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JAVANESE MEDICINAL MEASURE LEXICONS (NUMERAL CLASSIFIERS) IN *SERAT PRIMBON RERACIKAN JAMPI JAWI*

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Abstract
Traditional medicine in a global context has been observed widely in several countries. Research on traditional medicine has not been massively conducted in Indonesia, especially in Java. The present research, in response to the area of this subject, is an initial study to observe and examine the traditional medicine in Java, especially the medicine measurement system recorded in *Serat Primbon Racikan Jampi Jawi*. The measure system in traditional medicine has various lexicons as has been revealed in the lexicalization of numeral classifiers and the cultural context of the measurement system in traditional medicine recorded in *Serat Primbon Racikan Jampi Jawi*. The theoretical perspectives are composed of culture, semantics, and lexicography; using note-taking techniques as the data collection, dictionary method as the data analysis, definition and meaning description as the data presentation as well as its meaning relations. Based on the observation, there were 77 (seventy-seven) Javanese measure lexicons consisting of 60 (sixty) base words, 5 (five) affixed words, and 13 (thirteen) word combinations in *Serat Primbon Racikan Jampi Jawi*. Meaning relations found from the lexicons were abstract meaning relations by using 7 (seven) concepts of retrieval and concrete features with 6 (six) compositional constructions. The measure was obtained from 9 (nine) other fields of lexicon and was used to measure 25 (twenty-five) types of ingredients with one-to-one relations, one-to-two or more relations, and two or more-to-one relations. This research indicated that (1) The form of language adapts to the creativity and references in the measure; (2) The meaning of the measure characterizes the experience and knowledge of the Javanese people on the traditional medicine system in their everyday life; and (3) The measure system is the answer to the needs, specifications, and inheritance of the local wisdom of the Javanese people, particularly in the field of traditional medicine.

Keywords: Javanese manuscripts, lexicalization, measure, traditional medicine

Introduction

Research on traditional medicine has been observed widely throughout the countries, among others, China. In China, (Liu, 2020) the research was conducted for animal vocabulary enrichment to establish a highly specialized animal corpus

for the effective translation of traditional Chinese medicine lexicons. The study arranged animal corpus denoting animal nouns from the animal noun meanings perspective combined with the theory of concept integration in cognitive linguistics.

The problems of traditional medicine in Indonesia, especially Java, have been initiated by former scholars which were then recorded in the Javanese manuscripts. One of them is *Serat Primbon Reracikan Jampi Jawi* (abbreviated as SPRJJ) which is the local wealth of the 17^{th}-18^{th} century people. The manuscripts contain traditional medicine used to treat various diseases among people in this era. The authors believe that the manuscripts' records can enrich the treasures of today's medicine.

However, the knowledge provided in the manuscripts containing ingredients for the herbal treatment is not easy to put into practice in today's treatment process. Apart from being written in the Javanese manuscripts that have gradually begun to be forgotten (Suwarno, 2021) and the methodical terms, the names of medicinal plants in SPRJJ are not easily interpreted in today's Javanese language. Therefore, this research is a form of thorough work to solve the above problems by adjusting to language meanings and understanding in the time the manuscripts were made before using the SPRJJ.

In language, this measure system is conceptualized in the measure lexicons (Selvia & Imelda, 2020). Lexicons, such as *pucuk, ros, jempol, punggel, tugel,* and *jodho,* are used to measure the composition of ingredients. The lexicons are then used as classifiers (Kridalaksana, 2008). The classifiers were taken from the representative words of the object being used for measuring the composition, such as *pucuk* for ingredients in the form of leaves and *jempol* for ingredients in the form of tubers with the size of about a human thumb. The changes in the meaning of the lexicons also occurred due to these classifiers, such as the word *tugel* which is originally a verb that becomes a classifier. It is used for ingredients in the form of rods or segments that can be cut. Besides, other words, such as *tekem*, *jumput*, *genggem*, and *kepel*, were also found and could be classified into words referring to 'the results of activities using hand'.

Such classifications are common in languages (Nida & Sebeok, 1979). The lexicon analysis can enrich the repertoire of medicine, even the progress of medicine itself. The semantic lexicons can accommodate natural language processing programs analyzing medical narratives (Johnson, 1999). It can even enrich the repertoire of the multilingual medical lexicon as it does (Markó, Schulz, & Hahn, 2007). Natural Language Processing is a breakthrough in human and computer communication that allows humans to interact with computers. In this case, documentation of the Javanese measure lexicons is significant and urgent to enrich global knowledge. Also, it has become the part of industrial era 4.0 and the artificial intelligence era.

