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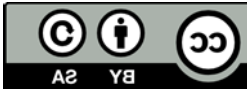
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NEW GLOBAL CLOUD SOLUTIONS AND NOOJ’S WOVEN DIGITAL INTELLIGENCE FOR HOMOLOGATED SYNTHETIC FIXED COMMUNICATION¹

R.Bucciarelli; A.F. Rodrigo; A. Bendjoudi; J.J. Enriquez F.S. Tortoriello; I. Veronesi

Abstract

In this paper, we explore teaching strategies and excellent skills, which can meet the needs of higher education, such as the latest generation of technologies used in business, social and personal life, as well as in institutions and colleges of higher education. Knowledge is reformulated and disciplines acquire new connotations specialized in scientific fields such as scientific and distributed informatics, and computational linguistics. The new communication belongs to the NLG languages and, therefore, the transmission is done through synthetic, standardized, non compositional and area-based techniques. It is no longer a prescriptive, inaccurate and abstract grammar, but precise rules for the description of codes, which, by calculation, includes categories with sentences and then entrusts the software with the resolution in the linguistic environment. The research questions our team asks and describes are the following ones: what strategies and what reference models should the virtual communicator implement? To provide answers and validations, the team uses reference systems to arrive at scientifically valid answers, such as: Ahmida Bendjoudi 's model to identify the new production parameters of fixed structures in first and second level experimental language equations; Max Silberztein's NooJ system, for the production of analysis and paraphrases of sentences and tools to develop formal dictionaries and grammar and NLP applications such as automatic semantics annotators, paraphrase generation; Wolfram Technologies Digital Intelligence A.W. model for the BuViTeGMS , Digital Intelligence A.W. model for the production of analysis of fixed sentences and production in high-calculation environments for the production of textual paraphrases.

Keywords: Education, knowledge, teaching syntactic analysis, transformational analysis, digital intelligence.

NUEVAS SOLUCIONES EN LA NUBE Y LA INTELIGENCIA DIGITAL ENTRELAZADA EN EL ENTORNO DE NOOJ PARA LA COMUNICACIÓN FIJA SINTÉTICA HOMOLOGADA

Resumen

¹ 14TH INTERNATIONAL CONFERENCE NOOJ 2020 Book of Abstracts Lexicons and Dictionaries, New Global Cloud Solutions and NooJ's Woven Digital Intelligences for Homologated Synthetic Fixed Communication; Raffaele Marcone, Giulia Savarese, Roberto Capone, Rosa Giulio, Marianna Greco, Colomba La Ragione, Javier Julian Enriquez.

En este trabajo, exploramos estrategias de enseñanza y destrezas óptimas, que pueden satisfacer las necesidades de la educación superior, como la última generación de tecnologías utilizadas en los negocios, la vida social y personal, así como en instituciones y colegios de educación superior. El conocimiento se reformula y las disciplinas adquieren nuevas connotaciones especializadas en ámbitos científicos como la informática científica y distribuida y la lingüística computacional. La nueva comunicación pertenece a las lenguas NLG y, por lo tanto, la transmisión se realiza mediante técnicas sintéticas, estandarizadas, no compositivas y basadas en el área. Ya no es una gramática prescriptiva, inexacta y abstracta, sino reglas precisas para la descripción de códigos, que, mediante el cálculo, incluye categorías con frases y luego confía el software con la resolución en el entorno lingüístico. Las preguntas de investigación que nuestro equipo realiza y describe son las siguientes: ¿qué estrategias y puntos de referencia debería implementar el comunicador virtual? Para proporcionar respuestas y validaciones, el equipo utiliza sistemas de referencia para llegar a respuestas científicamente válidas, como: el modelo de Ahmida Bendjoudi para identificar los nuevos parámetros de producción de estructuras fijas en las ecuaciones de lenguaje experimental de primer y segundo nivel; El sistema NOOJ de Max Silberstein, para la producción de análisis y paráfrasis de oraciones y herramientas para desarrollar diccionarios formales y aplicaciones de gramática y NLP, como anotadores de semántica automática, generación de paráfrasis; Wolfram Technologies Digital Intelligence A.W. para el modelo BuViTeGMS, Digital Intelligence A.W. para la producción de análisis de frases fijas y paráfrasis textuales.

