Sistema de Apoio à Escrita de Poemas

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ABSTRACT
This thesis presents a web interface which simplifies poem writing by doing a classification of a poem and suggesting words to complete a verse.

The ShRep system and the Leia and Palavroso modules were used. The Leia does the words’ phonetic transcription and syllabic division, the Palavroso obtains the words’ grammatical classes and the ShRep system is a shared repository that allows the integration of annotation tools.

The ShRep integrated tools were used as a basis for the integration of five new tools. The InitialPoemCreator which inserts a poem in the repository, Leia, VerseSplitter that classifies the verses, StanzaSplitter that classifies the stanzas and the PoemSplitter which adds the number of verses and stanzas information. The poems’ classification uses the integrated tools to insert the poem on the ShRep and adds its classification, composed by the number of verses and stanzas, number of metric and grammatical syllables of the verses, the verses’ classification according to the number of metric syllables, rhyme and stanzas’ classification according to the number of verses.

The words’ suggestion is based on one or more criteria such as the verse with which we pretend to rhyme, the verse to be completed, the minimum and maximum number of metric syllables for the verse, the grammatical class and a related word with the word to be suggested. A pre-processing of these features was done to about three hundred thousand words which were added to a database to make this process efficient.

Keywords – Rhyme, Poetry, Shared Repository, Database, Poems’ Classification, Words’ Suggestion, Web Interface

1 INTRODUCTION
This work is centred on poetry writing support systems. These systems are used to help the writing and reading of poems. Just like spelling checkers help editing and correcting documents, these systems are meant to give some support on the writing of poems helping as well to its classification and analysis. There are some special requirements when dealing with poetry, where the musicality and rhythm of the verses is something that can’t be ignored by an automatic system to analyse and manipulate poetry.

There are few tools or systems which allow the manipulation of poems and recognise the specific requirements of poetry. This lack of tools is more obvious when we want to process poems in Portuguese. A research was made in order to analyse the systems that deal with poetry, not only in Portuguese but in other languages as well. Two types of systems were found. On the first type of systems it’s possible to read, comment and debate poetry from various authors. The ones from the second type are systems that work in websites or as autonomous applications and allow the user to deal with poetry. These may go from word games, where the objective is to build a poem, to the automatic creation of poetry.

We want to develop a system that helps the writing of poetry with its two great functions being the automatic classification of poems and the suggestion of a word to complete a verse. The poems classification is done according to the Portuguese poetry concepts which consider the structure and metric: the number of verses and stanzas, the form of stanzas, the number of syllables on verses and the rhyme structure. The suggestion of words that end verses can be based on a criteria or combination of criteria previously selected such as restrictions imposed by the poem structure, grammatical category allowed for the word and the number or metric syllables for the verse to be completed. The biggest challenge is to reduce the number of suggestions.

Leia[1] and Palavroso[2] modules, developed in prior projects, were used. The Leia does the words’ phonetic transcription and syllabic division and the Palavroso obtains the words’ grammatical classes.

These will be integrated on the ShRep[3] system. This system consists on a platform that permits the integration of annotation tools. An annotation system is a mechanism which lets add new information to a signal data, such as, commentaries, notes, explanations, references, examples, warnings, corrections or any other type of information. This type of information is frequently called metadata, because it adds information on an already existing signal data.

The ShRep already has some integrated tools[4], which will serve as basis to the integration of new tools. After being integrated, the tools will be available to be used, not only by the system that will be developed but by any other system that interacts with ShRep and needs its functionalities.

The final result will be a web interface that makes easier the writing of poems supported on a software module that classifies poems and on another one that suggests words to complete a verse.
2 RELATED WORK

The writing support systems can be divided in two different types. The systems with the objective of help the searching and reading of poems and the systems that help the poems’ writing.

2.1 Sites that help the poems’ searching and reading

For the first type of systems, to Portuguese language we have the Projecto Vercial[5] and the Rua da Poesia[6]. In both sites is possible to find a large number of poems of Portuguese writers such as Luís de Camões and Fernando Pessoa. The goal of these sites is to make known and to honor as maximum as possible Portuguese writers, since the medieval ages to nowadays.

There were found many sites in other languages. For the English language there are for example, the Poets and Poems[7] and the E-Poetry[8]. In both is possible to find information about writers of different nationalities and many poems to read. In the first site is possible to post poems and there are poetry contests. In the second site are announced events with the objective of make known systems that are related to poetry.

