

Ecological discourse in Pope Francis' tweets

Francesco GALOFARO & Magdalena Maria KUBAS



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Abstract. In 2015, the Holy Father relaunched Catholic ecological discourse in his encyclical letter *Laudato si*. As a basis for the Catholic church's renewed position aimed mainly at promoting « sustainable and integral development » (Bergoglio 2015, par. 13), the letter revisits the figurative rationality (Greimas & Courtés 1979) characterizing Saint Francis' *Laudes Creaturarum* (*Canticle of the Sun*). The poem defines as brother- and sisterhood the relationship between man and nature, man and the four elements, celestial bodies and meteorological phenomena, and takes these as its objects of praise together with Mother Earth. Pope Francis references the cosmology outlined in the first part of the poem, offering it to contemporary Catholics for consideration.

How is this representation disseminated through social media? To answer this question, we will analyze a corpus of tweets marked with the hashtag #LaudatoSi in different languages to search for the global strategies enacted by the Church. As we will show, many tweets associate this hashtag with the hashtag #Anthropocene, though this specific term does not appear in the encyclical letter. How do these notions of sustainable development and Anthropocene actualize Saint Francis' poem? How do they renew Catholic subjectivity? To answer such questions, this study applies an innovative method from structural semantics to ecological tweets containing the hashtags #LaudatoSi, #sustainability, and #Anthropocene.

FRANCISCANISM, CANTICLE OF THE SUN, ANTHROPOCENE, SUSTAINABILITY, POLITICAL THEOLOGY

Francesco Galofaro is associate professor of semiotics at the Università IULM of Milan. He joined the NeMoSancti ERC research project in 2019 as an expert in semiotic analysis. Within the project, he carries out the semiotic study of process of canonization and hagiographic texts issued by the Catholic Church. He is currently focusing on Saint Pio of Pietrelcina. His research interests are ethnosemiotics and Information Retrieval. He has single-authored the books *Eluana Englaro* (Meltemi, 2009), dedicated to the political, scientific, and ethical debate on euthanasia; *Dopo Gerico. I nuovi spazi della psichiatria* (Esculapio, 2015), presenting an ethnosemiotic analysis of psychiatric service design; and *Apprendisti mistici: Padre Pio e Ludwig Wittgenstein* (Meltemi, in press), dedicated to sign production of mystical discourse. He co-edited the books *Morphogenesis and Individuation* (with F. Montanari and A. Sarti, Springer, 2014) dedicated to René Thom and Gilbert Simondon, and *Il senso della tecnica. Saggi su Bachelard* (with P. Donatiello and G. Ienna, Esculapio, 2017).

Magdalena Maria Kubas obtained a Master Degree in Italian Philology (Jagiellonian University in Cracow) before receiving her PhD in Italian Literature, Philology and History of Language at the University for Foreigners in Siena. She was subsequently appointed as a research assistant at the University of Warsaw and currently is a post-doctoral fellow at the university of Turin. Her research interests are: religious literature from the Middle Ages to the Twentieth century, mysticism in literature, representations of women in poetry and narrative, women's writing, relationships between poetry and music, and translation. She is co-editor-in-chief of the academic journal "Quaderni del '900". She has published a monograph (*Litanic Verse. Italia*, Peter Lang, Berlin 2018) and, together with Witold Sadowski and Magdalena Kowalska, co-edited two volumes dedicated to European poetry (*Litanic Verse I: Origines, Iberia, Slavia et Europa Media* and *Litanic Verse II. Britannia, Germania et Scandinavia*, Peter Lang, Frankfurt a.M. 2016) and several issues of academic journals dedicated to Dante, women's writing (Amelia Rosselli, Dacia Maraini) and archives, and spiritual autobiographies between the religious and the profane.

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Ecological discourse in Pope Francis' tweets

Francesco GALOFARO & Magdalena Maria KUBAS
(Università IULM of Milan, University of Turin)

1. Preliminary remarks¹

The publication of Pope Francis' encyclical letter *Laudato si* was perceived as a turning point in Catholic discourse on the environment. In a note, Bruno Latour (2015: 210) defined it as "astonishing". According to Latour,

the Christians, having lost the race for the most indisputable type of certitude, have gradually abandoned all concern with the cosmos in order to devote themselves to the salvation of humans alone, and then among the humans to the salvation of the soul alone, before abandoning the soul itself to the exclusive benefit of morality. (*Idem*)

Having gradually lost interest in the fate of the cosmos, Christians used to consider ecology a form of paganism and indeed today's ecological crisis has religious roots. A fortiori, *Laudato si* is an interesting document for understanding how the relationship between religion and the environment changes in social discourse along with the relationship between cosmology and the sense of the sacred. In this framework, our article will consider the literary models of the recent turn in Catholic discourse to then investigate the circulation of this discourse and its hybridization with the secular notion of the Anthropocene in a subset of messages broadcasted by twitter users. While Pope Francis' text does not reference the idea of the Anthropocene, in users' tweets it is blended with Catholic axiology by juxtaposing two hashtags (#anthropocene and

#LaudatoSi) and exchanging semantic values between political and religious discourse.

