

## Noto Sans Khmer UI Proposal

The original Noto Sans Khmer UI has no GPOS so marks in general are poorly placed. Nothing is done to handle above base mark stacking. Below base stacking is handled by laying marks side by side:

Original UI  Document 

In most cases the marks are in order from left to right, but in some situations where the first mark swings below the base to the right the second mark is placed to the left:

Original UI  Document 

This makes it fit the vertical metrics, but is visually odd. However, the Windows Khmer UI font does the same thing so most users probably wouldn't be too surprised.

### Proposed Option #1

Follow the original Noto Sans Khmer UI with additional refinement to letterforms, spacing, and GPOS. Add above base rules that are missing from the original. The following examples for Option 1 have not yet implemented all the side by side mark layout.

**Pros:** Consistent with the original version.

**Cons:** Side by side mark placement is odd. This also requires additional condensed forms of all below base marks to make them fit side by side. More substitution and positioning rules are required to handle the side by side marks.

### Proposed Option #2

Shift the baseline up to fit the most common four level stacks (base-above-below-below). Slightly condense the body height and adjust marks. The following examples for Option 2 have only shifted the baseline. Without other adjustments some above base marks will still show as cut off.

**Pros:** Will accommodate many common sequences without requiring any adjustments. Will accommodate more sequences with just minor adjustments.

**Cons:** Baseline won't match if mixed with another script like Noto Sans UI Roman.

Examples:

In general most text won't have a lot of marks that go outside the bounding box, but when they do it is more common to have multiple below base marks than multiple above base marks.

Two below base consonants plus a vowel marker:

Original UI  Document  Option 1  Option 2 

Two above base marks:

Original UI  Document  Option 1  Option 2 

Rare example with two above base marks and two below base marks. Option 2 requires some adjustments to above base marks.

Original UI  Document  Option 1  Option 2 

A common 4 level stack. Option 2 requires slight adjustment to above base marks.

Original UI  Document  Option 1  Option 2 

The following is a selection of common sequences that can be problematic in a UI setting:

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Selection of UI strings from Windows 7 with Noto Sans Khmer UI Option #1

Most items fit into the vertical metrics without any adjustments.

កម្រិតពណ៌ខ្មៅខ្ពស់

Windows ចាស់ពីមុន

ការរៀបចំគំរូរចនា

មជ្ឈមណ្ឌលសម្រួលការប្រើ

វិទិត្រសាលនៃគ្រឿងបន្លាស់បន្សំដៃសថប

គ្រប់គ្រងព័ត៌មានបញ្ជាក់អត្តសញ្ញាណ Windows របស់អ្នក។

បង្ហាញហ្វោនដៃសថប ដែលបានតម្លើងលើកុំព្យូទ័ររបស់អ្នក។

ស្វែងយល់អំពីលក្ខណៈពិសេសរបស់ Windows

និងចាប់ផ្តើមប្រើពួកវា។

បង្កើតគណនីអ្នកប្រើសម្រាប់អ្នកដទៃដែលនឹងប្រើកុំព្យូទ័រនេះ។

គ្រឿង&បន្លាស់បន្សំ

លំនាំដើមនៃ Windows

Windows ខ្មៅ

បឺបលំនាំដើម - double above marks not very common

ការផ្តល់ដំណឹងនៅពេលមានសារថ្មី

សៀវភៅទំនាក់ទំនង

ជ្រើសអាយុខុន និងការជូនដំណឹងណាមួយ

In the majority of cases that do not fit it is because of a below base vowel mark.

ដែលចេញមកនៅក្នុងតំបន់ជូនដំណឹង។

សូមជ្រើសរើសក្បួនហៅទូរស័ព្ទរបស់អ្នកនិងការកំណត់ម៉ូដឹម។

ឬការកំណត់របស់អ្នកតាមចំណង់ ដូចជាការកំណត់ប៊ូតុង

ល្បឿនចុចពីរដង

ការសង្គ្រោះឯកសារ

ឡុកចេញពី Windows

បញ្ចូលហាត់វៃរបស់ Windows

ស៊ីមីដែលបានបង្ហាត់ (បានហ្សឺប)

Selection of UI strings from Windows 7 with Noto Sans Khmer UI Option #2

Multiple below base stacking fits into the bounding box without any adjustments or side by side layout. This option results in some above base marks being cut off which could be remedied by slightly condensing the body height and marks and repositioning marks closer to the body.

