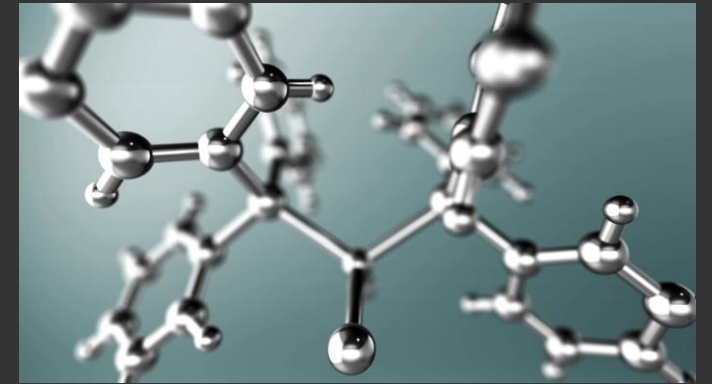


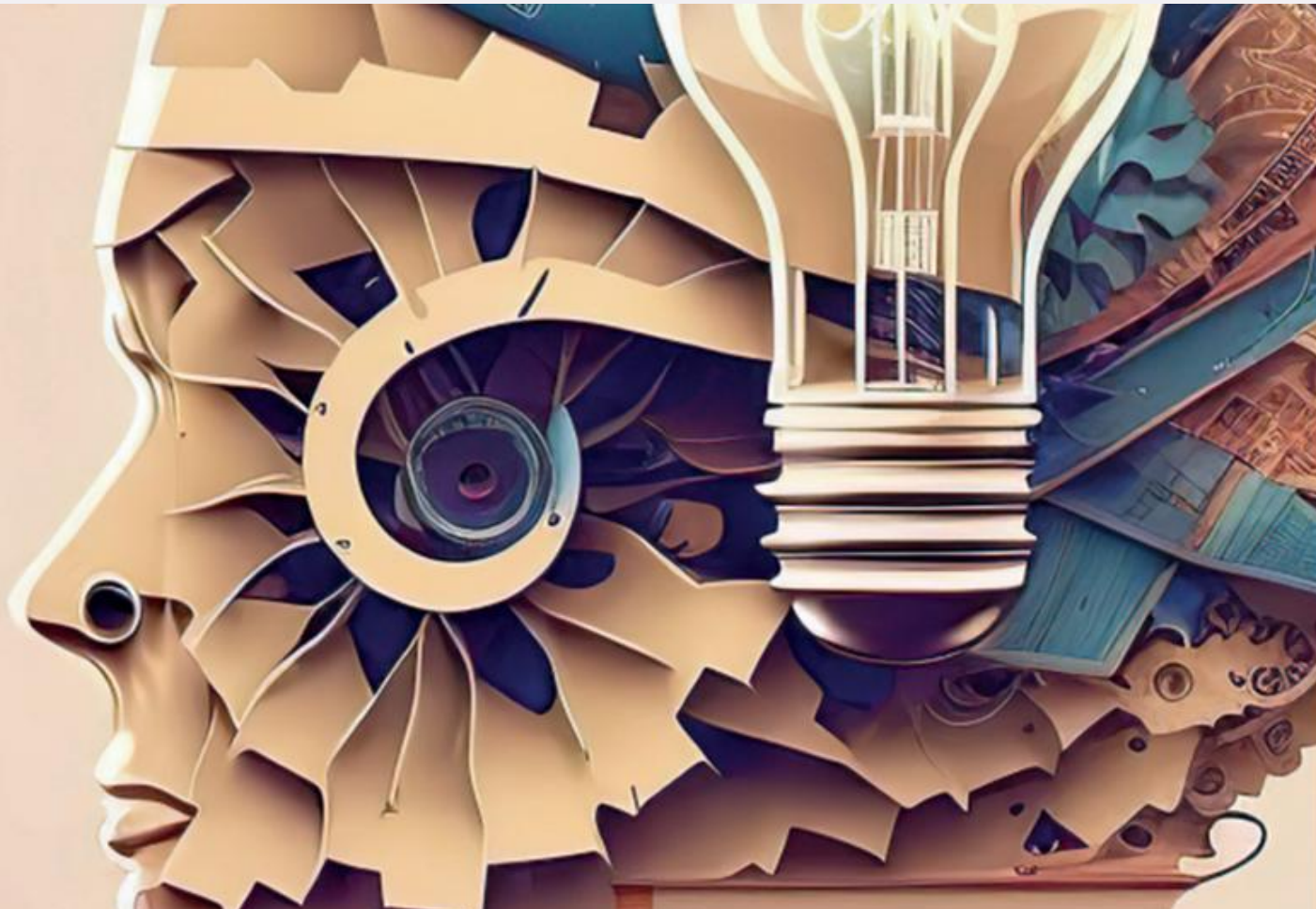
Digital intelligence: models, processes and technologies