Palabras clave: Educación, conocimiento, enseñanza de análisis sintáctico, análisis transformador, inteligencia digital.

1. Introduction

This work is included in the project Literary and Linguistic Computing, Digital and Public Humanities and summarizes the efforts of researchers around the world who, within their own excellence, give their contribution in real time, with a constant and fruitful collaboration. It seems almost a utopia, as it is feasible to conduct research hypotheses made of comparisons, clashes, individual studies and collaboration, but also of people, who take on or share each other's language, i.e. values, traditions and cultures. Each researcher gives specificity to the disciplinary field of origin and so it is possible to create an osmotic thought seen in the plurality of aspects as linguistic L1 L2, i.e. computational, mathematical, physical, psychological, pedagogical, etc. in order to capture simultaneously and with joint techniques the production of a scientifically validated model. Thus, in this work, the authors have been supported by: Ahmida Bendjoudi, independent scientist and mathematical linguist; Michel Planat, expert in quantum computing, Femto Institute - ST Dip. of Micro Nano Sciences and Systems (MN2S), Besançon, France; Ali Hussein, University of Al-Hamdaniya; Waleed Younus Meteab, University of Al-Hamdaniya; Karen Alkoby, Gallaudet University Dip: Department of Information Technology; Rosalee Wolfe, DePaul University, Chicago, United States, School of Computing.

The urgency for the diffusion of teaching in digital (DH) and Public Humanities (PH) has led researchers around the world to study PH models for the formalization of databases, for well-defined areas in the social, political, economic and cultural context. The research conducted so far has shown that linguistic communication in today's society is characterized by synthetic codes, homologated and for more and more specific specialist areas, as Bernardini *et al.* (2018) say, according to whom we run the risk of having micro languages in micro languages, but with what results or risks?

Can we reproduce the meaning of a word or expression in an acronym? Could we ever scientifically reproduce the language of speakers, i.e. emotions, cultures, evolving traditions? Our team

tries to describe a scientific model that analyzes the sentence, detects its linguistic mechanisms, deepens its syntactic analysis, transformational analysis and then formalizes its certainties in a text constructor, following the models of the masters of rhetoric and style of the classical world, the techniques of linguistic processes typical of generative grammars, but, above all, using the Nooj Lexicon-Grammar, an irrefutable model to explain the linguistic mechanisms related to a minimum sentence, to nuclear and extra nuclear operators and describe their effects.

We will focus on Nooj Syntactic Analysis, Transformational Analysis Transformational Grammar, and M. Silberztein, to validate descriptions and hypothesize a text constructor. Our team focuses on Barahona and Koza (2021) “Computational modeling of a nominal Ellipsis grammar for Spanish on joint descriptions” and describes Digital Intelligence software, combining them with Adalta technologies. It approves by explaining the grounds, the model by Mota *et al.* (2020) “Paraphrasing Emotions in Portuguese”, hypothesizing collaboration.

2. Calculating text

Bendjoudi (2020) highlights that a solution to experimental linguistic equations means simply finding a way to predict texts (yet to be composed) using parameters in the equations. In other words, solution refers to the symmetry through which one can unitize several texts in one pattern. The solution, in the next figure, includes the use of coefficients of mind as parameters in the equations, for finding patterns, and defines degree of freedom or symmetry:

