Building E-learning Apps with Multimedia Contents for Learning Language Variations[1]

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Abstract

In language education, little attention has been paid to the importance of variations of a language. It is focused only on acquiring standard forms. However, knowing standard forms is not sufficient for understanding the target language in real situations. That is why when we learn a target language; we have to pay attention to its linguistic variations. It is believed that e-learning is the most appropriate means of teaching and learning those dialects, because it can offer multiple speaking contexts in the same time and space. Using and incorporating multimedia content is very helpful in enabling language learners to experience more realistic and practical usage of those variations. From this perspective, this paper gives a brief idea of building e-learning applications that are capable of teaching and learning not only standard, but also variations of a language.

Keywords: e-learning application for language learning, linguistic variation, dialects, multimedia contents in language acquisition

1. Introduction

When one learns a language, generally he or she learns the standard form. So, language learning has focused on standard forms of the target languages. Most E-learning applications for language learning that have been developed deal only with those standard forms.

But in practical situations knowing only the standard form is not sufficient to communicate with native speakers, since a language has, by nature, varied forms - of so-called dialects. It is very common to see peoples speak somewhat differently according to regions: dialects. Speaking of dialects, it does not matter of country size. For example not only continental size countries like Brazil and China but also tiny country like South Korea have several dialects respectively.

China, a huge continental size country, has 7 different dialect regions: Mandarin, Cantonese, Hui, Jin, Wu, Hakka, Min. And Korea also has 6 different dialect regions in spite of its very tiny territory comparing to China: Kyungki, Choongchung, Yognam, Honam, Jeju, and Kangwoon dialect. Since each region has its own accent, pronunciation and expressions, those who have no experience of other dialects cannot understand other dialects. Due to these differences, foreigners who learn only standard forms suffer considerable difficulties, when faced with non-standard forms – dialects. Sometimes, the variation is too great to hinder mutual communication among peoples who speak same language.

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It happens just because what language learners learn is *langue,* not *parole.*[2] In fact, language learning means acquiring standard forms of the target language.In this regard, almost all language learning applications that have been developed usually focus on only standard forms. Next generation's language learning applications should now be developed to help language learners overcome these difficulties.
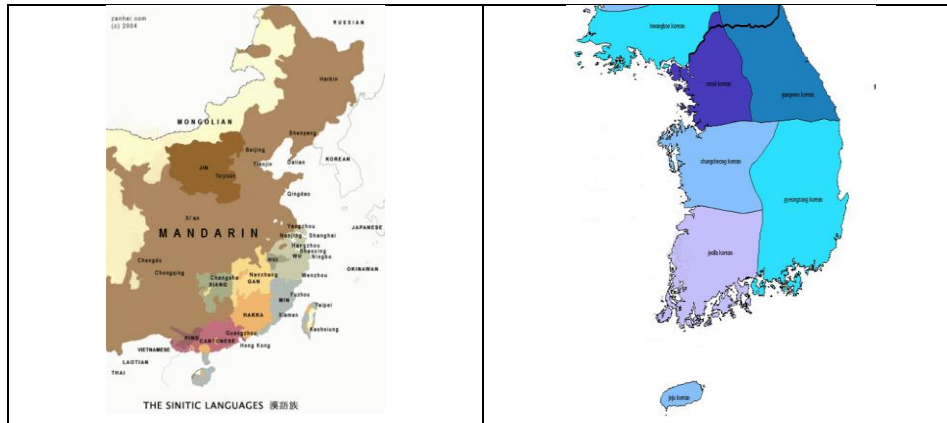
It is necessary to acquire the differences between the standard and the varied forms of a language, in the course of learning a language. By the way, this necessity has not been considered neither in traditional language education, nor in the e-learning applications so far developed. Now, it is desirable to consider make applications that are capable of handling this requirement.

Since linguistic variation of a language comes mostly from the difference of pronunciation, and the expressions spoken differently by regions, the expected new applications should contain modules that treat these differences. In this paper, therefore, we will discuss the way to build an e-learning application that might fill the gap between the standard and its variations in order to help self- language-learners and those who have to know the variations in various reasons. The first thing that we have to take into consideration is the differences in pronunciation. And the second is the difference in expressions according to regions.