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J.J. Enriquez, A. Rodrigo



Exploring Digital Literary Communication:
Theoretical, Processual, and Environmental Perspectives
with a Case Study of Linguistic Analysis and Graphical Representation
of Dante Alighieri's Italian Language

General Introduction



The idea

- arises from the thirst for knowledge and the desire to investigate the role of participation of individual knowledge in the communicative message, but above all to validate the individual infinitesimals and the tools at its disposal that human intelligence produces to transform its knowledge, its cultural identity and its being human before entrusting it to digital
- comes from past experiences and aims to investigate how much and how mathematics can be one of the horizons for the transmission of knowledge.

The research question is:

will human intelligence be able to quantify the phonic and tonal morphisms that the poet Dante Alighieri transmitted to us?

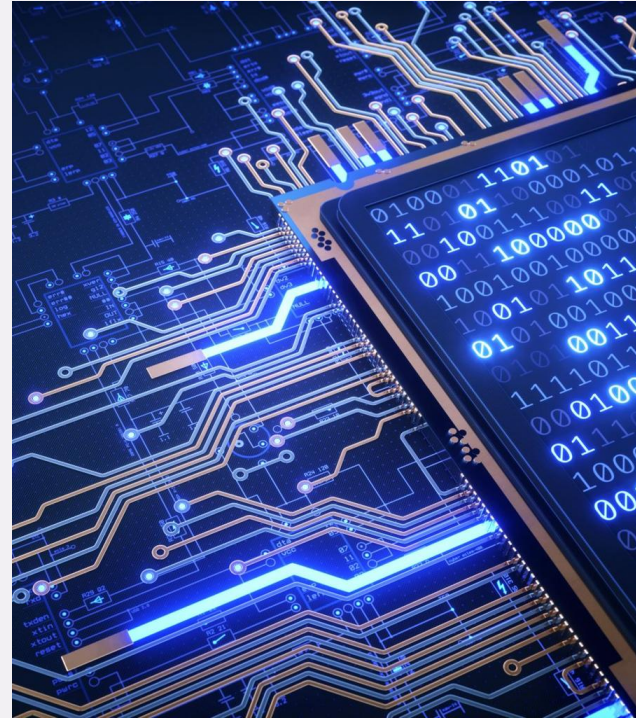
Introduction

As technology evolves, a wide variety of languages allows us to create new methods of communication, such as syntactically homologated systems. The proliferation of acronyms in the digital realm demonstrates the human capacity to translate, reformulate and convert images, sounds and feelings into a multicode formal language.

Algorithms and acronyms have become a substitute for words and phrases, with the virtual communicator “Mood” being the symbol of our society. We are inevitably steered towards digital codes, which carry predefined semantics, generated by a fixed sentence.

The research encompasses multiple projects and focuses on literary communication in digital, an operational hypothesis that has been validated by multiple scientific reference models to confirm its validity. The primary goal of the entire research is the process of elaboration of Natural Language Processing (NLP) capabilities.

The proposed model takes into account the process of understanding, analyzing and validating the data retrieval, in order to realize a formal process that goes from textual prediction to the first formal process of production of linguistic validation data.



The research studies and analyzes the areas Natural Language - Natural Language Processing NLP, Digital Intelligence.

It proposes a mathematical model/framework capable of formalizing various complex phenomena in the research fields: humanae litterae, theoretical linguistics, computational linguistics, computer numerical philology with automatic computation and software engineering. In the present work it is proposed to create a digital text of the traits of the Divine Comedy, which has as its objective the analysis of feelings, in a vision of a quantum musicological model, with a process that goes from understanding to implementation.