The results of this research indicated that research on the measure lexicons in medicine is uncommonly conducted. The last research was found in 1999 and 2007 in the United States of America. This means that few linguists have contributed to this significant research.

The objectives of this research were to analyze the lexicalization of measure classifiers in traditional medicine composing written in SPRJJ. The lexicalization included the formation of the words, their referent sources, the changes in meaning, definition, and the use of the lexicons. The objective of this research is to examine

the Javanese cultural context of the herbal medicine measure system written in SPRJJ. The manuscript had been observed by Adji (2015). There were 1734 traditional herbs found in Adji's research which contains many measure lexicons.

Research on numeral classifiers in Bahasa Indonesia has been conducted by Nadra, Wahyuni, and Mahsun (2014) who found 43 forms of classifiers. The classifiers were divided into three: (a) single nouns, (b) collective nouns, and (c) noun classifiers in a unit of measurement. In the context of buying-selling processes, the classifiers mostly used in traditional wholesale markets in Jakarta and Surabaya are noun classifiers in a unit of measurement.

Research on classifiers in Bahasa Indonesia has also been conducted by Maryani, (2011). In her research findings, the classifiers were divided into general classifiers and special classifiers. The position of quantifiers in Bahasa Indonesia is mostly found on the left of the noun where the quantifiers are attached, but it can also be located on the right of the noun where the confounder is attached. Research on quantifiers conducted by Kasih (2021) in the Javanese language found a uniqueness, showing the difference between the quantifiers for animate objects and inanimate objects. The quantifiers in the Javanese language distinguish its uses for animals, plants, and inanimate objects. Another research, conducted by Sasti (2017), shows more practical classifiers, indicating various classifiers in the Javanese language, especially numeral classifiers. They include unit, number, area (width), and distance. Sasti's research discussed the state of the modern Javanese language.

The semantic study of language portrays the relationship between cultural reality and language, one of which is to address the relations of the field of meaning. Kridalaksana (2008) defines the field of meaning as the realization of a certain universe through a set of lexical elements of language. The relations are reflected in a meaning component. It assumes that each lexical element has distinguishing elements (Sarifuddin, 2020). The distinguishing elements can be identified from the definition and meaning of the group of words being compared. In this case, the Javanese language has its local wisdom to mention or "realize" it in the form of the language of the measure system (Setiyanto, 2018). Local wisdom is knowledge found by certain local communities through a group of empirical experiences in attempting and integrating with an understanding of the culture and natural conditions of a certain place (Padmanugraha, 2010). Language will show it in collocation and set relations (Rizma, 2019). The former means there is a syntagmatic and linear relationship between words, while the latter means there is a paradigmatic relationship because words are replaceable to one another (Chaer, 2009).

Research or attempts to record the medical terminology have been conducted in other languages, although some errors were found (Mc Conchie, 1997; Stephenson, 2022). It shows that there is an attempt to properly record and publish cultural treasures, especially those regarding traditional medicine. In this research, the authors have observed and analyzed the field of meanings in measure lexicons more than just terminology as what has been conducted in other languages.

Nida & Sebeok (1979) described the stages in the analysis of diagnostic components, such as: 1) choosing words that have the same meaning as "medicine composition", 2) collecting data on referents in the Javanese language, 3) distinguishing the visible characteristics, 4) determining diagnostic components,

and 5) rechecking data that may have been missed. From these stages, definitions that are appropriate for this era are then drawn up (Ahimsa-Putra, 2019). and thus, the words related to the measure in the Javanese language are understandable in the present context. The recording is performed by using a lexicographic system. In lexicography, what is commonly done is compiling a dictionary or thesaurus (Halliday, Teubert, Yallop, & Cermakova, 2004). In the compilation of a dictionary, the order of entries is commonly used. Halliday explained that the entry contains: 1) entries (the details of word), 2) how to read, 3) part of speech, 4) etymology or information on the origin or the formation of the word, 5) its definition, and 6) its quotations or examples.

Method

This research explores the lexicalization of measure lexicons (numeral classifiers) in traditional medicine concoctions recorded in SPRJJ, a manuscript collection of the Reksa Pustaka Library, Pura Mangkunegaran, Surakarta. The manuscripts are the copied ones made on July 30, 1922 (Adji, 2015). This research used three stages of study.

First, the data collection was performed using note-taking techniques (Kesuma, 2007).This technique was completed by recording the classifiers associated with the measure. The recording comprised measuring lexicons, objects, and examples of the use of measure with the authentic text of the manuscript.