2. Module for Learning Sound Patterns

2.1. Standard Sound Matching Component

Many e-learning applications have been developed for teaching and learning languages, but very few applications have the components that evaluate the accurate rate of pronunciation. Even if a pronunciation-evaluating component is included, it is too simple to cover all the complexities: speed, pitch, and articulation, depending on person, context, and region.

To incorporate such a component into e-learning applications, firstly, it is asked building up a database of standard pronunciation patterns that can serve as criteria for evaluating the accuracy or match rate of incoming sound signals from language learners determining whether they are correct or not.

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[2] *Langue* means abstract linguistic features shared by a linguistic community. *Parole* is the concrete utterances of each member of the linguistic community. Saussure introduced these notions in his famous book, edited and published by his fellows, *Cours de linguistique générale.*
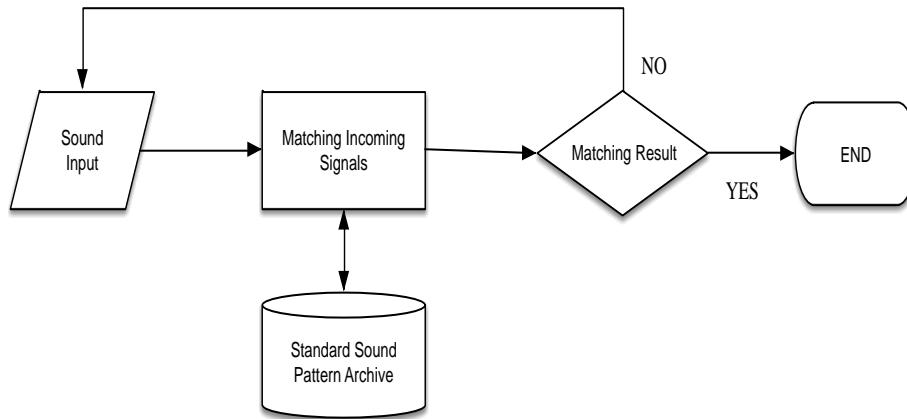
Figure 1. End Users' Pronunciation Entered Into Terminals is Compared and Analyzed, by Comparison with Pre-defined and Archived Standard Sound Patterns

In the case that the sound values entered into the terminal do not match with the standards, the application asks the end user to reenter the pronunciation.

The second step is defining acceptable scopes of standard patterns. Practically, it may not possible to copy a standard sound pattern identically. In fact, each member of a language community usually pronounces somewhat different, within a margin of error. So it is important to decide to what extent those variations are allowed.
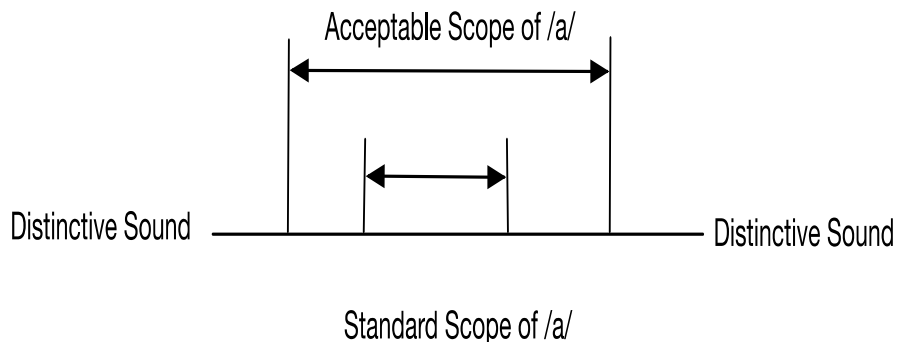

Figure 2. Every Phonetic Value has its Scope of Tolerance for being Understood

This figure deals only with a simple sound /a/, as an example but this concept is applicable to phrasal type sound pattern modeling.

Narrowing the standard and acceptable scope may, to some extent, help learners acquire more precise pronunciation. However widening the acceptable scope over the pre-defined range is not recommendable, because the more the scope is widened, the more pronunciation diverges from the comprehensible value.