2.1 The origins of the Franciscan ecological discourse

During the XXth century, the Catholic Church's ecological discourse was commonly considered a part of the social doctrine of this institution. This association is visible, for instance, in the encyclical letter *Pacem in terris* issued by Pope John XXIII in 1963, or in *Redemptor Hominis* (1979) by John Paul II, to mention only a few examples. Pope Francis himself stated his concern about the climate and Earth in other documents as well, such as the apostolic exhortation 2020 *Querida Amazonia*. In fact, the impact of *Laudato si* is increased by the fact that this work is dedicated entirely to the environment. In writing *Laudato si*, the pope both drew attention to the sources of Franciscan interest in nature – an interest which is explicit in the sources – and updated such thought for the present day and in relation to problems that concern all humans in the contemporary world. To express his vision, the pope used *Laudes creaturarum* or *Canticle of the Sun*, the poem that inaugurated the typically Italian and medieval *lauda* or song of praise genre. Written in the early 1220s (Branca 1950), *Canticle of the Sun* by Francis of Assisi (1181/2–1226) is one of the earliest poems written in Italian vernacular or more specifically Umbrian, a dialect from central Italy. Francis, born Giovanni di Pietro di Bernardone, was the son of a merchant who had made a fortune in France and a Provençal woman: in fact, Francis is a nickname referencing France. This leads us to the important point that Francis of Assisi spoke two languages and was familiar with two literary cultures, and indeed he brought these two elements into his native dialect. The poem is thematically divided into two parts, the second of which revolves around “our Sister Bodily Death”². As scholars have noted, this subdivision may reflect the stages in which the text was composed. Research in philology and stylistics show that Francis of Assisi's hymn is rich in Francisms, Latinisms and biblical elements (Contini 1995; Suitner 1996).

In Christian thought, the *Canticle of the Sun* represents an early expression of awareness and concern about the environment, an awareness known to experts in Franciscanism. In the encyclical letter *Laudato si*, Pope Francis interprets the poem from a modern perspective, but he also speaks with a critical voice and formulates a concrete proposal addressed to both Christians and non-believers. Speaking of the responsibility of all the inhabitants of the planet, “our common home” (Francis

2015, par. 1), the Pope calls for world unity in facing a crisis that concerns “all of us as living creatures” (Francis 2015, par. 42). In the second chapter of the papal letter (par. 87), the Pope directly quotes a portion of the *Canticle of the Sun* corresponding to lines 5-19 in contemporary critical editions of the text. Parts of the poem are omitted from the quotation, namely the introduction (both invocation and praise to God) and the fragment dedicated to our “Sister Mother Earth”. In contrast, these parts have a central place in the encyclical letter and environmentalist messages posted by the Twitter account @Pontifex. From a lexical point of view, the opening chapters of *Laudato si* are similar to the *Canticle of the Sun*. In both the first and second chapters, the Pope presents and discusses problems related to nature and society. Beyond theological concerns, the main focus of the third chapter is technological development. Some parts of the fourth chapter link a common vision of humanity (using 1st person plural pronouns and adjectives) to “home”, that is, the earth, reminding readers that a sustainable project of common development is more important now than ever. The fifth chapter addresses consumerism and ways of dealing with it, proceeding from general premises to conclude with advice for everyday life.

2.2 Updating poetic language

How does the pope combine the language of this medieval *lauda* with discourse addressed to his contemporaries? He does so by bringing both the textual genre and the vocabulary up to date. Let us take a closer look at this encounter. In composing his *Canticle of the Sun*, Francis of Assisi had used the genre of biblical blessings and praises; on the other hand, Pope Francis chooses prose to speak to and persuade his contemporaries. Despite the common source for both texts, the Bible, this choice on the part of the Pope generates a number of differences, for example the adoption of certain stylistic and lexical registers. In his idea of brotherhood/sisterhood, Francis of Assisi does not distinguish between humans and animals with their common physiological processes (such as death), plants, elements of the inanimate world, or the four elements. Although the principle is the same for Pope Francis’ letter, the Pope transforms the language of Francis of Assisi in two directions:

1. An affective-family direction;
2. A scientific direction.

The first direction is expressed, for instance, in representations of the Earth as “mother earth” (par. 42), “home” (*passim.*), and through grammatical elements that establish a collectiveness including the subject, such as “us”, “our” (“the earth [...] is among the most abandoned and maltreated of our poor”, par. 2; “knowledge of our DNA”, par. 104; “our struggles”, par. 244; “our present lifestyles and models of production and consumption”, par. 59). As we see from these few examples, the language of the encyclical letter assumes specific, sometimes technical, character. Let us quote more excerpts to show how it aims at precision in representing and discussing contemporary phenomena while always taking the lexicon of the *Canticle of the Sun* as its starting point. As an example of “creatures” (*Canticle of the Sun*), in *Laudato si* we find “living beings” (par. 68); “living organisms”, and (par. 138); “terrestrial and aquatic ecosystems”, (par. 28). The expression “species” (par. 48, 64) is a way of speaking in a concrete way to conceptually group together the richness of the Franciscan “creatures”. What for Francis of Assisi was “aere” (the air), a source of “sustenance”, in the Pope’s letter becomes the space of accumulation of “atmospheric pollutants” (par. 20). Fire is referenced by the Pope by speaking of “levels of smoke from fuels used in cooking or heating” (par. 20), “fossil fuels” (par. 26) and the “carbon cycle” (par. 24). In *Laudato si*, safe and public drinking water represents the contemporary form in which “sor’aqua” (Sister Water) is a topic of debate. As far as sustainability is concerned, this term also appears in the *lauda* (Mother Earth, “who produces various fruit with colored flowers and herbs”, “sustains and governs us”). As we can see, the subject and object in this central idea are switched in the encyclical letter, as the Pope asserts that nowadays it is humans who (have to) sustain the Earth by taking care of nature. Pope Francis’ general strategy in referring to the *Canticle of the Sun* is therefore to employ it as a repository of broader categories. For each category the letter then provides details, describes threats and specifies risk factors, followed by auspices or proposed directions in which humanity might seek solutions.

As mentioned above, one of the features of Francis of Assisi’s poem is the construction of a common dimension. By speaking of us, encompassing the enunciator and what surrounds him, it establishes a collective actor. This can be seen as the first point of *Laudato si*, as well, namely a proposal to create a contemporary Franciscanism to unite the problems of climate change, people, technological and cultural development, education, etc. To reinforce its argumentation, the letter uses the principle of *auctoritas*: John Paul II, John XXIII, Paul VI, and Benedict XVI are evoked

to support Pope Francis' thesis, that is, the conviction that environmental sustainability must be implemented taking into account the social, economic and cultural problems facing the world. While poverty was Francis of Assisi's bride, inequalities are among the major concerns of the Pope's Franciscanism. Change is necessary, the letter argues, and such change cannot be solely ecological: linking to the most ancient Franciscan tendency to critique current society and politics, Pope Francis touches on topics such as pollution, demography, poor countries' debt, and the need to educate ourselves and the new generations. Six years after the publication of *Laudato si*, the letter was read and commented on in the press and social media. For instance, an Italian Catholic newspaper linked *Laudato si* with the idea of the Anthropocene – a term that does not appear in the papal encyclical letter – and a new wave of the environmentalist movement (Mogatti 2019).

3. Political theology

Latour (2015: 111-117) has reconstructed the debate at the origins of the term “Anthropocene”, arguing that the crucial importance of the Anthropocene is that it attributes a geological and stratigraphic truth to the notion of epoch as studied by historians. The term “Anthropocene” has replaced the label “Capitalism” in radical political discourse since it is seen as beginning around the birth of the Industrial Revolution in Europe or the start of the nuclear age. However, alongside the connotations of “objectivity” this word inherits from scientific-technical language, it also carries a religious value in that it is related to a renewed fear of a secular Apocalypse. For example, the website of the association *Extinction Rebellion* states:

Life on Earth is in crisis. Our climate is changing faster than scientists predicted and the stakes are high. Biodiversity loss. Crop failure. Social and ecological collapse. Mass extinction. We are running out of time, and our governments have failed to act. Extinction Rebellion was formed to fix this.

Thus, the Anthropocene has become a shared framework for different environmental movements fighting against climate change, biodiversity loss, and social and ecological collapse. The appropriation of apocalyptic discourse by political movements represents the conscious adoption of a political theology. Carl Schmitt was inspired in developing this notion by Gottfried Wilhelm Leibniz, as Leibniz was the first to note the structural analogy between theological and juridical discourses on values,

procedures, and styles of reasoning (*The New Method of Teaching and Learning Jurisprudence*, 1667). In Carl Schmitt's work (1922), the notion of political theology has an explanatory value in that political institutions (and some notions of legal theory) are secularized translations of theological concepts: for example, power tripartition implies trinity while "the Lawgiver" implies God. Latour reworks the notion of political theology to grant it an intentional, explicit programmatic value:

the fusion of eschatology and ecology is not a plunge into irrationality, a loss of composure, or some sort of mystical adherence to an outdated religious myth; it is a necessity if we want to face up to the threat and stop playing at conciliating the adherents to pacification who keep on deferring, yet again, the imperative to prepare for war on time. The apocalypse is a call to be rational at last, to have one's feet on the ground. (Latour 2015: 218)

After all, according to Latour (1998), when religion, politics, and law are considered as regimes of enunciation, they present the common feature of focusing on quasi-subjects, thereby regulating the relations between uttering and uttered instances. The superimposition of politics and theology also reflects the elimination of the traditional frontier between nature, life, and the human sciences (Zinna 2015: 1). The geological notion of the Anthropocene is blended with the biological notion of extinction to provide a secular version of the theological notion of Apocalypse.