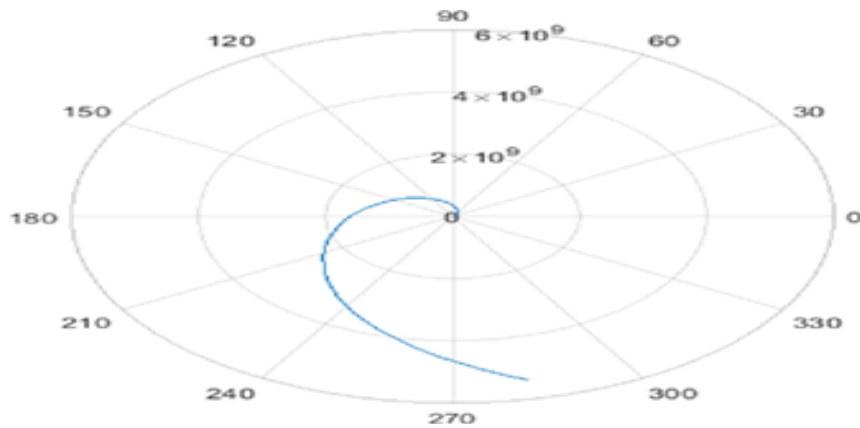


Figure 1: الحمد لله رب العلمين الرحمن الرحيم ملك يوم الدين اياك نعبد و اياك نستعين اهدنا الصراط المستقيم صراط الذين انعمت عليهم غير المغضوب عليهم و لا الضالين.

For this chapter (it is called Al-Fatiha), the letter Alif (i.e. ا) has the distance and order as:

$$Distance = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]$$

$$Order = [1, 14, 22, 29, 44, 50, 52, 62, 64, 74, 78, 80, 86, 99, 105, 121, 138, 140, 143]$$

These coordinates mean simply:

- The letter Alif is mentioned at position 1 in the text,
- Is mentioned at position 14 in the text,
- Is mentioned at position 22 in the text,
- And so on.

4

By position, we refer to number of total letters from the beginning (including black spaces, which we call non-letter)

The same is said for the other letters

Fourier series:

The letter Alif can be represented by Fourier series (function in order):

$$F(x) = a_0 + a_1 * \cos(x * w) + b_1 * \sin(x * w) + a_2 * \cos(2 * x * w) + b_2 * \sin(2 * x * w) + a_3 * \cos(3 * x * w) + b_3 * \sin(3 * x * w) + a_4 * \cos(4 * x * w) + b_4 * \sin(4 * x * w) + a_5 * \cos(5 * x * w) + b_5 * \sin(5 * x * w) + a_6 * \cos(6 * x * w) + b_6 * \sin(6 * x * w) \dots$$

We may add more Fourier series to the formula, it depends on the degree of accuracy we need, just like Taylor development of functions

From the above formula, we may:

1. compute text quality,
2. produce texts-alike by extracting the model by which the text is composed
3. compare it with other texts,

The other letters have similar Fourier series and properties.

3. Lexicon-grammar of the Italian language : a scientific model

This first phase is crucial because it is man, who builds a scientific process to describe natural language, namely DPH, to harness it in the formalisms of a digital code. It is therefore the linguist, who examines the phonological, morphological processes of a minimal sentence, in order to describe its characterizing features. He draws, that is, on a sentence produced by a speaker in a communicative context to understand the semantics, through certain syntactical processes. These processes will be explained by the experience of computational linguists, who have carried out more than ten years of experimental work at various research centers, in particular at the Laboratoire d'Automatique et Linguistique (C.N.R.S. - Paris 7), where new methods for linguistic investigation have been developed, based essentially on the construction of syntactic lexicons that, taking advantage of the opportunities offered by computer data processing, aim at a description, the most comprehensive and formalized possible, of a given language.

These researches are part of the project Lexicon-Grammar of the Italian Language (L.G.L.I) EMDA (1981: lbs.). Our team has clarified that the verb and its operators are nuclear elements of the sentence, while the extra nuclear elements complete and modify its semantics.

As a result, the former have generalizing effects, while the latter have characterizing effects. The linguist decides, through a comparative analysis produced on a minimum sentence between L1, Italian language, and L2, Arabic language, the effects of syntagmatic substitution of nuclear elements and manipulations of extra nuclear ones.