The key mechanical functions are, as shown above, comparing incoming signals with pre-defined sound patterns, and evaluating them within a range of tolerance. This was not possible in the classical learning environment, before computer-aided education methods were introduced. As was mentioned before, the area that is mostly in the limelight in language learning is the pronunciation, which has usually been ignored. This is because that pronunciation is constant, and relatively lacking in variation.

2.2. Sound Variation Component

As it is mentioned above, regional difference in a language is not a problem related only to large countries such as Brazil and China, which are proud of its continental size territory. Since it is very common that a language in a same linguistic community is usually spoken in different ways, those who learned only standard pronunciation cannot avoid difficulties in hearing speakers using regional pronunciation with extreme variation.

Generally language learners learn those variations of a target language through experience on the ground. In the conventional educational environment that has focused on teaching norms, and which has had no proper devices to show easily the variations, it was not possible to help language learners learn standard pronunciation and its variations in parallel. However, It is now believed that IT-based teaching methods make this possible, thanks to their functions, and user convenience. IT environments facilitate constructing multiple contexts without limits of time and space.

In order to build an application for learning not only normative pronunciation, but also its variations, the application in question must be equipped with a database containing all values of those variations. Checking and evaluating incoming signals basically follows the flow shown in Figure 1.

This component is designed to show every phonetic variations of a standard word or expression selected by end-users. Addition to simple words, phrase type expressions also cab be included into the component.

Standard	Variations		
	V1	V2	V3
/X/	$/X^1/$	$/X^2/$	$/X^3/$
+ Standard and acceptable scope value + Speed variation in adjustable scale			

Figure 3. Database Structure for Evaluating Incoming Sound Patterns

As pronunciation is an acoustic value, it has not been possible to see or show in the traditional education environment. But it has become possible to visualize sound values in waveform, with the help of oscillator-like utilities.
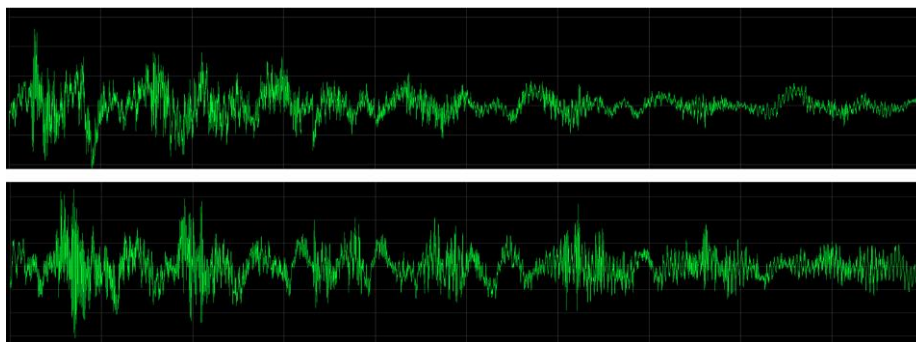

Figure 4. Visualizing Learner's Pronunciation (below), Compared with Normative Sound Pattern (above) of Target Pronunciation, either Standard or Variation

This visualizing device should be sophisticated enough to exclude wrong sound values that are out of tolerance ranges.

Seeing the visualized sound helps language learners to adjust their efforts at standard sound patterns, to get more standard-like pronunciation.

3. Module for Acquiring Expression Variations

3.1. Component for Learning Regionally Varied Expressions

Every single word may have different sound values, depending on regional particularities. But regional differences in a language are more than just pronunciation. For example, the enunciation equivalent to '*it isn't*' is not only pronounced differently, but also written differently on Korean soil.[3]

	Standard	Middle	South-western	South-eastern
Sound	/aniyo/	/aniyu/	/anirangke/	/aninkira/
Transcription	아니요	아니유	아니랑께	아닌기라

Figure 5. Differences in Pronunciation and Letters in Korea

Since Korean letters are a set of phonetic symbols, differences in pronunciation trigger automatically mutations of word form. They so seem very different words. Because of this, not only phonetic variations but also literal expressions must be took into consideration for Korean.

Chinese also show differences in pronunciation. As it is mentioned above, Chinese has 7 dialects that show different way of speaking.