Second, the classifiers were analyzed using the dictionary method ((M. A. K., Halliday et al., 2004; M. A. K. Halliday, 2001). It was performed by providing the classifiers in entries and finding out their definition, information, and meaning. The definition, information, and meaning were then entered as a glossary in the analysis table. In addition to the dictionary method, the authors also used the thesaurus method to find out the closeness of meaning to other lexicons (M. A. K. , Halliday et al., 2004). This method connects the classifiers in a hyponymy and meronymy relationship. This method is also assisted by the referential equivalent method (Kesuma, 2007; Kridalaksana, 2008; Sudaryanto, 1995, 2015). This method addresses the relationship of linguistic units with something referred to which is something outside the language. The Javanese measure lexicons had a close relationship with the Javanese culture, especially in the health sector.

The last stage was the presentation of data. At this stage, the definition and meaning of the classifiers were presented and the meaning relations were formed. The definition and meaning relations were also described according to the culture of the Javanese people at the time the SPRJJ manuscript was made.

Findings and Discussion

Measure (Bahasa Indonesia: *takaran*) means a tool for composition making, *sukatan*, and measuring (Language Development and Fostering Agency of the Republic of Indonesia, 2022). It comes from the root word *takar* which means “unit of content measurement”. Having provided the understanding of native Indonesian speakers, it can be concluded that what is meant by measure is a “tool or unit for measuring”. In the SPRJJ manuscript, there were at least 77 words used to measure it.

There are 77 (seventy-seven) words in the Javanese language. It means that the Javanese language has various lexicons for measuring traditional medicine. It

also confirms that the Javanese people have thorough and specific methods of making traditional medicine proven by several research on the richness of Javanese medicines.

1. *beras*
2. *bungkul*
3. *cangkir*
4. *cekothokan*
5. *celub*
6. *cengkang*
7. *cengkir*
8. *cuwil*
9. *cuwo alit*
10. *dariji*
11. *dariji pesagi*
12. *dherek*
13. *dhuwit*
14. *dim*
15. *empu*
16. *endhas ayam*
17. *gegem*
18. *gelas anggur*
19. *gendul*
20. *glintir*
21. *gobang*
22. *grigeh*
23. *iris*
24. *iji*
25. *jempol*
26. *jimpit*
27. *jodho*
28. *jumput*
29. *kacang*
30. *kati*
31. *kemiri*
32. *kepel*
33. *kilan*
34. *kilan pesagi*
35. *klingsi*
36. *klungsu*
37. *kluwak*
38. *lanjer*
39. *lembar*
40. *lepek*
41. *lepek cangkir*
42. *lerek*
43. *mripat*
44. *nyari*
45. *pang*
46. *pecak*
47. *pikul*
48. *pringkil*
49. *pucuk*
50. *punggel*
51. *pupus*
52. *ros*
53. *ros dariji*
54. *saga*
55. *sanyari pesagi*
56. *sen*
57. *sendhok alit*
58. *sendhok beling*
59. *sendhok dhahar*
60. *sendhok teh*
61. *sepalih*
62. *sigar*
63. *sirah peniti*
64. *siwur*
65. *siyung*
66. *tangkep*
67. *tekem*
68. *temu ros*
69. *tetes*
70. *tugel*
71. *udheg*
72. *ujung*
73. *uler*
74. *upa*
75. *uwit*
76. *uwos*
77. *wuku*

The words were used as measured lexicons in SPRJJ. In morphology, these words are categorized in quantifiers. In Bahasa Indonesia, quantifiers are words that usually go after a quantity to express and form a phrase called a numerical phrase. This may sometimes go before the numerical words (Maryani, 2011); for example, in "*Bawang jaler tigang bungkul*". The word *bungkul* is quantifier for *bawang jaler* (onion) and *tigang* (three) is numerical word.

Forms of grammatical units in the measure lexicons

There are at least two dynamics of word formation in language internally and externally (Simpen, 2021). The SPRJJ is particularly dominated by word formation or internal lexicalization. The external formation is found in the word *sen* which is an auditory loan word from the Dutch *cent* to refer to a currency coin. Borrowing in Javanese is also commonly present in bahasa Indonesia (Meysitta, 2018).

Finding the Javanese measure lexicons in SPRJJ is quite easy to do. Most Javanese native speakers are still familiar with these measures. These measures contain words that are common in the Javanese language. The measure lexicons will functionally be found in a sentence that refers to information on the number of

certain objects. In a sentence, these words occur in at least monomorphemic and polymorphemic forms. Morphologically, it can be further divided into root words, affixes, and compound words. Those types of words.

