## Korean Syntactic Complexity Analyzer (KOSCA) Version 1.0

## User Manual for KOSCA 1.0

This manual is written for users of KOSCA to analyze their data. It includes (a) a brief tutorial of how to install and use the application.

When using KOSCA 1.0 in your project, please cite this paper:

Hwang, H. & Kim, H. (submitted). Korean Syntactic Complexity Analyzer (KOSCA): An NLP Tool for the Analysis of Syntactic Complexity in Second Language Production.

• Installment

Download the version of KOSCA appropriate for your operating system (**Mac** or **Windows**) and open it. For Windows users, if the application does not work, please install JAVA following the steps illustrated from p. 3 of this document.

Category	Index	Measurement
Length of	Number of sentences	Total number of sentences in text
production	Number of eojeols	Total number of eojeols in text
	Number of eojeols per	Total number of eojeols / total
Complexity of	sentence	number of sentences
sentence	Number of morphemes	Total number of morphemes / total
	per sentence	number of sentences
Coordination	Number of coordinate	Total number of coordinate phrases /
	phrases per sentence	total number of sentences
Subordination	Number of relative	Total number of relative phrases /
	clauses per sentence	total number of sentences
	Number of adjunct	Total number of adjunct phrases /
	clauses per sentence	total number of sentences
	Number of verbs per	Total number of verbs / total number
Particular	sentence	of sentences
structures	Number of particle types	Total number of particle types / total
	per sentence	number of sentences

• Syntactic indices in KOSCA 1.0

## • Input

- (1) Select the indices for analysis.
- (2) Click on the "Location" button (at the left bottom) to locate a folder in which text data for analysis are available. Note that all input files must be text files (.txt). All .txt files in the chosen input folder will be processed by KOSCA 1.0.
- (3) Click on the "Process" button (at the right bottom) to analyze inputted data.

•••	KOSC	A			
Korean Syntactic Complexity Analyzer Ver 1.0			About	Contact	
Step					
select all			umber of sentences		
number of eojeols		numbe			
number of morphemes per sentence		number of co			
number of relative clauses per sentence			adjunct clauses per ser		
number of verbs per sentence		number of	f particle types per sent		
Step 2 Select			be analyzed		
Location				Process	

• Output

An output of the inputted data analyzed in selected syntactic indices will be saved as a comma-separated file named "results.csv", which is runnable in a software, like Number or Excel.

Ir	Important for <b>Windows</b> users only:					
Follow the steps below to make the application work.						
1 11						
1. Download and install the version of Java that is appropriate for your operating system.						
(1) Go to <u>https://www.oracle.com/java/technologies/downloads/</u>						
(2) Download Java by clickin (IDV) for "x64 Installer"	(2) Download Java by clicking "Windows" and download the Java Development Kit					
(JDK) for X04 installer.	(JDK) for "x64 Installer". (Note: You may be required to create an Oracle Account to					
Java SE Development Kit 18.0.2.1 downlo	ads					
Thank you for downloading this release of the Java™ P components using the Java programming language.	latform, Standard E	dition Development Kit (JDK $^{\rm IM}$ ). The JDK is a development environment for building applications and				
Components using the Java programming language. The JDK includes tools for developing and testing programs written in the Java programming language and running on the Java platform.						
Linux macOS Windows						
Product/file description	File size	Download				
x64 Compressed Archive	172.93 MB	https://download.oracle.com/java/18/latest/jdk-18_windows-x64_bin.zip (sha256 🖾)				
x64 Installer	153.45 MB	https://download.oracle.com/java/18/latest/jdk-18_windows-x64_bin.exe ( <u>sha256 </u> )				
x64 MSI Installer	152.33 MB	https://download.oracle.com/java/18/latest/jdk-18_windows-x64_bin.msi (sha256 🖄				
(3) Once the Java download	is comple	ete, run the exe and install Java.				
2. Set Environment Variable	es in Java	a in the following manner.				
(1) Right click on the "My C	omputer'	on the desktop and select the "properties".				
This PO Pin to Quick access						
Contractor TreeSize Free						
Networ						
Map network drive Disconnect network drive						
Create shortcut						
Recycle I Rename						
2 Properties						
(2) Click on "advanced system	m setting	ys".				

i System		
$\leftarrow \rightarrow \checkmark \land $	System and Security >	System
Control Panel Home	View besic informat	ion about your cc
🐤 Device Manager	Windows edition	
Remote settings	Windows 10 Home	
System protection	© 2019 Microsoft Corp	poration. All rights reser
Advanced system settings		
	System	
	Manufacturer:	Microsoft Corpor
	Processor:	Intel(R) Core(TM)
(3) Click on "Environment Variable	s" to set a runtime e	environment for Java.
System Properties	×	
Computer Name Hardware Advanced System Protection	on Remote	
You must be logged on as an Administrator to make most of	of these changes.	
Performance Visual effects, processor scheduling, memory usage and	virtual memory	
	Settings	
_ I lear Profiles		
Desktop settings related to your sign-in		
	Settings	
Start-up and Recovery		
System start-up, system failure and debugging informatio	n	
	Settings	
Enviro	nment Variables	
OK Canc	el Apply	
(4) Click on "New" button.		
User variables for Guru99		1
Variable Value OneDrive C:\Users\Guru99\OneDrive		
Path C:\Users\Guru99\AppData\Loca PyCharm C:\Program Files\JetBrains\PyCl	\\Programs\Python\Python37-32\S arm 2019.2.3\bin;	
PyCharm Community Edition C:\Program Files\JetBrains\PyCh TEMP C:\Users\Guru99\AppData\Loca	arm Community Edition 2019.2\bin;  \Temp	
IMP C:\Users\Uuru99\AppUata\Loca	\\ lemp	
New.	<u>E</u> dit <u>D</u> elete	1
(5) Type "PATH" in the "Variable r	name".	

Edit I Iser Variable	×				
Variable name: PATH					
Variable value:					
Browse Directory Browse File	OK Cancel				
(6) Copy the path of "bin" folder under t	he "JDK" folder.				
	epen seie				
↑ 📙 → This PC → Local Disk (C:) → Program Files → Java	> jdk1.8.0_271 > bin Copy address				
^ ∧	Date modified Copy address as text				
ccess	Edit address				
op 🖈 🛄 appletviewer.exe	31-12-2020 04 Delete history				
loads x	31-12-2020 04:51 PM Application				
ments 🖈 🔲 iabswitch.exe	31-12-2020 04:51 PM Application				
es 🖈 🔳 jar.exe	31-12-2020 04:51 PM Application				
le Drive 🖈 🔲 jarsigner.exe	31-12-2020 04:51 PM Application				
st 💉 🏄 java.exe	31-12-2020 04:51 PM Application				
rah 🗾 iavac.exe	31-12-2020 04:51 PM Application				
(7) Paste the copied path in "Variable va	lue" and then click on "OK".				
New User Variable	×				
Variable name: PATH					
	•				
Variable value: C:\Program Files\Java\jdk1.8.0_271\bin	2				
Province Directory					
Browse Directory Browse File	Cancel				
(8) Click on "New" button.					
(9) Type "CLASSPATH" in the "Variable name". And, copy the path of "lib" folder under					
the "JDK" folder and past it in "Variable value" and then click on "OK".					
Now Licer Variable	×				
Variable value: C:\Program Files\Java\jdk1.8.0_271\lib	2				
Browse Directory Browse File	OK Cancel				
Pictur	es from <u>https://www.guru99.com/install-java.html</u>				