	Beijing	Hangzou	Guandong	Shanghai
Sound	/xiexie/	/zaja/	/doujei/	/xjiaya xjiaya/
Transcription	谢谢	谢谢	谢谢	谢谢

Figure 6. Pronunciation Difference between Chinese Dialects

But contrary to Korean, Chinese does not show differences in letters even pronunciations are very different upon regions. This difference comes from the fact that Chinese is an ideograph while Korean is a phonetic sign.

Whatever the differences are, they are finally linked to expressional differences. So similar to the suggestion of the component for learning pronunciation difference, we propose the following concept for the component to learn expressional variations in a language.
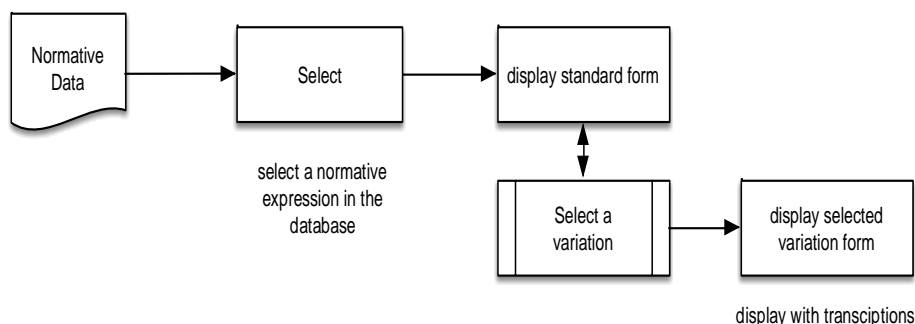

Figure 7. Concept for the Component to Learn Expressional Differences

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[3] The same also happens in China. The Chinese use a common written language nationwide, but their pronunciation differs by region.

First of all, it is necessary to pick up normative expressions as criteria. These normative forms are in fact the standard form of the given language. When an user chooses a normative or standard expression and a dialect or a region to learn are chosen, the application displays the corresponding variation form.
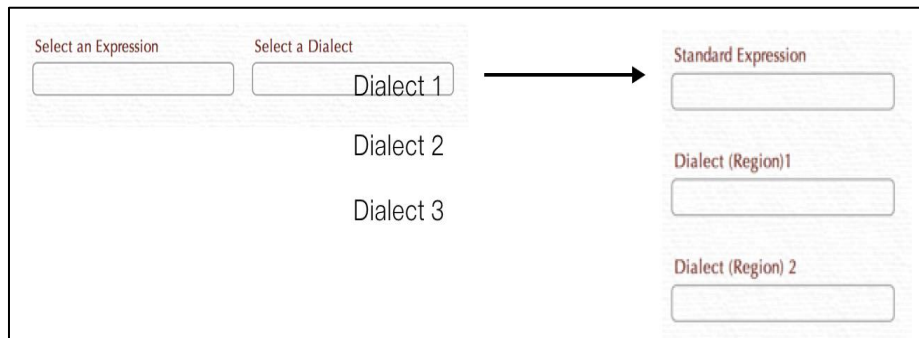
This flow allows language learners to become acquainted with variations of not only pronunciation, but also of written expressions, along with the standard forms.

Most e-learning applications ever built deal only with standard expressions ignoring regional differences. These differences are not limited to pronunciation, but also extend to written form. So in this component, the differences not only in pronunciation, but also in writing are displayed to language learners, together with the already mentioned pronunciation checking device-like functions.

3.2. Incorporating Multimedia for Learning Language Variations

Computer aided language teaching solutions are very useful and there is no doubt about its effectiveness. They give better and mostly optimal educational environment for language learners allowing them experience divers conditions in a time and a space without moving or time delay. In traditional education environment, it is not possible at all.

The above two processes are useful for learning standard and varied forms of a target language. But language learners will soon encounter difficulties in practical use, because the archived patterns are not contextual. Even though language learners become familiar with the differences in question, through the devices equipped with the functions suggested above, it is necessary to see how those variation forms are spoken in real situations.

There are various conceivable alternatives. Among them, the most classical and mostly used one in off-line class is creating contextual dialogues with intentioned scripts. But this is not recommendable because it is not attractive any more. It is, in general, unnatural and boring.[4] For the purpose of drawing learners' interest, the artificial contexts should be real-like. In this aspect, as an alternative, it is worthy to use well-made movies, TV programs, or commercial films that contain regionally different dialects. These are more natural and realistic, and offer greater interest.