Starting from the first nuclear investigation, he describes a syntagmatic substitution and a deletion (ellipsis), points out the syntactic mechanism by reflecting on the two languages, namely Italian and Arabic, which have two distinct syntagmatic positions, and then refers to classical style models to define whether this manipulation can affect the style and semantics of the sentence. In fact, making a first comparison of the two sentences L_1 - L_2 we will have the following. In the sentence "Joe loves Lea", L_1 , the verb occupies a central positionality, just like in the Arabic language, but the syntagmatic sequence is N_0 V N_1 , while, if we take the Arabic sentence, L_2 , " Karim loves Raya" we will also have a central syntagmatic positionality of the verbal operator, but the position of N_1 - N_2 changes: in fact in the Arabic sentence, since the slope of the writing is different from the Italian language, we will have a mirror inversion, getting the sentence **جو يحب**, with a syntagmatic sequence of the type N_2 V N_1 . However, while modifying the agents, the semantics do not change. Therefore, we can say that the semantics of the minimum

sentence is conferred by the nuclear operator and its positionality does not change the value of the communicative message, but can modify the characterization of the operator. The answer therefore comes from the ancient world, in fact it is already known from the Latin language that the order of the words is far from being indifferent: it is regulated, on the one hand, by some habits and preferences, on the other by considerations of sense, style or rhythm. In the case in point, the final position was usually reserved to the verb preceded by its complements, while the subject was preferred at the beginning (SOV). One would move away from this use either to highlight an element of the sentence or to obtain a succession of words corresponding to the needs of euphony or expressiveness. A corollary of such a functional interpretation seems to be the use of the verb placed in the initial position in a war chronicle, the "Bellum Africum", where the verb placed at the beginning of the sentence seems to appear as a clear strategy of focusing. Thus Canepari (2006) argued that such placement occurs when the sentence is not self-sufficient, but somehow it is a function of a close statement and therefore the concatenation is very tight. The second important mechanism is the deletion of a nuclear nominal element of scientific relevance, which Walter Koza, Hazel Barahona, in "Grammatical modeling of nominal ellipsis in Spanish", wanted to develop according to a computer model for a generative syntax of the ellipsis. These authors theoretically describe the latter as a technique to avoid redundancy and, therefore, they identify in the cancellation process a reduction tool that nevertheless harnesses a phonetic form that should generate an elliptical structure. Canepari (2006) states that the ellipsis (from the Greek *éllipsis* ; "omission/failure;") is a rhetorical figure (of speech) that consists in omitting, within a sentence, one or more terms that can be implied, to obtain a particular effect of conciseness and icasticity or effects of waiting and tension. The probabilistic calculation of the graph shows the scientificity of the result of Fig 2 **[[PRENOM]₁ N [POSTNOM]₁]SDI Coord [[PRENOM]₂ N [POSTNOM]₂]SDII**

The probabilistic calculation of the graph detects the scientificity of the results:

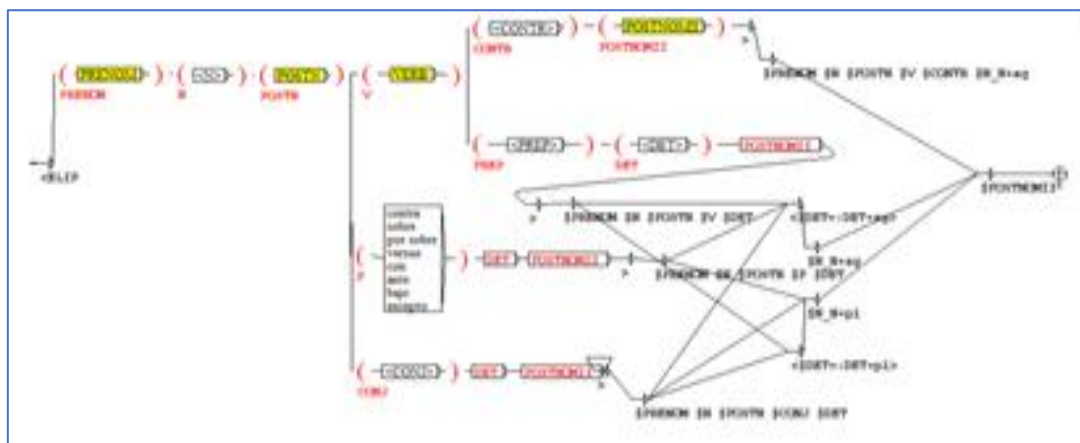


Figure 2: Graphic of an ellipsis by Koza *et al.* (2020)