The Anthropocene is prefigured as this qualitative leap of the environment-planet which loses its characteristics and its balance between the forms of life and the habitat which shelters them. By these quantifications and the values recorded by the reports, we then understand that we can reach – or according to others that we have already exceeded – this critical threshold which leads to the catastrophe disturbing the environmental stability necessary for the permanence of *sensitive existing beings*. The consequences of these mutations lead to the introduction of changes in the *forms of life* through the awareness that the practices of *sapiens* determines the degradation of the environment-planet. (*Ibid.* p. V)

From a political point of view, however, the question is not whether it is *true* that the end of the world is coming, but rather if the myth of the Apocalypse is effective. Latour's argument does not consider Michael Walzer (1965). In his classic work on the political theology of contemporary radical movements, Walzer distinguishes between movements inspired by the biblical Exodus and apocalyptic movements. "Exodus" theology foresees a historical, linear model whose subject is the people led by a non-charismatic authority. The "promised land" is a secular

objective, the achievement of which implies a political struggle (forty years in the desert). The aim of leaders is to abolish the difference between laity and clergy. On the contrary, apocalyptic theology implies messianism and the promised land is not set in a concrete historical dimension: it is spiritual and disembodied. It is the promise that God will breathe new life into humanity or a return to Eden. Thus, the realization of the promise no longer depends on an inevitable political effort. According to Walzer, political movements inspired by the Exodus model have more chances to achieve their goals, while apocalyptic movements usually fail. Galofaro (2021) describes the modal and temporal features of apocalyptic political discourse (see *fig. 1*). In particular, the current real world (w_0) includes unethical behavior and a dysphoric outcome ($-p, -q$). From w_0 , only two possible futures (w_1 and w_2) can be accessed: in w_1 , unethical behavior and dysphoric outcomes are still present; in w_2 , an ethical reaction is related to an euphoric outlook. In this model, both $(q \rightarrow p)$ and $(p \rightarrow q)$ hold: in other words, if believers want to bring about a positive turn, this implies a necessary change in behavior; at the same time, a change in behavior necessarily leads to a positive future.

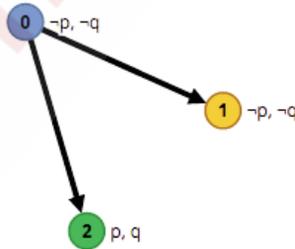


Fig. 1: Temporal modal structures in apocalyptic political theology

The modal structure of apocalyptic temporal programming is thus a logic of necessitation. We can find an example of this in Latour's discourse:

Without making the threat artificially visible, there is no way to get us to move into action. This is what Günther Anders calls a "prophylactic" use of the Apocalypse; it has the same content as Clive Hamilton's argument that we must first of all give up hope – which projects us from the present toward the future – in order to be able to turn ourselves around – being reoriented by some powerful representation of the future in order to transform the present. (Latour 2015: 218)

To return to Pope Francis' *Laudato si*, it unquestionably proposes a theological foundation for ecological and social politics, but it is not apocalyptic – not because of the absence of the term “Anthropocene”, but rather because of the presence of the Exodus model. For example, the end of the opposition between clergy and laity is exemplified by the passage:

Many things have to change course, but it is we human beings above all who need to change. We lack an awareness of our common origin, of our mutual belonging, and of a future to be shared with everyone. This basic awareness would enable the development of new convictions, attitudes and forms of life. A great cultural, spiritual and educational challenge stands before us, and it will demand that we set out on the long path of renewal. (Bergoglio 2015, par. 202)

In Bergoglio's Church, everyone is called on to become a saint; at the same time, after the Second Vatican council, saints came to serve as models of accessible *forms of life* (Ponzo 2021). The long path towards renewal embodies the historical and linear temporal model of the Exodus. The future is shared, and it is sometimes opposed not to a second, dystopian future, but rather to the absence of a future:

Saving banks at any cost, making the public pay the price, foregoing a firm commitment to reviewing and reforming the entire system, only reaffirms the absolute power of a financial system, a power which has no future and will only give rise to new crises after a slow, costly and only apparent recovery. The financial crisis of 2007-08 provided an opportunity to develop a new economy, more attentive to ethical principles, and new ways of regulating speculative financial practices and virtual wealth. But the response to the crisis did not include rethinking the outdated criteria which continue to rule the world. (Bergoglio 2015, par. 189).