Base words

The former Javanese society had a broader and dynamic vocabulary of medicinal measure as reflected in the richness of the vocabulary in the form of base words. This shows that the Javanese society had a medicinal measure system that is rich in ecological explanations. The base words will later determine the dynamics of the vocabulary since it can be modified linguistically. Base words or single words are words referred to as monomorphemic (Ramlan, 2001; Susanti, Oktaviani, & Suryadi, 2021). This means that it cannot be segmented into meaningful forms. This type of medicinal measure includes the following lexicons:

1. *beras*
2. *bungkul*
3. *cangkir*
4. *celub*
5. *cengkang*
6. *cengkir*
7. *cuwil*
8. *dariji*
9. *dherek*
10. *dhuwit*
11. *dim*
12. *empu*
13. *gegem*
14. *gendul*
15. *glintir*
16. *gobang*
17. *grigeh*
18. *iji*
19. *iris*
20. *jempol*
21. *jimpit*
22. *jodho*
23. *jumput*
24. *kacang*
25. *kati*
26. *kemiri*
27. *kepel*
28. *kilan*
29. *klingsi*
30. *klungsu*
31. *kluwak*
32. *lanjer*
33. *lembar*
34. *lepek*
35. *lerek*
36. *mripat*
37. *pang*
38. *pecak*
39. *pikul*
40. *pringkil*
41.
42. *pucuk*
43. *punggel*
44. *pupus*
45. *ros*
46. *saga*
47. *sen*
48. *sigar*
49. *siwur*
50. *siyung*
51. *tekem*
52. *tetes*
53. *tugel*
54. *udheg*
55. *ujung*
56. *uler*
57. *upa*
58. *uwit*
59. *uwos*
60. *wuku*

Of the 59 (fifty-nine) medicinal measures of the base words, it shows that the base words can still be found in the daily life of the Javanese people. At least, it has been recorded in the Javanese Dictionary written by Poerwadarminta (Poerwadarminta, 1939). The Javanese medicinal measure lexicons are still well-recorded as numeral classifiers as well.

Affixed words

The former Javanese society used measure in all possible speech contexts, for example in sentences. The informative sentences must describe what is in the imagination of the addresser. This is related to the effectiveness of the sentences. The more effective the sentences are, the smoother the communication taking place.

In a sentence, the measure word sometimes requires a derivation process to adjust to the function of sentence. Therefore, the affixed words may be present.

Affixed words are basic words or words that are subject to affixes. It belongs to the polymorphemic category, meaning that it can be segmented into smaller meaningful forms. The word *cekothokan*, for example, can be segmented into {*cekothok*} and {*-an*}. *Cekothok* is a Javanese word that means "hand curve" (Gericke & Roorda, 1901). As for {*-an*} is a bound form which grammatically means "the result of an action performed on the basic word" (Wedhawati, et al., 2006).The following is an explanation of the affixed forms found in this research.

Table 1. Javanese affixes

No.	Measure Lexicons	Formation	Grammatical Meaning
1.	*cekothokan*	{*cekothok*} + {*-an*}	*-an* (allomorph) "the result of an action performed on the basic word"
2.	*nyari*	{*N-*} + {*jari*}	*Ny-* (allomorph) "to be in that state in the basic word
3.	*sanyari pesagi*	{*sa-*} + {*nyari pesagi*}	(*sa-*) "one or single"
4.	*sepalih*	{*sa-*} + {*palih*}	(*se-*) "one or single"
5.	*setangkep*	{*sa-*} + {*tangkep*}	(*se-*) "a pair of"

There are few affixes for forming words to form measure words. Those that are often used are allomorphic affixes in the Javanese language (Wedhawati, et al., 2006). There are at least three allomorphs of the Java language used in the Javanese measure lexicons in SPRJJ, comprising {*-an*}, {*N-*}, and {*sa-*}. The allomorph {*-an*} was found in the basic word of the verb category. This shows that in addition to the word *jumput* "the act of taking the ingredients out using two or more fingers", there is often the word *jumputan* "the result of *menjumput*". As for the allomorph {*N-*} attached to the noun, the word *jari* becomes *Nyari*. Allomorph {*N-*} forms a derivative verb which means "to be like what is called *jari* (fingers)". In this case, both the width and length of the measured objects. The allophones {*se-*} were also found, as it refers to "one or single" in the *jejampian* measure, such as *satekem* or *setekem*. The allophone /*sa-*/ is commonly found in a variety of formal speech acts.