This is followed by the phase called "Humanities", which concerns extra nuclear elements, i.e. those morphological, syntactic and semantic processes that denote a language, a specific area, a culture, as they give the sentence the specificity of the speaker, through the identification and validation of: analysis of morphologies, tones, techniques. This phase identifies in the processes of transformational and distributional classification the characteristics of the sentences produced by the speaker in a communicative code connected to concrete linguistic facts, aimed at the

transmission of emotions and feelings. Hence, we identify the pronominalization, a manipulative technique that replaces the extra nuclear elements, which we will briefly describe according to the lexicon-grammar. In the Italian sentence - "*Catullo ama Lesbia*" ($N_0 V N_1$) we can replace N_0 and N_1 with pronouns, so "*Catullo*" can be replaced by the personal pronoun "*Egli*" (He), so we will have the sentence: "*Egli ama Lesbia*" ($P V N_1$); in the same way, "*Lesbia*" can be replaced by the post verbal pronoun (Povp) "*lei*" (her), therefore we will have the phrase "*Catullo ama lei*" ($N_0 V Povp$). Additionally, the pronoun, in the form of a pronoun particle, can also become preverbal (Pvp) by rewriting the sentence as follows: "*Catullo l'ama*", ($N_0 V Pvp$).

We had to report these sentences in Italian, since in English there is no pronominal particle, nor is it possible a preverbal position of the pronoun, unless we resort to a sentence like "*E' lei che Catullo ama*" (This is her whom Catullus loves), where the relative pronoun "whom" goes before the verb "*amare*" (to love).

It is the preverbal positionality of the pronominal substitution that gives the text the emotional gradualness. If we introduce an ellipsis with a cancellation effect, we will have a pause and an emotional intonation of effect. In the sentence "I love you" Pvp- V we have: $T'amo = T\# amo\#$ the emphasis gives tone to the sentence because it is preceded by a silence and the deletion is replaced by a psychological element. Therefore, we can say that in the positionality of extra nuclear elements we can recognize the degree of emotionality. In this sense the team tries to scientifically describe a first level of emotional analysis.

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4. Changing it rests (Heraclitus) : NLG languages

The diachronic variation, as stated by Silvestri (1994), is undoubtedly the most characteristic aspect of linguistic phenomenology: languages are continually transformed and every linguistic state is like the Heraclithean fire, which exists in its transformation, because it is itself and as such rests in a perpetual becoming of its own being and its unmistakable substance. This unmistakable condition makes languages difficult to describe and perhaps it is utopian to think about establishing their characteristics. And yet natural languages are today becoming more and more formal, i.e. synthetic and homologated for areas, perhaps because they become formal codes even before being processed automatically. Then, we agree, even if with different techniques, on three points of the authors' asserts in Mota *et al.* (2020) "Paraphrasing Emotions in Portuguese", such as: - identification of verbal categories for the identification of the types of verbal operators, in order to include them in the relevant categories. As a result, we agree, even if with different techniques, on three points of the authors' asserts (Mota *et al.*, 2020), such as: - individuation of verbal categories for the identification of the types of verbal operators, in order to include them in the appropriate categories. In fact, this represents the first process of loss of individualization of the semantics of the sentence and, therefore, a homologated scientific generalization is sought: this is the only way to enter the first phase of natural languages and have the same characteristics in order to describe the emotionality of the speaker. The authors provide the emotional paraphrase as the only mechanism for the reproduction of NLG, Mota *et al.* (2020), cited work, eSPERTO - System for paraphrasing in editing and revision of text; - the identification in the paraphrasing of the pronominal deictic as manipulation to individuate the emotionality, A. Barreiro, in Automatic Paraphrase of the informal registration in the formal

register, that is the moment in which the language enters a specific textuality, therefore it loses its identity of the Ego and, at this point, the specialized skills intervene to identify and then describe its characteristics and.....