The reference model is quantum musicology. The process is conducted by experts in fields who have for the first time crossed two software (NooJ and Digital Intelligence W.T)

Background



Study of natural languages and analysis of distribution and transformation mechanisms with scientific validation (Arabic language - ASL sign language, LIS).

Modeling of the linguistic approach and language processing technologies for the presentation of the Avatar-based language with calculation of prediction of technical theories of text and calculation of Bendjoudi models, A. (2020).

Studies in mathematics and physics to approach the theories of M. Planat Recursive structures and processes.

Recursiveness in music , recursiveness in linguistics.

A comparative study of M. Silberztein's lexico-grammatics , of J. Pustejovsky generative linguistics , i.e. a method for the breakdown of categories to outline a theory of lexical semantics



Methodology

The process of producing and transforming data into digital data begins as follows.

Experts guide the research by areas of expertise in the following phases:

Phase 1 comparative musicological for data collection through recursive calculation of phonic mechanisms, phono-tonic analysis;

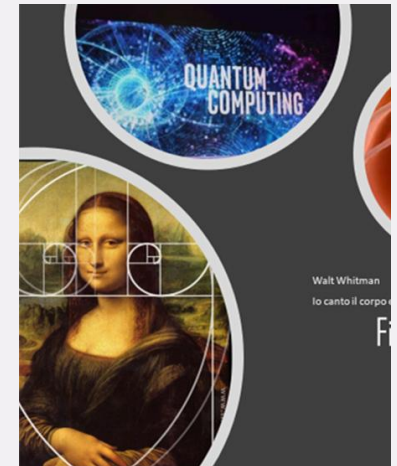
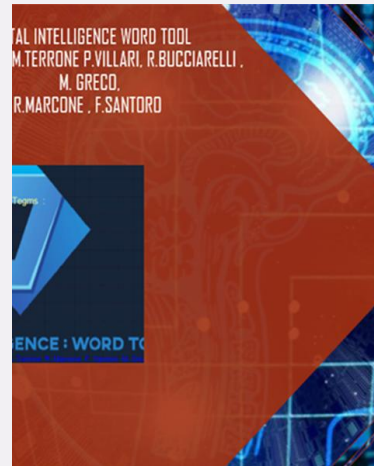
Phase 2 philological;

Phase 3 lexico-grammatical model for reformulation in formal language and comparative lexico-generative model;

Phase 4 Graphical transformational analysis, local grammars and databases. production in NooJ environments;

Phase 5 Digital intelligence.

*Context:
Linguistics environments
And supercomputing*



Phonotonic Analysis

<https://www.dantecommedia.it/index.html?view=collation&ms=Triv&canticle=3&canto=33&line=19&spelling=true&metre=truve>

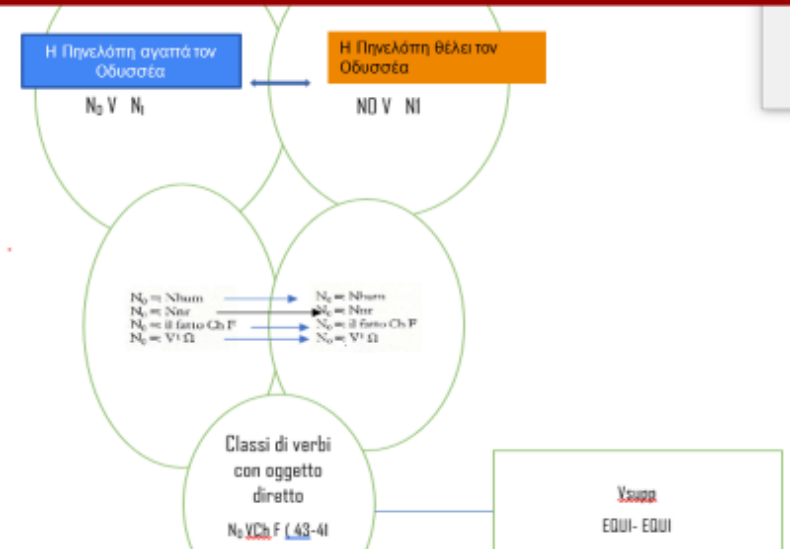
Linguistic analyses: lexico-grammatical model

GRUPPI E RAPPORTI OPERATORI NUCLEARI CLASSE 43-41

Tra concetti e parole non esiste un rapporto isomorfo o biunivoco. Esistono infatti Lessicizzazioni - sintetiche e analitiche - etichettate e descritte
Ma per veicolare un messaggio univoco abbiamo bisogno di costruire un isomorfismo.