Although there are few affixes used in the Javanese medicinal measure lexicons in SRPJJ, the formation of invented words was still carried out to enrich the range by the criteria: 1) if the words are intended to say that what is being measured is the result of an action in the base, then {*-an*} can be used, 2) if the words are intended to say for measuring by taking into account the condition of the object being measured, in this case, is size and volume, {*N -*} can be used, and 3) if the words are intended to say as a means of "one or single", {*sa-*} can be used.

Compound words

In addition to using monomorphemic and polymorphemic forms with affixes, the former Javanese people also perceived that one-word description is not enough. They tried to arrange words that have more complicated concepts to make it easier to describe. The medicinal measure lexicons in Javanese found in the SPRJJ is a combination of words. The words were combined into units that describe the lexicons in more detail.

The lexicons in the word *sendhok* (spoon), for example, had the combined words such as *sendok alit* (small spoon), *sendhok dhahar* (*table spoon*), *sendhok teh* (tea spoon), and *sendhok beling* (spoon made of glass). It indicates the different meanings between the *sendhok dhahar* (table spoon) and the *sendhok alit* (smaller spoon). Therefore, it is essential to analyze the composition of the word combination.

Table 2. Word combination composition analysis

No.	Composition Construction	Measure Lexicons	Meaning in Classifiers
1.	A as part of B	*endhas ayam*	'Chicken head'
		lepek cangkir	'cup mat'
		ros dariji	'finger joint'
		sirah peniti	'pin head'
2.	A made of B	*sendhok beling*	'spoon made of glass'
3.	A used for B	*gelas anggur*	'wine glass'
		sendhok dhahar	'table spoon'
		sendhok teh	'tea spoon'
4.	A turned into B	*cuwo alit*	'smaller *cuwo*'
		sendhok alit	'smaller spoon'
5.	B in A's state	*dariji pesagi*	'a square that the sides similar to human fingers size'
		kilan pesagi	'a square that the sides are in inch'
6.	B turned into A	*temu ros*	'joint *ros*'

The analysis of the A-B model was inspired by Kridalaksana (1989) by using the insertion method on the combination of the words. There were at least 6 (six) types of compound words. The variety of these types indicates the complexity of measuring the composition in SPRJJ. For this reason, it needs newly formed concepts in word combinations. In short, these word combinations are adjustable to the objects being measured.

Based on the findings, there were three linguistic forms used to create the measure lexicons in Javanese, such as basic words, affixed words, and word combinations. It confirms that the Javanese people used many linguistic features to enrich the treasures of the measure. Many types of words show people's specific concerns about such measure (Husaini, Harun, 2020). The number of words used as a measure indicates the number and specificity of the object being measured. In this case, the Javanese people's perspective at that time saw *jejampian* ingredients. In the 18th century, the Javanese people can measure with specific and good accuracy, even though people do not yet have standard measurements like today's (ounces, cm, ml, etc.). The linguistic tool used to measure is in line with the objects being measured. Such formation is inseparable from the meanings of the words.

Meaning in classifiers

In linguistics, the relationship between words and meaning is often called a referential relationship or a relationship that has a reference. Reference means the relationship between the referent and the word used to represent it (Ogden & Richards, 1923). In semantics, the relationship between the words is direct in nature. It goes the same for the meaning and its referents. However, the relationship

between the words and the referents is indirect (Chaer, 2009). Based on the observations in SPRJJ, there were at least two references: abstract references and concrete references.

Abstract meaning references

The Javanese people has a strong imagination system in measurement. This can be seen from the use of abstract meanings in references. Abstract references are the relationship between words and referents that are following the concept of the words being formed. In this case the Javanese people really believe in universality which is actually systematic. When measuring tamarind, for example, the Javanese people already know that it has clustered properties. According to the Javanese people, the size of *asem* (tamarind) is *dherek*, 'clusters'.

This is in-line with the concept showing that the abstract references are formed from comparative or metaphorical processes. Furthermore, these abstract concepts can be classified into several different classifications of reference feature concepts. The following table presents some examples of the use of comparison as meaning formation in the Javanese medicinal measure lexicons found in SPRJJ.