5. NooJ transformational analysis: an unquestionable model .Max Silberztein

The probabilistic validation of the production of sentences comes from NooJ in Max Silberzstein with an irrefutable scientific model and as he himself states:

NooJ is capable of both parsing and producing any sentence that matches a given syntactic grammar. We use this functionality to describe direct transitive sentences, and we show that this simple structure of sentence accounts for millions of potential sentences in Syntactic Analysis, Transformational Analysis, Transformational Grammar..... One important characteristic of NooJ is that all the linguistic descriptions are reversible, i.e. they can be used both by a parser (to recognize sentences) as well as a generator (to produce sentences). Silberztein (2010, 2015a, 2015b, 2016) shows how by combining a parser and a generator and applying them to a syntactic grammar, we can build a system that takes one sentence as its input, and produce all the sentences that share the same lexical material with the original sentence. As Silberztein (2016) has shown, any serious attempt at describing a significant part of a language will involve the creation of a large number of elementary transformations.

Here are two simple transformations [Pron-0] Joe loves Lea = He loves Lea; [Passive] Joe loves Lea = Lea is loved by Joe. The second one can be implemented in NooJ via the following grammar: NooJ morphological grammars can be used not only to recognize and analyze and describe words, but also to produce lists in the dictionary type. In fact, from a simple initial elementary sentence *Joe loves lea*, we can describe one million declarative phrases, thereby presupposing the reliability of NooJ dictionaries:

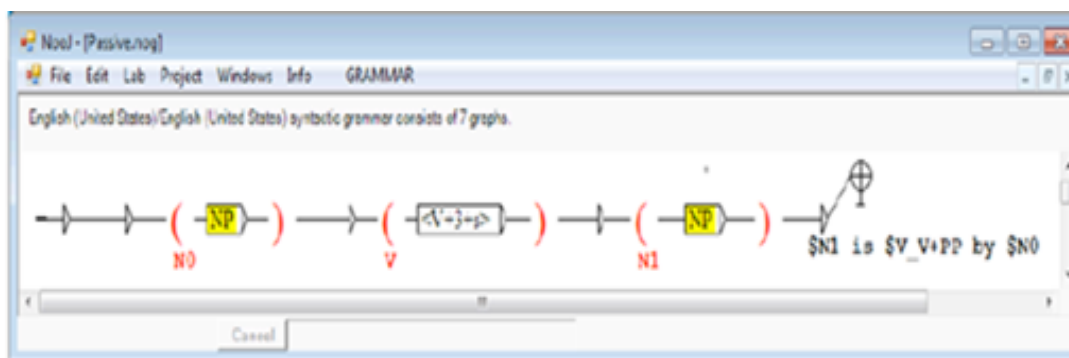


Figure 3: NooJ transformational and distributional analysis

[Pron-0] Joe loves Lea = He loves Lea [Pron-1] Joe loves Lea = Joe loves her; [Pron-2] Joe gives an apple to Lea = Joe gives her an apple, [Cleft-0] Joe loves Lea = It is Joe who loves Lea, [Cleft-1] Joe loves Lea = It is Lea that Joe loves; [Nom-0] Joe loves Lea = Joe is in love with Lea

In summary, NooJ morphological grammars can be used not only to recognize and analyze and describe words, but also to produce lists in the dictionary type. As a result, from a simple initial

elementary sentence *Joe loves lea* we can depict one million declarative phrases, thus assuming the reliability of Nooj dictionaries.