For this purpose, in case of Korean, a TV drama titled "Respond 1994!" aired in 2013 in Korea is the very best multimedia source that meets our goal.[5] In this drama, every dialects of Korea are used in order to emphasis reality of each scene.

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[4] Lee, Sungyoung (2001) p. 156

[5] For example, almost all of the dialogues in Response 1994, a TV program that was recently broadcast in Korea, and which enjoyed phenomenal success, were written in non-standard Korean dialects. Without knowledge of Korean dialects, this program is not at all comprehensible.

A: How cheekily! (in a Yongnam dialect)
B: What did he say? (in Choongchung dialect)
C: You are cheeky. (in standard expression with Honam accent)

In case of Korean, those dialects are so different to incomprehensive extent eve for Koreans. But much attention should be paid to collect data from the drama because it contains some slang that we do not use in normal context and might not be suitable for language learner in terms of education.

F:不说了， 吃饭吧。	M： 什么说谎啊。 什么又啊

For Chinese, among many others, in this paper, we choose "Insecurity" a Chinese drama along with subtitles below in standard Chinese. Here all dialogues are spoken in Cantonese. Cantonese pronunciation is completely different that of other Chinese dialects including standard Mandarin. However, contrary to Korean, the written forms are almost identical between themselves due to the ideographic Chinese characters.

However, there is no necessary to insist on only one source. In fact, it is not possible to collect all kind of dialogues from only one source. Therefore, it is desired that application developers collect corresponding data from multiple sources rather than only one.

To take advantage of these kinds of multimedia sources, the length of those clipped files should be clipped to meet the purpose in relatively short length. Seen from our experiences, relatively long clips are not very effective in terms of productivity. If dialogues were realized in real time at real space, maybe more than 5 minutes long would be all right. But in case of self-education application, too long clips are not recommendable because learners generally loose their concentration form long dialogues. To get optimal productivity, we recommend the length of clips in question should be less than a minute.
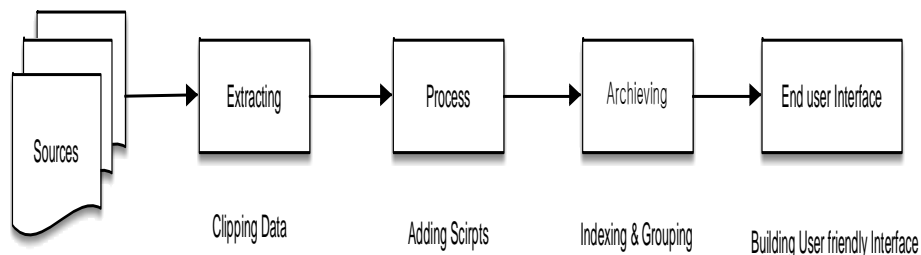

Figure 8. Clipping Raw Materials Data from Multimedia Sources, and data Processing Flow

Above flow shows the basic procedure of making and using multimedia contents to learn variations in a language. In this component, adding script and necessary explanations is as important as extracting proper scenes from multimedia sources, because varied expressions used in original sources are not found within the norms.[6] Finally, e-learning applications will have the following flow, to incorporate the ability to handle variations in the target language.
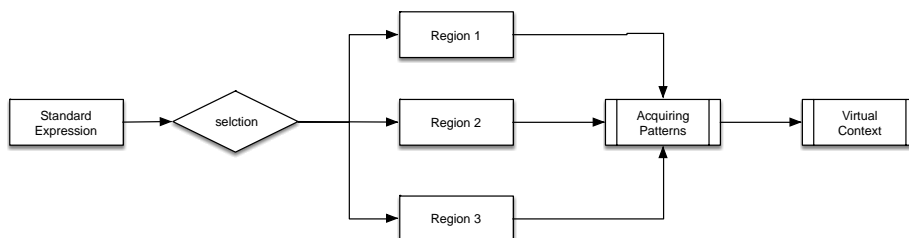

Figure 9. A Flow for a Language Variation Learning Component

This flow shows that a function that selects regions is included.

Once a region is chosen, the application will run all sound and expression data, according to the selected region. This flow can be extended to build multi language learning applications other than language variations.