Ci serviamo di Equivalenze parafrastiche

I contenuti sono di R. Capone



Linguistic analyses: generative lexicon

Lexicon generativa (GL)
Generativa lessico

G.L. Calcolo

1- Struttura

2- Argomento struttura ,

3- Struttura evento

4- Qualia struttura

L.G.L.I

1- distribuzionalismo

2-trasformazionalismo



NooJ



- ✓ Develop linguistic resources to formalize various linguistic phenomena at the orthographical, lexical, morphological, syntactic and semantic levels, for any natural language ([Linguistics](#)).
- ✓ Create your own corpora of texts, apply these linguistic resources to them and then perform various statistical analysis in [Corpus Linguistics](#) and [Digital Humanities](#).
- ✓ Use NooJ's engine and linguistic resources to construct [Natural Language Processing](#) applications.

Transformational Analysis (Syntactic analysis) part 1


Canto XXXIII Paradiso Canto III Inferno

Gli stessi effetti in Silvestri (1996), il meccanismo di sequenziamento fonetico è già presente negli snodi endotetici della Divina Commedia i tre "cantiche" (Inferno, Purgatorio, Paradiso) che, essendo costituiti da un numero uguale di "canti" (33 X 3 = 99) e pertanto sono sequenziati secondo una semplice iterazione trimembre con effetti di omofonia

Max Silberstein, 2016. Formalizing Natural Languages: the NooJ Approach. Wiley Eds: Hoboken (NJ)

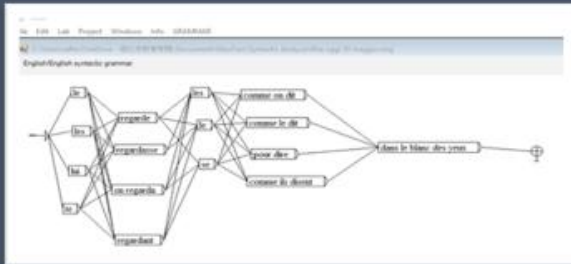
<https://www.researchgate.net/publication/303449243>

Attraverso una prima fase di analisi testuale automatica, in base al numero di tokens rilevati nelle liste di frequenza sono state individuate informazioni lessicali utili per definire i contesti di distribuzione all'interno della frase: ristretta, mediamente fissa, invariabile



DIZIONARIO SUL DOMINIO

Generazioni di automi a stato finito



FASE B
GENERATORI DI PARAFRASI

Attraverso una prima fase di analisi testuale automatica, in base al numero di tokens rilevati nelle liste di frequenza sono state individuate informazioni lessicali utili per definire i contesti di distribuzione all'interno della frase: ristretta, mediamente fissa, invariabile.

Transformational Analysis (Syntactic analysis)

F.TERRONE, M.TERRONE P.VILLARI, R.BUCCIARELLI,
M. GRECO,
R.MARCONE, F.SANTORO



DIGITAL INTELLIGENCE : WORD TO

Linguistic environment DIGITAL INTELLIGENCE W.T
(©2020) BiVuTeGMS is a reformulator-translator and editor in
tempo real that, integrated by **NooJ** performs paraphrasing of
sentences with 90% accuracy

ESEMPIO D'USO

 Pulisci

 Esci

Italiano

Lingua

]LG>]AT>]XXXIII>

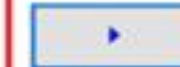
Frase di base : La misericordia vive in te = N0 V loc; La pietà vive in te= N0 V loc ; La magnificenza vive in te = N0 V loc.