កម្រិតពណ៌ខ្មៅខ្ពស់

Windows ចាស់ពីមុន

ការៀបចំគំរូចនា

មជ្ឈមណ្ឌលសម្រួលការប្រើ

វិចិត្រសាលនៃគ្រឿងបន្លាស់បន្សំដៃសថប

គ្រប់គ្រងព័ត៌មានបញ្ជាក់អត្តសញ្ញាណ Windows របស់អ្នក។

បង្ហាញហ្គាតដេដដៃសថប ដែលបានតម្លើងលើកុំព្យូទ័ររបស់អ្នក។

ស្វែងយល់អំពីលក្ខណៈពិសេសរបស់ Windows

និងចាប់ផ្តើមប្រើពួកវា ។

បង្កើតគណនីអ្នកប្រើសម្រាប់អ្នកដទៃដែលនឹងប្រើកុំព្យូទ័រនេះ។

គ្រឿង&បន្លាស់បន្សំ

លំនាំដើមនៃ Windows

Windows ខ្មៅ

បីបលំនាំដើម - double above marks not very common

ការផ្តល់ដំណឹងនៅពេលមានសារថ្មី

សៀវភៅទំនាក់ទំនង

ជ្រើសអាយខុន និងការជូនដំណឹងណាមួយ

ដែលចេញមកនៅក្នុងតំបន់ជូនដំណឹង។

សូមជ្រើសរើសក្បួនហៅទូរស័ព្ទរបស់អ្នកនិងការកំណត់ម៉ូដឹម។

ប្តូរការកំណត់របស់អ្នកតាមចំណង់ ដូចជាការកំណត់ប៊ូតុង

ល្បឿនចុចពីរដង

ការសង្គ្រោះឯកសារ

ឡុកចេញពី Windows

បញ្ចូលហាតវៃរបស់ Windows

ស៊ីមីដែលបានបង្ហាប (បានហ្សឺប)

Noto Sans Khmer UI original

ខ្ញុំគ្នារឿងតបោកដំរីសApsaras and Buddhism កាលពីព្រេងនាយមានស្តេច  
គ្នាតម្លុយមានពួកពលបរិវារជាច្រើនអាស្រ័យនៅក្នុងព្រៃភ្នំ យប់មួយស្តេចគ្នាតនោះដេក  
ទៅយល់សប្តិឃើញថាបានចាប់ស្តេចដំរីស។ from Battambang to Phnom  
Penhពួកសេនាឃើញពលក៏ហើរសំដៅទៅលំនៅស្តេចដំរីសនោះ ដល់ហើយក៏ស្រែកហៅ  
ស្តេចដំរីសថា បងដំរី! ម្ចាស់យើងឲ្យហៅបងដំរីឯងទៅឯលំនៅយើង

Option #1

ខ្ញុំគ្នារឿងតបោកដំរីសApsaras and Buddhism កាលពីព្រេងនាយមានស្តេច  
គ្នាតម្លុយមានពួកពលបរិវារជាច្រើនអាស្រ័យនៅក្នុងព្រៃភ្នំ យប់មួយស្តេចគ្នាតនោះដេក  
ទៅយល់សប្តិឃើញថាបានចាប់ស្តេចដំរីស។ from Battambang to Phnom  
Penhពួកសេនាឃើញពលក៏ហើរសំដៅទៅលំនៅស្តេចដំរីសនោះ ដល់ហើយក៏ស្រែកហៅ  
ស្តេចដំរីសថា បងដំរី! ម្ចាស់យើងឲ្យហៅបងដំរីឯងទៅឯលំនៅយើង

Option #2 - Shift baseline up

ខ្ញុំគ្នារឿងតបោកដំរីសApsaras and Buddhism កាលពីព្រេងនាយមានស្តេច  
គ្នាតម្លុយមានពួកពលបរិវារជាច្រើនអាស្រ័យនៅក្នុងព្រៃភ្នំ យប់មួយស្តេចគ្នាតនោះដេក  
ទៅយល់សប្តិឃើញថាបានចាប់ស្តេចដំរីស។ from Battambang to Phnom  
Penhពួកសេនាឃើញពលក៏ហើរសំដៅទៅលំនៅស្តេចដំរីសនោះ ដល់ហើយក៏ស្រែកហៅ  
ស្តេចដំរីសថា បងដំរី! ម្ចាស់យើងឲ្យហៅបងដំរីឯងទៅឯលំនៅយើង