Above all, the future is not an alternative between utopia (the new Eden) and dystopia (Gehenna). Future is plural: “Viable future scenarios will have to be generated between these extremes, since there is no one path to a solution” (*Ibid.*, par. 60).

Given the different choices represented by apocalyptic and Exodus-based ecological discourses, it is interesting to see how they are blended in twitter messages and what is the result of this potentially explosive mixture.

4. Corpus and methodology

To answer the above question, a corpus of tweets containing the hashtag #laudatosi was collected, ranging from the year 2015 to present. The set

includes 2,164 comments in English and 1,703 ones in Italian. To find instances of anti-ecological discourse, we employed the *HateSonar* python library (Davidson, Warmesley, Macy, and Weber 2017). The algorithm labeled 51 English and 44 Italian comments as “offensive”.

In order to study the semantic features of the tweets associating the hashtags #laudatosi, #sustainable, and #anthropocene, we selected a subset of comments in which an original tweet referring to the encyclical letter has been quoted in a retweet adding a second hashtag. Interestingly enough, in our corpus there are no tweets associating the hashtag #laudatosi with both the hashtag #anthropocene and #sustainable, #sustainability, or #sustainabledevelopment, suggesting that the two topics represent paradigmatic alternatives to each other: #laudatosi is a constant selected by either the variable #anthropocene or the variable #sustainable. This paradigmatic disjunction between #anthropocene and #sustainable is not a feature of environmental tweets in general: it only characterizes ecological tweets that include the hashtag #laudatosi.

The association between hashtags was analyzed with the help of a quantum³ semantic algorithm developed by Galofaro, Toffano, and Doan (2019) to visualize the semantic space of the original message and the geometric transformations caused by the reply. This algorithm represents the document semantic space in terms of the *correlation* and *entanglement* value of lexemes⁴ in relation to each other. Considering their co-occurrence in the contexts of the documents, lexemes can be labeled as correlated (always co-occurring in the same context), anticorrelated (never co-occurring in the same context), or uncorrelated (sometimes co-occurring, sometimes not). In the first case, the score tends to be 1, in the second -1, in the third 0. Correlation and anti-correlation can help the analyst to identify isotopic lexemes (belonging to the same coherent semantic layers) and allotopic lexemes (belonging to opposed semantic layers). As for entanglement, the score indicates the degree of inseparability of a given system into independent semantic sub-systems. Difference in the case of correlation consists in the fact that both allotopic and isotopic lexemes can belong to the same inseparable semantic subspace, a fact that is consistent with the structural semantics idea that semantic space is composed of categories (good/evil, male/female, life/death, etc.).

4.1 The #anthropocene hashtag

Let us consider the tweet:

T) My favorite part of Pope Francis' encyclical: A new prayer to help us commune with Nature (written by @EricHolthaus in 2015)

The above tweet presents a screenshot of one of the two prayers concluding the Pope's letter. The original message is quoted in the following retweet:

R) "Prayer for California #wildfires, #PuertoRico, and the era we live in. From @Pontifex encyclical #ClimateAction #anthropocene" (written by @DianeDulken in 2017)

The way in which R modifies the semantic space of T is represented in fig. 2. The x and y axes represent the message's n lexemes. For each pair of lexemes, the z axis represents their score for (anti-)correlation (Fig. 2a and 2c) or entanglement (Fig. 2b and 2d). From a qualitative point of view, it is clear that the semantic surface of the original tweet is smooth because each lexeme recurs only once in the text. In this situation, the degree of correlation trivially depends on the "distance" between lexemes. The surface changes in the retweet in which the semantic relations are complexified by recurring lexemes, thereby establishing semantic relations between different contexts of the document.

