sorting, their order should be after ㅇ (YESIEUNG).

(Actually, the hangul jamo character used here (ㅇ) is indeed yesieung, but they wrote IEUNG instead of YESIEUNG.)

As the English version of KS X 1026-1 is not considered a formal standard (“If there is any discrepancy between Korean and English versions, the Korean Standard, i.e., the Korean version, is the final authority.”), I think the Korean Agency for Technology and Standards (KATS) did not proofread the English version that carefully.

The consonant table in 부속서 C / Annex C (“표 C.2 - 한글 닿소리 순서” in original KS X 1026-1; “Table C.1 An Order Table for Johab Hangul Consonant Letters” in N3422) correctly shows that U+11EC – U+11EF are sorted after U+11F0 (yesieung).

[https://standard.go.kr/KSCI/lmx/lawFullScreen.do?ks\\_no=KSX1026-1&reform\\_no=01](https://standard.go.kr/KSCI/lmx/lawFullScreen.do?ks_no=KSX1026-1&reform_no=01) (simply go to the end of the document by pressing the “end” key)









<http://www.unicode.org/L2/L2008/08225-n3422.pdf#page=53>

	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ									
	1145	1146	1147	1148	1149	114A	114B	A977	114C								
9									ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ	ㅇ
									11F0	11EC	11ED	D7F5	11F1	11F2	11EE	11EF	
		ㅈ		ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ	ㅊ
		110C		114D	110D	A978	114E	114F	1150	1151	110E	1152	1153	1154	1155		
A	ㅇ	ㅈ	ㅊ	ㅊ		ㅊ						ㅊ					
	D7F6	11BD	D7F7	D7F8		D7F9						11BE					

2. The representative glyphs in the official Unicode code charts were corrected in Unicode 5.2 (along with the addition of 117 archaic hangul jamo):

<http://www.unicode.org/Public/5.1.0/charts/CodeCharts.pdf#page=109>

<http://www.unicode.org/Public/5.2.0/charts/CodeCharts-noHan.pdf#page=112>

Unicode 5.1	Unicode 5.2
 11EC	 11EC
 11ED	 11ED
 11EE	 11EE
 11EF	 11EF

3. Dae Hyuk Ahn, one of the people who were involved in submitting N3172 and N3168 (<http://www.unicode.org/L2/L2007/07076-n3168.pdf>), wrote the following article in 2007: [http://ocean.kisti.re.kr/downfile/volume/kiss/JBGHF3/2007/v34n12/JBGHF3\\_2007\\_v34n12\\_1083.pdf#page=8](http://ocean.kisti.re.kr/downfile/volume/kiss/JBGHF3/2007/v34n12/JBGHF3_2007_v34n12_1083.pdf#page=8)

따라서, 저자를 비롯한 기술표준원의 ‘문자코드 전문 위원회’와 국립국어원을 포함한 한국어 전문가들이 새로운 옛한글 자모를 유니코드에 추가하기로 의견을 모으고, 여러 번의 회의를 거듭한 결과 2006년 7월에 117자의 자모를 확정하였다. 추가할 자모의 개수가 기존의 121자에서 117자로 4자가 줄어들게 된 이유는 종성에 사용되는 옛이응의 용법을 통일한 데 있다. 즉, 기존에 사용되던 ㅇ (U+11EC), ㅇ (U+11ED), ㅇ (U+11EE), ㅇ (U+11EF) 녀자에 포함된 ‘이응’을 ‘옛이응’으로 바꾸어 사용하기로 정한 것이다. 이는 훈민정음 창제 후 한동안 혼용되어 사용되던 종성의 이응과 옛이응이 16세기 이후 옛이응만을 사용하여 왔기 때문이다. (현대한글 종성의 이응은 옛이응과 같은 것이며, 모양만 변경된 것이다.) 따라서 121자에 포함되어 있던 ‘옛이응’에 대응하는 ‘이응’계열 자모들의 쓰임새가 없어지게 되어 117자가 된 것이다. 결과적으로 기존의 글자들은 ‘ㅇ , ㅇ , ㅇ , ㅇ’ 처럼 글꼴을 바꾸어 사용해야 한다.

Translation:

“As a result, the Committee on Character Codes of the Korean Agency for Technology and Standards (including this author) and Korean-language experts including the National Institute of the Korean Language decided to add new archaic hangul jamo in Unicode, and after several meetings, have finalized the list of 117 jamo in July 2006. The reason that the number of the jamo to be added was decreased from 121 to 117 is due to the unification of the usage of yesieung (ㅇ) used in final consonants (jongseong). That is, the ieung (ㅇ) in

ㅇ (U+11EC), ㅇ (U+11ED), ㅇ (U+11EE), ㅇ (U+11EF) are to be changed to yesieung. This is because after Hunminjeongeum was promulgated, ieung and yesieung were mixed in usage for a while; but yesieung is exclusively used after the 16<sup>th</sup> century. (The final consonant (jongseong) ieung in modern hangul is the same as yesieung, but the shape was changed. (See translator’s note for this)) As a result, the jamo with ieung that correspond to the jamo with yesieung in the original 121 jamo became unnecessary, resulting the final number of jamo becoming 117. Thus, the glyphs of those four jamo need to be changed to ‘ㅇ , ㅇ , ㅇ , ㅇ’.”