6. Lexical-algebraic grammar in the Nooj environment

Having to validate in a language environment or formal coding, a new formal grammar and a new dictionary and implement co-occurrence texts, we will move on to the realization of transformational and distributional analysis of the sentences tested in the chosen traits, with a local grammar and an electronic dictionary in a Nooj linguistic environment. Nooj is the evolution of Intex (Silberztein, 1993), on which Silberztein worked over the decade (1992-2002 under the guidance of Maurice Gross (1986, 1988) at LADL). Nooj allows linguists to formalize various types of linguistic description: spelling and spelling, lexicons for simple words, multi-word units and frozen expressions, supple and derivational morphology, local, structural, and transformational syntax. An important feature of Nooj is that all linguistic descriptions are reversible, i.e. both a parser (to recognize sentences) and a generator (to produce sentences) can use them. Like this manner, in line with (Silberztein 2010, 2016), we can show and build, by combining a parser and a generator and applying them to a syntactic grammar, a system that takes a sentence as input, and which produces all the sentences that share the sentence the same lexical material with the original expression:

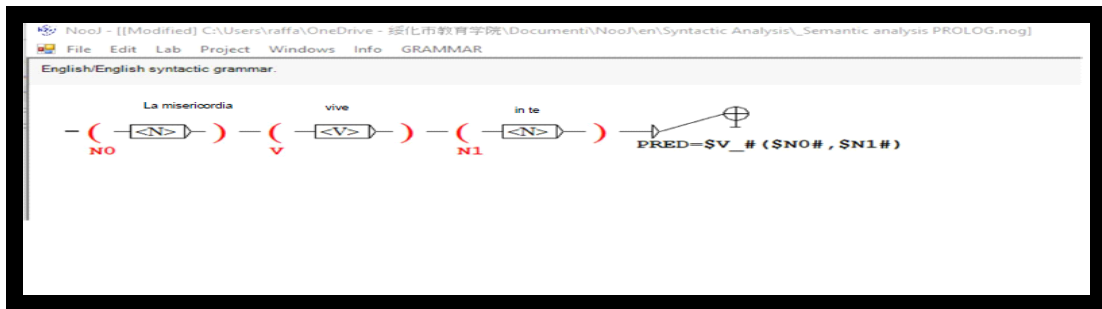


Figure 4: Minimum sentence Fs = N0 V N1

The second one can be implemented in Nooj via the following grammar:



Figure 5: Sentence processed LOC V N0

This chart uses three variables \$ NO, \$ V, and \$ N1. When analyzing the sentence, Mercy lives in you, the variable \$ NO stores the word Mercy. \$ V stores living \$ N1 stores in you. The output of the grammar "\$ N1 is \$ V_V + PP of \$ NO" produces the string Mercy lives in you. Note that morphological operations such as "\$ V_V + PP" operate on Nooj's Atomic Linguistic Units (ALU) rather than just strings. In other words, Nooj knows that the word form is an instance of the verb to live. It can produce all the word form conjugated and derived from this ALU, such as the living. Here, \$ V_V + PP takes the value of the variable \$ V (*ama*), lemmatizes it (*vive*), produces all its verb forms, and selects those that have properties + PP. The transformational and distributional analyzes of the minimum sentence of the chosen triplet has a fixed formal code and represents the minimum unit that...

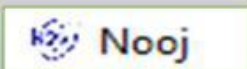
In accordance with the above, one characteristic of NooJ (2005) is that its corpus processing engine uses large-coverage linguistic lexical and syntactic resources, which allows NooJ users to perform sophisticated queries that include any of the available morphological, lexical or syntactic properties. In this way, Silberztein's methods could serve as a basis for carrying out operations in the Linguistics and Mathematics setting that would allow users to build broader mathematical, lexical, and semantic structures in these fields of study. Silberztein's NooJ system allows us to produce sentence analysis and paraphrases, tools for developing formal dictionaries and grammar, and NLP applications such as semantic annotators.


In short, as Rodrigo and Bonino (2019) point out:

NooJ enables the formalization of different linguistic levels: orthography, morphology and syntax. Using NooJ in teacher training spheres also helps students to be mindful of the need of linguistic formalization and the advantages it brings with it. In our opinion, NooJ allows us to be in the vanguard of research in Computational Linguistics.