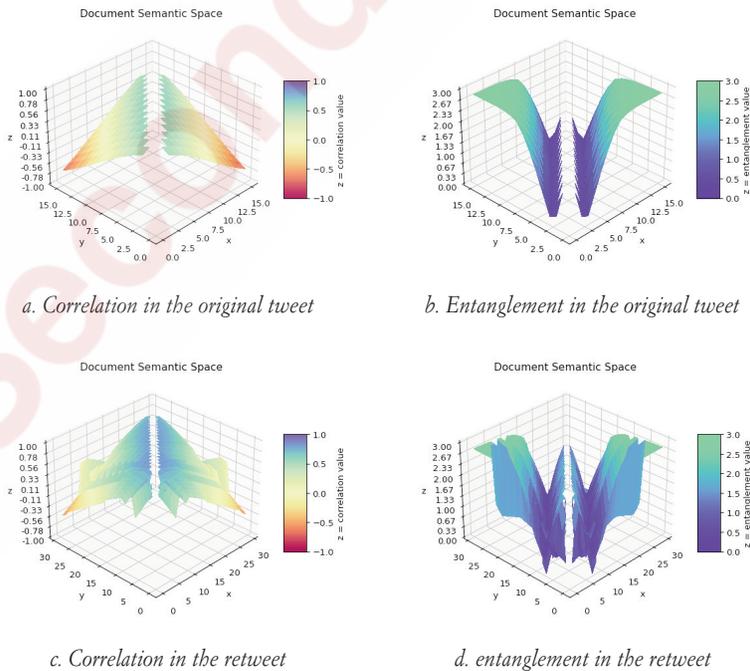


Fig. 2: How the retweet R modifies the semantic space of the tweet C

Of course, this method would lead to more interesting graphs when applied to larger texts ; in the case under investigation, it can also be useful for studying a specific section of the space comprising all the values of correlation and entanglement of a specific lexeme, such as the hashtag. For example, considering the semantic spaces represented in *fig. 2a* and *2c*, the two sections corresponding to the correlation scores of the lexeme “nature” are displayed in *fig. 3*. The quoting retweet containing the hashtag #anthropocene reshapes the original scores by strengthening them: see for example the semantic nexus between “nature” and “encyclical”. New and interesting correlations are formed, for example with the lexeme “life”.

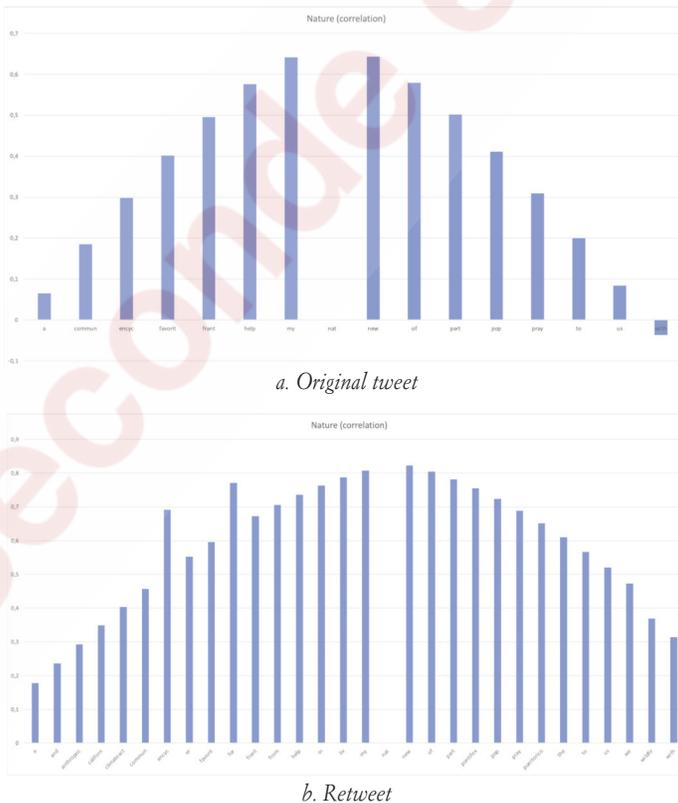
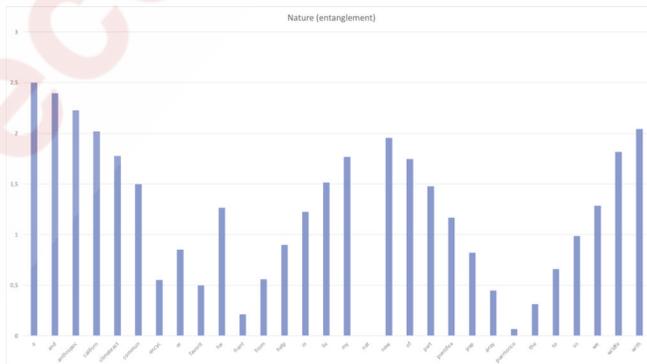


Fig. 3: How the retweet containing the hashtag #anthropocene modifies the contextual correlation scores of the lexeme “nature” : (a) the quoted tweet ; (b) the quoting retweet

The entanglement scores in *fig. 4* are more relevant to the research question. Scores greater than 2 indicate entanglement. In the original tweet, the lexeme “nature” is entangled with the lexeme “us” (*Fig. 4a*). This is consistent with the meaning of the first tweet, establishing communion between us and nature. In the retweet (*Fig. 4b*), “nature” becomes entangled only with “anthropocene”. In the retweet, therefore, “Anthropocene” and “nature” cannot be considered part of different isotopic subsystems since the tweet articulates them as belonging to the same semantic field.