Table 3. Formation meaning comparison lexicons in SPRJJ

No	Concept of Reference Features	Measure Lexicons	Meaning	Classified Objects
1.	Taken units	*Dherek*	'clusters'	*asem*
		Iji	'the whole part or unit'	*seprantu, cengkeh, kemukus, cabe*
		Pikul	'the whole part or unit'	*cabe*
		Saga	'the whole part or unit'	*cendhana, jinten, mesoyi*
		Tangkep	'the whole part or in pair'	*gendhis aren*
2.	Form	*Uler*	'intact like a snake'	*pisang*
		Gobang	'intact like a *gobang*'	*gendhis aren*
		Siyung	'intact like a *taring buta* (giant)'	*bawang*
3.	Weight	*Dhuwit*	'as heavy as money *dhuwit*'	*cengkeh, mesoyi*
4.	Amount	*Jodho*	'in pair'	adas
5.	Length	*Sen*	'as small as penn'	*klapa/kajeng timur, gendhis batu*
6.	Comparison	*Empu*	'the big part of human's hand'	*temulawak*
7.	Volume	*Beras*	'as small as rice'	*dringo*
		Dariji	'as small as human's fingers; volume'	*kajeng rapet, manis jangan*
		endhas ayam	'as big as chicken head'	*bengle, temulawak*
		Jempol	'as small as human's thumb'	*tawas, empu kunir*
		Kacang	'as big as cat'	*inggu, prusi*
		Kemiri	'as big as human's ankle'	*asem kawak, apu*

	Mripat	'as big as human's eyeball'	*kunci, kencur*
	sirah peniti	'as small as pin head'	*dhedhes*

Based on the data, the feature concept that becomes a reference for comparison or a metaphor in the measure lexicons can be seen from its similarities, such as taken units, form, weight, amount, length, comparison, and volume. The features were taken from comparing objects and their conditions to other situations outside the same language. For example, *dherek*, which in general is 'sibling', means more than one and possibly a group or clusters, compared to tamarind which usually contains several pieces of fruit. The description can also make the objects more specific. For example, the word *empu* in curcuma refers to the "hand palm-like" of the curcuma tuber which is usually used in traditional medicine.

The measure lexicons also record the technology available at that time. In terms of the similarity of weight, the Javanese people used a balance for the measurement method. This means that the Javanese people of the 18th century needed a tool to measure the weight of the measured object. However, the number of units that show weight by standard (except *dim* and *kati*) is still small and used another object called *dhuwit*. The measurement still used the weight of objects that are common in society and may be used at home. In terms of the similarity of volume, the Javanese people used size distinguishing characteristics, especially volume, such as length, width, and height (three-dimensional shape) as a measure. This is not the same, meaning that only the objects being measured that is assumed to have the same volume.

Furthermore, the shape features that used the reference object *siyung*. It is the canine tooth of *buta* (giant). Such similarity of shape and colour was used to mark the measure, especially onions which have the same shape and colour as *siyung*. As for the shape (and perhaps colour) features, this can also be seen from the size of the *uler* (caterpillar), which refers to the banana as an object.

Concrete references of meaning

The former Javanese society also used objects or techniques that were able to measure properly. This certainly does not use human imagination as in words with abstract meanings. Measures that have concrete meaning use an action on the measured objects, whether using tools or not.

In contrast to abstract references, concrete references are the relationship between the word and the referent that corresponds to the substance of the word being formed. This means that its formation is free from elements of shift and comparison of meaning. The words can be categorized as nouns or verbs. The measure words were combined with other words that form information. *Sigang pantun sangang lanjer,* for example, means rice stems of nine parts of *lanjer*. There are three important things: the number, the measure, and the object being measured.

The findings show that the concept of measure lexicons in SPRJJ emphasizes three factors for determining the measure, such as the objects being measured, the measure (meaning how much it is), and the accompanying number (how many times or how long). In this case, the measure also complies with the linguistic rules formed in the syntactic process (Ramlan, 2005).

Table 4. Linguistic rules formed in the syntactic process

No.	Meaning Construction	Measure Lexicons	Examples
1.	'½ of Z'	*sepalih* and *sigar*	*Kemiri sepalih*
2.	'X as part of Y from Z	*bungkul, grigeh, lanjer, lembar, pringkil, pucuk, pupus, saga, ujung, uwit, uwos,* dan *wuku*	*Bawang jaler 3 bungkul.*
3.	'X as content of Y'	*cangkir, cekhotokan, cengkir, cuwo alit, gelas anggur, klingsi, klungsu, kluwak, lepek, lepek cangkir, sendhok alit, sendhok beling, sendhok dhahar, sendhok teh, siwur, tekem, cuwil,* dan *gegem*	*Tempaos 3 cangkir, kacang ijem kang deles ijemipun ½ cangkir.*
4.	'X multiplied by Y'	*glintir, iris, jimpit, jumput, kati, kepel, kilan, punggel, tetes, tugel,* dan *udheg*	*Tlutuh pisang saglintir*
5.	'The whole X multiplied by Y'	*ros, ros dariji, sanyari pesagi,* dan *cengkang*	*Kajeng manis jangan Cina saros dariji*
6.	'The whole X of the length Y'	*dariji pesagi, dim, kilan pesagi, nyari, pang, pecak,* dan *temu ros*	*Babagan turi 4 dariji pesagi.*

Attempts to use these diverse words and meaning relationships are intended for the ease of language and impact vocabulary enrichment (Nafisah & Budiarso, 2020). It also shows that the Javanese people had a good affinity with the objects being measured. They used their metaphorical skills and language skills to convey ingredients appropriately according to the times and existing technology.