2.2 Systems that help the poems’ writing

For the systems that help the poems’ writing there are systems that work in websites or as autonomous applications and allow the user to deal with poetry. These may go from word games, where the objective is to build a poem, to the automatic creation of poetry. From the systems found we present the following:

- The Dada Poem Generator[9] is an online system that receives some words in a textbox or a site from its URL, and randomly rearranges the words to make poems with no sense.

- The Think Zone Poem Generator[10] makes random poems. First, it randomly selects sentence patterns. Then, wherever the pattern has a number, it randomly selects a word from one of the numbered word lists. We can either choose one of the sample sets of words and sentence patterns, or we can enter our own words and sentence patterns.

- The Dicionário de Rimas Poéticas[11] and the Rimador[12] are rhyme dictionaries. A rhyme dictionary is used to find a word that rhymes with other in the poem, generally to complete a verse. The user only have to give the last letters of the word that want to find and the system return the dictionary words with the same letters in the final of word.

- The Ray Kurzweil’s Cybernetic Poet[13] reads a selection of poems by a particular author or authors and then creates a “language model” of that author’s work. The language model incorporates computer-based language analysis and mathematical modelling techniques. This system can then write original poems from that model. The poems have a similar style to the author(s) originally analyzed, but are completely original new poetry.

3 PORTUGUESE POETRY CONCEPTS

There are many features that characterize a poem like number of verses and stanzas of the poem, number of metric and grammatical syllables of the verses, the verses’ classification according to the number of metric syllables, rhyme and stanzas’ classification according to the number of verses. The following sections show how to these features can be determined for Portuguese language.

3.1 Words’ accentuation

The words’ accentuation feature can be used to characterize the rhyme. The following table shows the possible classifications for a word.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Accentuation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxitona</td>
<td>Last syllable</td>
<td>Avô</td>
</tr>
<tr>
<td>Paroxitona</td>
<td>Penultimate syllable</td>
<td>Grave</td>
</tr>
<tr>
<td>Proparoxitonas</td>
<td>Antepenultimate syllable</td>
<td>Óptimo</td>
</tr>
</tbody>
</table>

3.2 Phonetic Transcription

![Figure 1: SAM-PA.](image-url)
To verify the rhyme is used the phonetic transcription of words. The phonetic transcription used on this work is based on phonetic alphabet to European Portuguese pattern dialect (see Figure 1).

3.3 Words Grammatical Class
Another important feature that characterizes the rhyme is the grammatical class of the words where there is rhyme. The traditional grammar of Portuguese language has ten different grammatical classes, *adjectivo, advérbio, artigo, conjunção, interjeição, nome, numeral, preposição, pronomes* and *verbo*. Some of them are divided in subclasses. The Palavroso tool can obtain the different possible grammatical classes for a word.

3.4 Metrical syllables
The poetry is written, no to be beautiful in the paper, but to achieve a desirable rhythm, that can be appreciated when a poetic text is recited. For these reason, in poetry we consider the metrical syllables instead of the number of grammatical syllables. The number of grammatical syllables can be obtained with Leia tool, and there are some rules to obtain the metrical syllables with base on grammatical syllables:

- We only count the syllables to the last emphasised syllable
- Inside a verse, when a word end with vowel not emphasised and the following word start by a vowel or an H, it can occur an *Elipse* that is the fusion of two different sounds or a *Crase* that is the fusion of two equal sounds
- *Sinérese*: Fusion of two different sounds in one inside the same word
- *Diérese*: The opposite of *Sinérese*
- *Hiato*: The opposite of *Elipse*
- *Aférese*: Removal of a vowel at word’s start
- *Síncope*: Removal of a vowel inside the word
- *Apócope*: Removal of a vowel at word’s end

3.5 Verse Classification
A verse can be classified according to the number of its metrical syllables. The following table shows the possible classifications.

<table>
<thead>
<tr>
<th>Metrical syllables number</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monossilabo</td>
</tr>
<tr>
<td>2</td>
<td>Dissilabo</td>
</tr>
<tr>
<td>3</td>
<td>Trissilabo</td>
</tr>
<tr>
<td>4</td>
<td>Tetrassilabo</td>
</tr>
<tr>
<td>5</td>
<td>Pentassilabo</td>
</tr>
<tr>
<td>6</td>
<td>Hexassilabo</td>
</tr>
</tbody>
</table>

3.6 Rhyme Classification
The rhyme of the poem can be characterized by many features, such as, position in the verse, combination, accentuation, the sounds matching and the value. The following table shows the possible classifications.