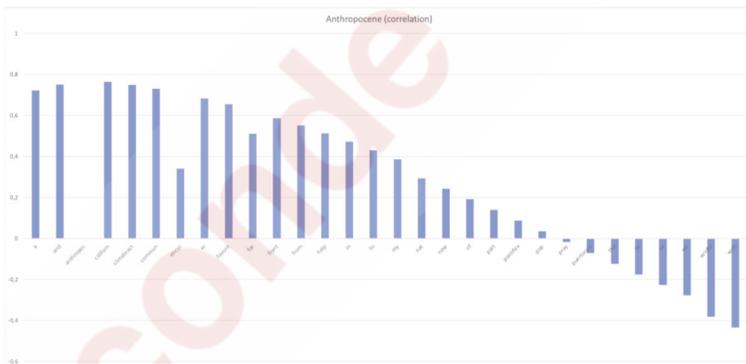
a. Original tweet



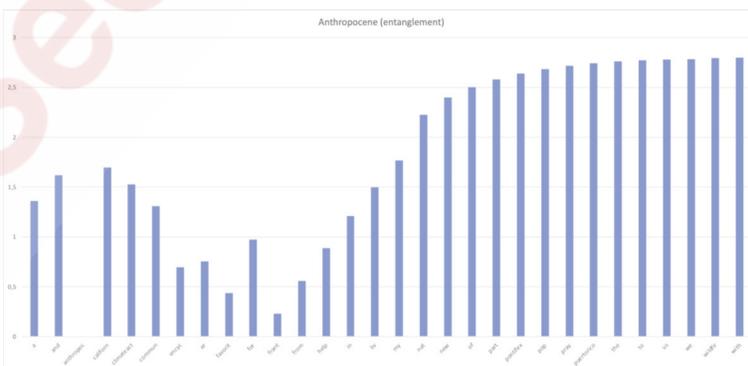
b. Retweet

*Fig. 4: How the retweet containing the hashtag #anthropocene modifies the contextual entanglement scores of the lexeme “nature”:
a. the quoted tweet ; b. the quoting retweet*

Focusing on the section of the semantic space that corresponds to the word “anthropocene”, the correlation and entanglement scores are reported in *fig. 5*. Considering the lexemes of the original tweet, the lexeme “Anthropocene” establishes a stronger correlation with “commune”, “Francis”, “Nature” (*Fig. 5a*), and stronger entanglement relations with “nature”, “pope”, and “prayer” (*Fig. 5b*), forming an inseparable system with them. In so doing, sacred and somehow mystical values are transferred to the word “Anthropocene” starting from these three terms. At the same time, this “mystical” nuance provided by the relationship between nature and prayer, with the intervention of Pope Francis, is created precisely by the appearance of the Anthropocene in the semantic system, since these lexemes were not entangled in the original tweet (*Fig. 4a*).



a. Correlation values



b. Entanglement values

Fig. 5: Correlation and entanglement scores for the lexeme “anthropocene” at a glance

It is also worth noting that the landscape represented by the retweet is as dysphoric as the original tweet was euphoric as it cited a prayer considered beautiful by the enunciator of the message. In 2017, Puerto Rico was destroyed by a hurricane and wildfires damaged more than 10,000 structures in California. The retweet can thus be considered a particular occurrence of the association between ecological discourse and apocalyptic political theology synthesized in the lexeme “Anthropocene”, while the original message carried a different meaning.

4.2 *The #sustainability hashtag*

As we have done above, let us consider a tweet including the hashtag #LaudatoSi and a retweet that quotes it, adding the hashtag #sustainability, to understand how the second message reshapes the semantic layers of the first:

T) Four years ago, Pope Francis released his groundbreaking encyclical “LaudatoSi”⁵. To celebrate its anniversary, revisit @jamesmartin-sj’s top 10 takeaways from #LaudatoSi (written by @Americamag in 2019)

R) Care for Creation is also care for our brothers and sisters, especially those experiencing poverty or marginalization. Pope Francis @Pontifex weaves this point throughout #LaudatoSi. Do you have any ways you like to practice #sustainability? (written by @sColumbkillie in 2019)

In this case, the lexeme “sustainability” is entangled with “ten takeaways” and “celebrate” as appearing in the original message (*Fig. 6b*). “Takeaways” and “celebrate” were already entangled in the original message to a very high degree (score of 2.77). However, while “sustainability” is positively correlated with “takeaways”, the link with “celebrate” is a strong anti-correlation (-0,83). “Sustainability” and “Celebration” do indeed belong to the same system, but they can be considered allotopic. Once again, this is a case of a euphoric tweet quoted in a dysphoric retweet, the main focus of which is poverty and marginalization. When comparing this retweet to the one including the hashtag #anthropocene, the main difference seems to be that #anthropocene was associated with “prayer” and “communion” while sustainability is not related to any sacred values whatsoever. The original tweet by American Magazine, a periodical that disseminates important ecological and social messages in the style of fashion tips, also shows this absence. As a result, no particular political theology can be easily associated with this notion in the example.