When they decided to change ieung to yesieung, this is what happened:

Unicode (up to 5.1)	Additional jamo	After ieung → yesieung change
U+11EC (ㅇ ㄱ)	#1: ㅇ ㅁ	U+11EC: ㅇ ㄱ → ㅇ ㄱ
U+11ED (ㅇ ㄱ ㄱ)	#2: ㅇ ㅅ	U+11ED: ㅇ ㄱ ㄱ → ㅇ ㄱ ㄱ
U+11EE (ㅇ ㅇ)	#3: ㅇ ㅎ	U+11EE: ㅇ ㅇ → ㅇ ㅇ
U+11EF (ㅇ ㅋ)	#4: ㅇ ㄱ	U+11EF: ㅇ ㅋ → ㅇ ㅋ
U+11F1 (ㅇ ㅅ)	#5: ㅇ ㅋ	#1: ㅇ ㅁ → ㅇ ㅁ → newly added at U+D7F5
U+11F2 (ㅇ ㅁ)	#6: ㅇ ㅎ	#2: ㅇ ㅅ → ㅇ ㅅ → already at U+11F1 → withdrawn #3: ㅇ ㅎ → ㅇ ㅎ → same as #6 → withdrawn #4: as U+11EC is changed, use U+11EC → withdrawn #5: as U+11EF is changed, use U+11EF → withdrawn #6: newly added at U+D7F6

The withdrawal of four characters changed the total number of additional jamo to 117 from the original 121.

(I had a chance to meet Professor Kyongsok Kim during IRG #43 (November 2014), and asked him about submitting formal aliases (instead of general aliases) to these characters. He said he did not know what a formal alias is, and thanked me for letting him know about that. Since then, the Korean National Body has not taken any action on these characters, and that is why I decided to make this proposal.)

## Conclusion and Proposed Changes

It is clear that the ieung in U+11EC, U+11ED, U+11EE, and U+11EF is “wrong,” and should be “corrected” to yesieung. To correct the names of those characters, it is better to add formal aliases, instead of general aliases.

1. These four rows need to be added in the <http://unicode.org/Public/UNIDATA/NameAliases.txt> file.

```
11EC;HANGUL JONGSEONG YESIEUNG-KIYEOK;correction
11ED;HANGUL JONGSEONG YESIEUNG-SSANGKIYEOK;correction
11EE;HANGUL JONGSEONG SSANGYESIEUNG;correction
11EF;HANGUL JONGSEONG YESIEUNG-KHIEUKH;correction
```

2. In the <http://unicode.org/Public/UNIDATA/NamesList.txt> file, replace the following entries

```
11EC  HANGUL JONGSEONG IEUNG-KIYEOK
      = yesieung-kiyeok
11ED  HANGUL JONGSEONG IEUNG-SSANGKIYEOK
      = yesieung-ssangkiyeok
11EE  HANGUL JONGSEONG SSANGIEUNG
      = ssangyesieung
11EF  HANGUL JONGSEONG IEUNG-KHIEUKH
      = yesieung-khieukh
```

with these:

```
11EC  HANGUL JONGSEONG IEUNG-KIYEOK
      % HANGUL JONGSEONG YESIEUNG-KIYEOK
11ED  HANGUL JONGSEONG IEUNG-SSANGKIYEOK
      % HANGUL JONGSEONG YESIEUNG-SSANGKIYEOK
11EE  HANGUL JONGSEONG SSANGIEUNG
      % HANGUL JONGSEONG SSANGYESIEUNG
11EF  HANGUL JONGSEONG IEUNG-KHIEUKH
      % HANGUL JONGSEONG YESIEUNG-KHIEUKH
```

The code chart should look something like this.

```
11EC  ㄱㅓ  HANGUL JONGSEONG IEUNG-KIYEOK
      ✕ HANGUL JONGSEONG YESIEUNG-KIYEOK
11ED  ㄱㅓㅓ  HANGUL JONGSEONG IEUNG-SSANGKIYEOK
      ✕ HANGUL JONGSEONG YESIEUNG-SSANGKIYEOK
11EE  ㄱㅓㅓ  HANGUL JONGSEONG SSANGIEUNG
      ✕ HANGUL JONGSEONG SSANGYESIEUNG
11EF  ㄱㅓㅓ  HANGUL JONGSEONG IEUNG-KHIEUKH
      ✕ HANGUL JONGSEONG YESIEUNG-KHIEUKH
```

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