<table>
<thead>
<tr>
<th>Classification by:</th>
<th>Rhyme Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position in the verse</td>
<td>Interna or externa</td>
</tr>
<tr>
<td>Combination</td>
<td>Seguida ——— AAA</td>
</tr>
<tr>
<td></td>
<td>Emparelhada — AABB</td>
</tr>
<tr>
<td></td>
<td>Cruzadas ——— ABAB</td>
</tr>
<tr>
<td></td>
<td>Abraçada ——— ABBA</td>
</tr>
<tr>
<td></td>
<td>Interpoladas ——— ABCDA</td>
</tr>
<tr>
<td>Accentuation</td>
<td>Aguda, grave, esdrúxula</td>
</tr>
<tr>
<td>Sounds matching</td>
<td>Perfeita or imperfeita</td>
</tr>
<tr>
<td>Value</td>
<td>Pobre, rica, rara, preciosa</td>
</tr>
</tbody>
</table>

3.7 Stanza Classification
A stanza can be classified according to the number of verses. The following table shows the possible classifications.

<table>
<thead>
<tr>
<th>Number of verses</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monótico</td>
</tr>
<tr>
<td>2</td>
<td>Disíctico</td>
</tr>
<tr>
<td>3</td>
<td>Terceto</td>
</tr>
<tr>
<td>4</td>
<td>Quadra</td>
</tr>
<tr>
<td>5</td>
<td>Quintilha</td>
</tr>
<tr>
<td>6</td>
<td>Sextilha</td>
</tr>
<tr>
<td>7</td>
<td>Septilha</td>
</tr>
<tr>
<td>8</td>
<td>Oitava</td>
</tr>
<tr>
<td>9</td>
<td>Nona</td>
</tr>
<tr>
<td>10</td>
<td>Décima</td>
</tr>
<tr>
<td>n</td>
<td>n versos</td>
</tr>
</tbody>
</table>
4 DEVELOPED SYSTEM

This section presents the architecture of developed system and its functionalities and graphic interface.

4.1 Architecture

The architecture of Sistema de Apoio à Escrita de Poemas (SAEP) is a typical three layer architecture.

![SAEP Architecture](image)

Figure 2: SAEP architecture.

The presentation layer consists on a web interface that interacts with user. This interface is supported by two modules of application layer. The Classificador makes poems’ classification and the Sugestor suggests words to complete a verse. The Data Access layer is composed by ShRep, used by Classificador, and by a MySql Database, used by Sugestor.

In following sections presents with detailed information, how ShRep is used, the Classificador, the Database organization and the graphic interface.

4.2 How ShRep is used

The ShRep is used to save the information of the poem and its features during the process of a poem classification. The figure 3 shows the conceptual model of ShRep that is used on this work.

![Conceptual Model of ShRep](image)

Figure 3: Conceptual model of ShRep.

- terminacao – Phonetic transcription of verse ending
- letraRima – Letter of rhyme according to terminacao
- silGra – Number of grammatical syllables
- silMet – Number of metrical syllables
- divMet – Division of the verse in metrical syllables
- claNsil – Classification according to the number of metrical syllables
- acentuacao – Accentuation of the last word of verse

Then is created a analysis with one segmentation and split the signal data in stanzas that corresponds to segmentation’s segments. To each stanza is added a classification. Then a group of features is added to this classification:

- nVersosEstrofe – Number of stanza’s verses
- claNVersos – Classification according to the number of verses
- rimaSeguida – Verses where Seguida rhyme occur
- rimaEmparelhada – Verses where Emparelhada rhyme occur
- rimaCruzada – Verses where Cruzada rhyme occur
- rimaAbracadabra – Verses where Abraçada rhyme occur
- rimaInterpolada – Verses where Interpolada rhyme occur

At last, in the poem classification process is created a analysis with one segmentation that only contains one segment that corresponds to the entire poem. In this segment is also added a classifications with following features:

- nVersos – Total number of verses of poem
- nEstrofes – Total number of stanzas of poem
4.3 Classificador

The Classificador receives as input a poem and returns as output the poem classification. This process is made by integrated tools of ShRep. The following figure shows the Classificador supported by integrated tools that were integrated during this work.

![Classificador Diagram]

Figure 5: Classificador.

InitialPoemCreator

This tool creates a signal data on the ShRep repository that corresponds to the poem that is received as input.

Leia

The Leia is a tool that does the phonetic transcription and syllabic division of words. The integration of this tool was a bit different of the others. Normally a tool is integrated by change the tool code, but sometimes there is no possible to do this type of integration, for example, because the code is no longer available. In this case, the Leia code is available, however is obsolete and the process of integration could take too much time.