Frase trasformata = In te vive misericordia Ppv V N0; In te vive pietade Ppv V N0; In te vive magnificenza Ppv V N0

Frase di base = Alcuni vanno nella città dolente Pp T V loc N1 Agg; Alcuni vanno nell'eterno dolore; Pp T V loc N1 Agg Alcuni vanno tra la perduta gente Pp T V loc N1 Agg.

Frase trasformata: Per me si va nella città dolente PpT V loc N1Agg; Per me si va nell'eterno dolore PpT V loc N1Agg ; per me si va tra la perduta gente PpT V loc N1Agg In questo primo verso c'è già un fenomeno di sequenzialità vocalica (sette sedi su undici) è l'iterazione delle vocali omotipiche (EEEIEE)

la vive in te = N0 V loc; La pietà vive in te= N0 V loc ; La magnificenza vive in te = N0 V loc.

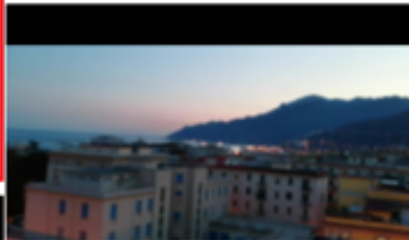


EXAMPLE

]XXXIII>

Thou Virgin Mother, daughter of thy Son,
Humble and high beyond all other creature,
The limit fixed of the eternal counsel, Lady, thou art so great, and so prevailing,
That he who wishes grace, nor runs to thee,
His aspirations without wings would fly.

Not only thy benignity gives succour
To him who asketh it, but oftentimes
Forerunneth of its own accord the asking.



Research products

PUBLICATIONS

Ritamaria Bucciarelli, Roberto Capone, Marianna Greco, Javier Julian Enriquez, Francesca Santoro, Raffaele Marcone, Francesco Saverio Tortoriello (1), Technologies and new communication models for teaching digital intelligence ESP FS (September 2019). Technologies and new communication models for teaching ESP digital intelligence. In New methods of teaching and learning Ememitalia 2019 (Vol. 8) <https://hal.science/hal-03725354/> .

Bucciarelli , R. Capone, FS Tortoriello , M. Greco, G. Savarese, Javier Enriquez, Learning Analytics - Scientific description and heuristic validation of NLG languages in volume 15, n. 3 (2019) Journal of e-Learning and Knowledge Society - Focus on: Learning Analytics: for a dialogue between teaching practices and educational research, 251-261 R. Bucciarelli . <https://hal.open-archives.fr/hal-03690838>).

Bucciarelli, R., Marcone, R., Santoro, F. and Dolci, C. (2017). Technology and languages of the new economy. Salerno IRIS in the text (Bucciarelli, 2017). https://issue.com/pensamultimedia/docs/f_i_unique-compressed .

https://www.researchgate.net/publication/337945944_Intelligenza_digitale_Word_Tool_modelli_tecniche_e_tecnologie_L-MI

Research interest score: 46.2; Compared to all research elements: your paper's research interest score is higher than 96% of research articles on ResearchGate. Comparison by publication date: Your paper's research interest score is higher than 98% of research papers published in 2019. Comparison by discipline: Your paper's research interest score is higher than 96% of related research articles: Education in Mathematics.

Software:

© Type Race M. Renda, A R. Bucciarelli team of POLO University of Salerno, corpus of lemmas for completing words and sentences and paraphrases of sentences

©Digital Intelligence Acro – Word R. Bucciarelli; P. Villari, MF, R. Marcone, F. Santoro: DB language development environments and text reformulator with cloud techniques of natural languages.

©Word-Tool, R. Bucciarelli; P. Villari, FM, M. Greco, R. Marcone, F. Santoro: Text editor for text formulation and conversion of NG language (L1 into L2), real-time translator.

<https://accademiadellacrusca.it/it/contenuti/banche-dati-corpora-e-archivi-testuali/6228>

The background features a complex network of interconnected nodes and edges. The nodes are represented by semi-transparent green circles of varying sizes, and the edges are thin, glowing yellow lines. The overall aesthetic is futuristic and technical, set against a dark, gradient background.

Scientific Network

[*https://www.researchgate.net*](https://www.researchgate.net)

Conclusions

The research is evolving and the continuation is included in the attached draft