As example, let us see the following picture relating to "Transformation and reformulation of the traits of the Divine Comedy":


**Transformational analysis (syntactic analysis) Nooj
In Nooj environment**





In Nooj environments, the Dante triplet becomes graphical, local grammar, database.
In the digital intelligence environment, we will have real-time text re-phrasing.








Figure 6: Transformational and syntactic analysis in the NooJ's environment

As we can notice, NooJ's system is capable of both parsing and producing any sentence that matches a given syntactic grammar. We use this functionality to describe direct transitive sentences, and we show that this simple structure of sentence accounts for millions of potential sentences in Syntactic Analysis, Transformational Analysis, and Transformational Grammar. One important characteristic of NooJ is that all the linguistic descriptions are reversible, i.e. they can be used both by a parser (to recognize sentences) as well as a generator (to produce sentences).

7. Digital Intelligence W.T Adalta Wolfram

Digital Intelligence W.T (BuViTeGMS© (2019) is a redactor text - a reformulator, a translator, a reconverter, composed of a multilingual database and a writing sheet. 1) It is a scientific model (Nooj mind), which analyzes and identifies with phonological calculations the rhetoric of the speaker, which is combined with NooJ descriptive linguistic techniques (lexicon-grammar); 2) it scientifically describes the transformational and substitutive manipulations of a sentence; 3) it produces probabilistic calculation of a sentence on the NooJ's model in linguistic environments. The digital worksheet produces in real time a text composed of fixed sentences, with the recall from the DB, free sentences and, on command, translates and reconverts the text, including iconic languages such as: Arabic, Chinese and sign languages; He also produces veritable diachronic texts. If we want to describe the WT software, we can say that it is composed of: - a database of fixed sentences transformed into acronyms, ie. synthesized with deletion and then reduction techniques, in which it focuses the nuclear of the sentence. It is built and prepared with precise syntagmatic manipulative techniques of nuclear and extra nuclear positionality. Finally, it determines, from the deictic positionality, the degree and emotional level scientifically validated by studies of linguistic engineers, who explain how the facts are in quantum physics (Planat, 2016). Certainly, the DB is reconvertible and transforms even iconic languages into acronyms. To support the database, WT uses Adalta Wolfram Cloud techniques, combines a state-of-the-art notebook interface with the scalable programming language for small to huge programs, with immediate access to a wide range of algorithms and embedded knowledge:



Figure 7: Digital Intelligence W.T (BuViTeGMS© (2019)

8. Conclusion

Along the way we tried to identify the new virtual communicator, illustrating scientific models to describe an irrefutable process of the professional of writing and online teaching. Today more

and more a formal communication is affirmed, that is why we are in the world of Mood as emblem of the virtual communication. Hence, the only possible model of communication is the one that allows us to enter more and more perfect formal codes, with the risk, however, of losing our cultural identity. The human language is in continuous evolution and it is difficult an emotional description, that is, the collection of precise data. Then, the paraphrasing, which is the description of a sentence with morphemic and synonymic invariance, is the only one that can be complied with because it is as if the word stops and therefore it is easier to describe its ideologies and values. Like this manner, we can infer that NooJ' transformational and distributional analysis contextuality symmetric suspending to our language do introduce relevant principles of evidence-based theoretical and practical principles Mathematics relating to Linguistics. Certainly, if we asked fundamental hypothetical questions on knowledge, linguistics, computer science, and mathematics, then, we would be able to explore the subject matter of a scientific and technological transformation that could invest in communication modalities and semantics. Moreover, in this paper, we brought out that in a Digital Intelligence design framework, a new semantic model might play a major role in pointing up important technological contribution and innovative development that could be useful for content analysis (semantic) of large databases. In short, NooJ's system allows the explicit treatment of morphosyntactic ambiguities, which are necessary for many language processing tools and uses.

9. References

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