Then, was developed a module LeiaAdapter that works as adapter between ShRep and the Leia tool. This adapter have the responsibility of ask for the required data to Leia execution, interpret the results and insert them on ShRep. This method of integration was the same as used with Palavroso tool[4].

In this case, the LeiaAdapter have to obtain the verses of poem, and for each of them, does the phonetic transcription and the syllabic division in terms of grammatical syllables.

VerseSplitter

The VerseSplitter split the poem in verses and classifies each of them. The classification contains the phonetic transcription of verse ending, the letter of rhyme according to verse ending, the number of grammatical syllables, the number of metrical syllables, the division of verse in metrical syllables, the classification according to the number of metrical syllables and the accentuation of the last word of verse.

StanzaSplitter

This tool split the poem in stanzas and classifies each of them. The classification contains the number of stanza’s verses, the classification according to the number of stanza’s verses, and the verses where Seguida rhyme, Emparelhada rhyme, Cruzada rhyme, Abraçada rhyme and Interpolada rhyme occur.

PoemSplitter

The PoemSplitter split the poem in a unique segment that contain the entire poem and classifies it. The classification is composed by the total number of verses and stanzas of poem.

Classification Process

After the integrated tools insert the classifications on ShRep, the Classificador has the responsibility of obtain the interesting classifications and return them as result of execution of the program. The following figure shows the entire classification process.

![Classification Process Diagram]

Figure 6: Classification Process.

4.4 Database organization

During this work, was created a database with three tables. The Palavra table contains the key PalavraID and the fields Palavra, Termincao, MinSil e MaxSil. The ClasseGramatical table contains the key ClasseGramaticalID and the fields PalavraID and ClasseGramatical. At last, the PalavraRelacionada table contains the key PalavraRelacionadaID and the fields PalavraID and PalavraRelacionada. The figure 7 shows the relation between tables. A word can have more than one related word and also...
more than one grammatical class, so that is the reason for the
tables PalavraRelacionada e ClasseGramatical.

Figure 7: Relational model of database.

A pre-processing of these fields was done to about three
hundred thousand words which were added to a database to
make the suggestion process efficient.

The field Palavra is a Word.

The field Terminacao is the phonetic transcription of end of
word, the MilSil and MaxSil are respectively the minimum
and maximum number of metrical syllables for the word.

The field ClasseGramatical is a possible grammatical class for
the Palavra with key PalavraID.

The field PalavraRelacionada is a related word with Palavra
that has PalavraID as key.

4.5 Sugestor

The Sugestor receives as input the criteria to select words from
database, and return as output a list of words that can complete
a verse. This process is done by doing searches on database
where is a dictionary with about 300.000 words with pre-
processed information of selection criteria.

The words’ suggestion is based on one or more criteria such as
the verse with which we pretend to rhyme, the verse to be
completed, the minimum and maximum number of metric
syllables for the verse, the grammatical class and a related
word with the word to be suggested.

The verse (or word) with which we pretend to rhyme is a
mandatory field while the rest are optional, and are used to
reduce the number of suggestions.

Suggestion Process

The following poem is incomplete because the last word of
fourth verse is missing, and it is marked with a question mark.

Gosto da Natureza,
Seja Inverno ou Verão,
Desde as pequenas flores,
Ao majestoso ?

There are about 300.000 words on database and our challenge
is to find one that is proper to complete the fourth verse of this
poem.

The first condition used is the fact that we have to rhyme with
other verse or word that is a mandatory field. Then, we can for
example choose that we want to rhyme with “Seja Inverno ou
Verão”. In this situation, the Sugestor shows 7.440 suggestions
of words.

We can reduce the number of suggestions if we select other
criteria such as the grammatical class for the word. So, we can
for example choose that we want a noun for the grammatical
class of words to be suggested. In this case, the number of
suggestions was reduced to 2.049 words.

Another form to reduce suggestions is by set the number of
minimum and maximum metrical syllables for the verse. We
for example set both these fields to six metrical syllables.
In this situation the number of suggestions was reduced to 38.

At last, we can also set a related word to the word to be
suggested. We can for example set this field to animal. In this
case the number of suggestions was reduced to two words,
“leão” e “cão”. We can, for example choose “leão” which
results in the following poem:

Gosto da Natureza,
Seja Inverno ou Verão,
Desde as pequenas flores,
Ao majestoso leão.

Any optional field can be used in combination with the verse
(or word) with which we pretend to rhyme (that is a mandatory
field), whatever other optional fields are or not in use.