When an end-user selects an expression and a region in which he or she is interested, the application starts teaching procedure with written expressions, familiarization of pronunciation and relative multimedia clip accompanied with full explanation.

3.3. Test Component

As an e-learning application, it is assumed to have a test procedure to evaluate learner's study achievement. Especially for language teaching and learning applications, evaluating achievement is the basic essentials. However, even study achievement test is necessary, it is doubt that this is also necessary for the applications to learn linguistic variations in a language.

Knowing linguistic variations is necessary to better comprehension in course of communication in local idioms. But considering the main purpose of constructing the applications in this paper, which is to let learners know the linguistic variations when they learn a language, in standard form, it is no good put burden on end-users asking them comply a certain kind of fulfillment or achievement test.

Though we insist on the importance of linguistic variations of a given language, still what language learners, generally second language learners learn is *langue* not *parole*. They learn *langue* through imitation or *paroles*. Therefore, study achievement test should be limited to standard form. This is the basic essential as language learning applications.

From our experiences of teaching languages in off-line classes, students are very interested in linguistic variations and agree with the importance of knowing dialect spoken differently by regions but they do not want to learn those dialects passing exams and test. So in spite of its importance, it is recommended use learning linguistic variation component as an auxiliary tools. In this sense, if a kind of evaluating procedure is included, quiz type evaluation is good enough.

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[6] It is very rare to find a book that describes or explains dialects in a language. Almost every book on grammar deals with standard normative grammar, or descriptions of standard languages.
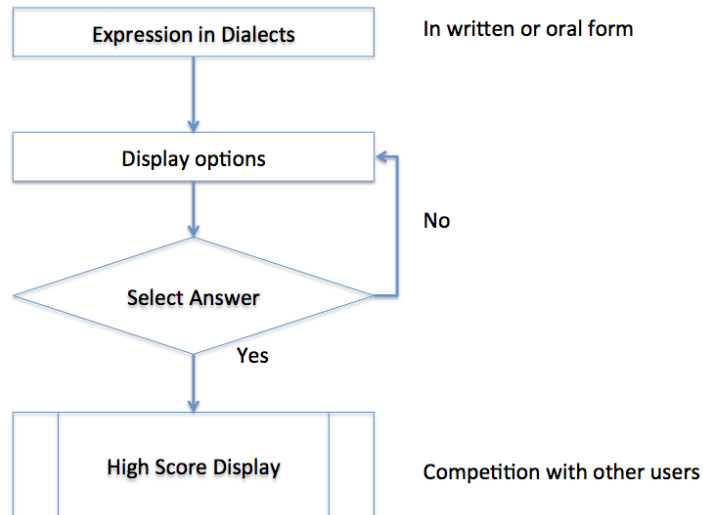
Figure 10 Quiz type Evaluation

At the terminal step, to get more productivity, it will be plausible to design high score game like part to play with other learners.

It is believed that this quiz or game like evaluating system is good enough for language learns to have some essential knowledge of linguistic variations in which they are interested.

4. Conclusion

In the past few decades, computer engineering has been rapidly developed and there was the time when computer aided education (CAE) was the ultimate tool for teaching and self-learning. In the filed of language learning, CAE was also considered as the best option for teaching or learning languages. Many applications have been developed and some of them are still considered as very useful to learn languages.

However, in general view, CAE did not signally succeed. This is mainly due to the complexity of languages. To use the auto-correction functions of machines, the number of possible answer should be one, or at least very limited.[7] But in the case of natural languages, it is not easy to automatically correct the answers entered by language learners, because of the inherent complexity.

By the way, learning language variations focusing on pronunciation is an area where computer-aided learning applications are mostly effective, because its variations are of predictable scope. This opens the possibility of building an auto-correction procedure in the course of pronounce acquisition, without exception. This is especially useful in the case of ideographic language such as Chinese. Chinese using ideographic letters shows great differences in pronunciation upon regions with little variation of written forms. But in case of Korean, using phonetic symbols, only learning difference in pronunciation is not sufficient because in this language not only pronunciation but also written forms are different by regions. That's why we should take the differences in pronunciation and in written forms equally into consideration when we build an application for learning variations in a language.

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[7] Lee, Sungyoung (2002), pp.190--193

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