Classification and use of measure lexicons

The measure lexicons in SPRJJ acts as proof of the creativity of the Javanese people. Lexicons can be obtained from vocabulary that already exists in the language (Sinungharjo, 2020). Therefore, lexicons are rich in the discussion and examination of the field of vocabulary acquisition. This means that there is vocabulary that has been used in fields other than measurement and then used in the field of measurement as a measure word. What the areas of taking measured vocabulary that occur are and on what kind of objects the measure is used will be discussed in this section.

Field of lexicons

The Javanese society does not create measure lexicons from zero lexicons. They use the lexicons that already exist in the Javanese language and are used in the field of measure. This naturally occurs in language. The widespread use of the lexicons is a sign of progressive field development of society. Measure lexicons in SPRJJ was obtained from fields that are close to the object reference being measured. Based on the observations, there were seven areas of vocabulary, comprising economic objects, numbers, spatial structures, names of activity, names of body parts, names of plant, names of household stuff, names of animal, and exact sizes.

Table 5. Field of lexicons

No	Field of Lexicons	Classification
1.	Economic Objects	*dhuwit, gobang, sen*
2.	Numbers	*jodho, satunggal*
3.	Geometries	*dariji pesagi, kilan pesagi, sanyari pesagi,*
4.	Names of Activity	*cekothokan, celub, cuwil, dherek, gegem, glinter, glintir, iris, jimpit, jumput, kepel, kilan, nyari, pikul pringkil, punggel, satugel,(se)palih, sigar, tangkup, tekem, tetes, tugel, udeg*
5.	Names of Body Parts	*cengkang, dariji, endhas ayam, jempol, kemiri, mripat, pecak, siyung, ros dariji,*
6.	Names of Plant Parts	*beras, bungkul, cengkir, empu, grigih, iji, kacang, klingsi, klungsu, kluwak, lanjer, lerek, pang, pucuk, pupus, ros, saga, temu ros, ujung, ujung, uwit, upa, uwos, wuku.*
7.	Names of Household Stuff	*cangkir, cuwo alit, gelas anggur, gendul, lembar, lepek, lepek cangkir, sendhok alit, sendhok beling, sendhok dhahar, sirah peniti, siwur*
8.	Names of Animal	*uler*
9.	Exact Sizes	*dim dan kati*

Use of measure system in SPRJJ

The Javanese people are wealthy in medicinal spices. This triggers the use of specific lexicons for certain objects. The measure method that has been implemented in SPRJJ was used to classify the types of material to be used. In this research, 25 (twenty-five) types of materials were found, which had been measured using various possible methods. The following table presents the noted 25 types of materials.

Table 6. 25 types of materials

No	Types of Ingredients	Way of Measuring the Composition	Examples of Measured Units
1.	Tender Roots	*gegem*	*oyot alang-alang, oyot* ranggitan
2.	Soluble Materials	*celub*	*mawa areng*
		udheg	*toya*
3.	Segmented Stem	*temu ros*	*sedhah*
		ros	*tebu cemeng*
4.	Tree Trunk	*kilan*	*bonggol gedhang, papah gedhang, brutawali*
5.	Petal Stem	*lanjer*	*sigang*
		pecak	*sere*
6.	Mineral	*kacang*	*prusi*
7.	Seeds	*cekothokan*	*adas*
		beras	*dringo*
		jodho	*adas*
		kemiri	*asem kawak, apu*
		kluwak	*asem*
		saga	*cendhana, jinten, mesoyi*
		klingsi	*dringo*
		klungsu	*asem, gendhis jawi, areng jati*
		lepek cangkir	*jinten*