4.6 Graphic Interface

The SAEP’s graphic interface is a web interface which
simplifies poem writing by doing a classification of a poem and
suggesting words to complete a verse.

This is divided in four pages, the Inicio page that is the
homepage, the Classificador page that is used to classify
poems, the Sugestor page that is used to suggests words that
complete a verse and the Contactos page that contains the
contacts and credits of the site.

Inicio page

The figure 8 shows the homepage. This describes what is the
SAEP and presents a short explanation about how to use the
Classificador and the Sugestor.
Classificador page

The following figure shows the Classificador page.

Sugestor page

The figure 10 shows the Sugestor page.

5 Evaluation

This section presents the evaluation to the developed work in two sections, results and conclusion.

5.1 Results

To make an evaluation of the developed work were used 12 poems. The classification of poems was determined manually and by the Classificador and was counted the number of errors in each feature of classification.

The first test was with a stanza of “Os Lusíadas” poem:

Ó que famintos beijos na floresta,
E que mimoso choro que soava!
Que afagos tão suaves, que ira honesta,
Que em risinhos alegres se tornava!
O que mais passam na manhã, e na sesta,
Que Vénus com prazeres inflamava,
Melhor é experimentá-lo que julgá-lo,
Mas julgue-o quem não pode experimentá-lo
The following table presents the results to this stanza, with the expected classification, the classification obtained with the Classifier and the number of errors between the two classifications.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Expected</th>
<th>Obtained</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Nº stanzas</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Stanza

<table>
<thead>
<tr>
<th>Classification</th>
<th>Expected</th>
<th>Obtained</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

Seguida Rhyme

<table>
<thead>
<tr>
<th>Classification</th>
<th>Expected</th>
<th>Obtained</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
</tbody>
</table>

Emparelhada Rhyme

<table>
<thead>
<tr>
<th>Classification</th>
<th>Expected</th>
<th>Obtained</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>(7,8)</td>
<td>(7,8)</td>
<td>0</td>
</tr>
</tbody>
</table>

Cruzada Rhyme

<table>
<thead>
<tr>
<th>Classification</th>
<th>Expected</th>
<th>Obtained</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>(1,3,5)(2,4,6)</td>
<td>(1,3,5)(2,4,6)</td>
<td>0</td>
</tr>
</tbody>
</table>

The same process was made to the other poems. The following tables presents de results for the 12 analyzed poems, where are presented the number of errors on each feature to each poem.

<table>
<thead>
<tr>
<th>Classification / Poem</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nº stanzas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Stanzas

<table>
<thead>
<tr>
<th>Classification / Poem</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nº stanzas</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Verses

<table>
<thead>
<tr>
<th>Classification / Poem</th>
<th>3</th>
<th>0</th>
<th>4</th>
<th>1</th>
<th>8</th>
<th>5</th>
<th>21</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Metrical Syllables

<table>
<thead>
<tr>
<th>Classification / Poem</th>
<th>5</th>
<th>1</th>
<th>0</th>
<th>7</th>
<th>1</th>
<th>0</th>
<th>14</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nº verses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Grammatical Syllables

<table>
<thead>
<tr>
<th>Classification / Poem</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhyme Letter</td>
<td>0</td>
<td>0</td>
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Total

There were found 35 errors in metrical syllables counting in a total of 197 analyzed verses.

5.2 Conclusion

We can say that in global the goals of this work were achieved. During this work was developed a system that make the automatic classification of a poem, with base on poetry concepts for Portuguese language and suggests words to complete a verse based on a criteria or combination of criteria previously selected.

The ShRep system and the Leia and Palavroso modules were used. The Leia was used to do the words’ phonetic transcription and syllabic division, the Palavroso was used to obtain the words’ grammatical classes and the ShRep was used to support the integration of five new annotation tools that add the classification of verses, stanzas and poem to the poem, to make easier the classification of poems.

During this work was also created a database with pre-processed information about the words to be suggested to make the suggestion process efficient and flexible.

At the end was developed a user friendly web graphic interface, so system can be available online.

In particular, we can say that although in an initial phase it was necessary dispend some time to learn how to use ShRep, the time lost at beginning was recovered in a posterior phase due to flexibility and generality of ShRep system that allow an efficient integration of new tools.

The results obtained reveal that the system works fine, with exception on the number of metrical syllables where we find some errors. A plausible correction is to show de minimum and maximum metrical syllables number, and an expected number if we consider the number of metrical syllables of the other verses of poem.

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