		sepalih	*kemiri, woh gayam*
		tugel	*pala, pulasari, ragi*
8.	Fruits	*sigar*	*jeram*
		iji	*seprantu, cengkeh, kemukus, cabe*
		kacang	*inggu*
		lerek	*asem*
		pikul	*cabe*
		uler	*pisang*
		dherek	*asem*
9.	Small unit	*upa*	*sekul*
		uwos	*pala*
		wuku	*sarem*
10.	Liquid	*cangkir*	*toya jeram pecel, cokak*
		cengkir	*toya klapa*
		cuwo alit	*toya*
		gelas anggur	*toya*
		siwur	*toya*
		tetes	*tin klir, lisah permen*
		gendul	*toya, puwang*
11.	Viscous liquid	*lepek*	*tajin*
		sendhok alit	*madu, cukak*
		sendhok beling	*madu*
		sendhok dhahar	*cokak, tajin*
		sendhok teh	*madu, isi slasih*
12.	Sticky Liquid	*glintir*	*tlutuh pisang*
13.	Leaves	*gegem*	*bayem raja*
		kati	*godhong lombak, gadhung*
		lembar	*sedhah, trawas*
		pucuk	*godhong kemuning, godhong kelor, godhong turi, godhong kemangi*
		punggel	*godhong sulasih cemeng, godhong landhep, godhong sembukan*
		pupus	*godhong kara prau*
		tekem	*gondhong pacar, godhong gagan, suket grinting*
		pang	*sekar plasa kuning, kemangi, godhong poo*
14.	Sugar	*cuwil*	*gendhis*
		gobang	*gendhis aren*
		pringkil	*gendhis*
		tangkep	*gendhis aren*
15.	Pounded Materials	*jumput*	*ketan cemeng, ketumbar, apu, uwos*
		jimpit	*sarem*
16.	Material Sheet	*sanyari pesagi*	*sarang bestru*
17.	Lumber	*dariji*	*kajeng rapet, manis jangan*
		dariji pesagi	*babagan turi*
		nyari	*babagan glugu sepuh*
		ros dariji	*dringo, kajeng legi, seprantu*
18.	Rind	*cengkang*	*sepet*
19.	Tree skin	*kilan pesagi*	*klikikan uwit*
20.	Rice	*kepel*	*sekul*

21.	Raw Solid	*dhuwit*	*cengkeh, mesoyi*
22.	Processed Solid	*sen*	*klapa, kajeng timur, gendhis batu*
23.	Grass	*uwit*	*suket ingai*
24.	Shoot	*ujung*	*gandarosa, bung kelor, keji beling*
25.	Tuber (root)	*bungkul*	*brambang*
		dim	*jae*
		empu	*temulawak*
		endhas ayam	*bengle, temulawak*
		grigeh	*lempuyang*
		mripat	*kunci, kencur*
		siyung	*bawang*
		iris	*kunir, bengle, temulawak*
		jempol	*tawas, empu kunir*

The findings of this research confirmed that there were at least 25 (twenty-five) different types of materials that are often used in SPRJJ. These ingredients are in the form of processed materials or raw materials. The existing processed materials are basic ingredients found in the household, meaning that there are no special ingredients and complicated compositions. The raw materials are also materials that can be and are easily obtained from surrounding places or markets. Besides, some uniqueness was also found in the Javanese medicinal measure lexicons in SPRJJ. The lexicons has three relations, such as one-to-one relations, one-to-two or more relations, and a two or more-to-one relations.

1. *sanyari pesagi* → *sarang bestru*

2. *gegem* → *oyot alang-alang*, *oyot ranggitan*, *bayem raja*

3. *cuwo alit*, *gelas anggur*, *Siwur* → *toya*

In contrast to the modern measure lexicons which is more universal, the traditional measure lexicons recorded in this manuscript is more specific than the modern one, belonging to type 2. Type 3 also takes place in the present time, as it has also been reflected when the manuscript was made. The use of various quantities of materials is more practical when using the measure lexicons with various quantities as well.

The Javanese people has decent knowledge and experiences in using traditional ingredients existing in society at the time. Having been provided with the existing ingredients around them, people can make the composition of traditional medicines. Such experiences were then recorded in the units of measurement they used.

Conclusion

After having a thorough discussion on the lexicalization of the measure lexicons (numeral classifiers) on the Javanese traditional ingredients recorded in *Serat Primbon Reracikan Jampi Jawi* and the cultural context of its measure system, the authors highlight several conclusions. *First*, the form of language adapts to the creativity and references in the measure lexicons. *Second*, the meaning of the measure lexicons characterizes the experience and knowledge of the Javanese people in the medicinal system of their everyday life. *Third*, the measurement system is the answer to the needs, specifications, and inheritances of the local wisdom of the Javanese people, especially in the field of traditional medicine.

Based on the results, there are three recommendations for the development of related studies: 1) It is significant to disseminate the results of this research in pharmaceutical forums in Indonesia, 2) the findings can be used as data in the international Natural Language Processing references, and 3) This field provides opportunities for linguists, philologists, and medical experts to conduct research on health and medicine with traditional corpus as the material object.

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