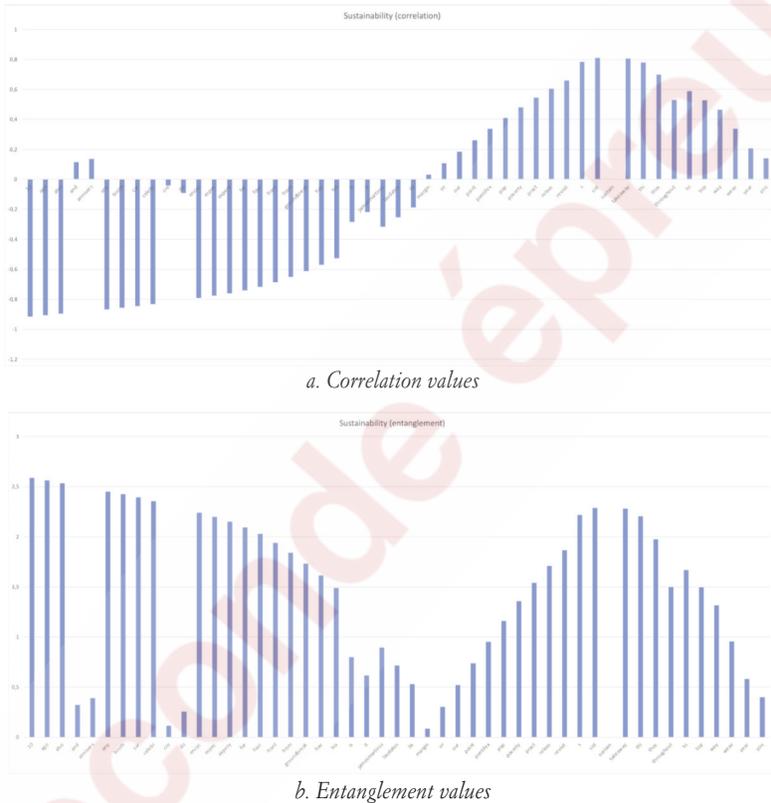


Fig. 6: Correlation and entanglement scores for the lexeme “sustainability” at a glance

5. Conclusion

As shown in the first part of this article, Pope Francis’ encyclical letter *Laudato Si* updates St. Francis’ poetic language to propose a new Franciscan perspective on the environment. In so doing, the letter transfers sacred values to environmental discourse and provides a model, in the form of political theology, for changing society and power structures. In this framework, our analysis considered how the new Catholic discourse circulates and is merged with other ecological topics, such as sustainability and the Anthropocene. The topics “Anthropocene” and “sustainable development” are alternative (*i.e.* paradigmatically disjointed) in

the peculiar subset of environmental discourses that refer to the encyclical letter *Laudato si*. This is consistent with the fact that, while never employing the term “Anthropocene”, the official @Pontifex twitter account does often use the adjective “sustainable”. This interesting disjunction also reflects the fact that the word “Anthropocene” never occurs in the encyclical letter, while the adjective “sustainable” occurs nine times in association with “development”, “use”, “agriculture”, and “progress”, and appears only once in the negative form “unsustainable”. Furthermore, supporters of the Anthropocene idea have raised doubts as to the real potential of sustainable development, suggesting it is nothing more than a myth, “like ideologies that only lead to postponing the problem” (Zinna 2015: VII). From a semiotic point of view, however, both the Anthropocene and sustainability are myths in a technical sense, without negative connotations, and the crucial question is rather whether they are sufficient to trigger the environmental and social changes the world needs.

The example of a retweet associating a prayer from the encyclical letter with the hashtag #anthropocene is representative of our corpus: the Anthropocene is associated with a dysphoric temporal frame (usually the present day) and certain sacred values. This is consistent with Latour’s attempt to associate this geological notion with an apocalyptic political theology indicating a subgenre of radical ecological discourse. This association does not necessarily involve sustainability. The encyclical letter does not contain any form of millenarism, and St. Francis’ *Canticle of the Sun* does not present any eschatological perspective.

The adjective “sustainable” can be associated with specific topics of all kinds and serves to add a value of “environmentally responsible” to the topic in question. For example, let us consider the following tweet from our corpus: “Make this Christmas a sustainable one. #LaudatoSi #COP26 #ClimateAction #ClimateJustice #edmundspeople”. Sustainability allows the enunciator to employ bricolage as a meaning-making practice:

As with other enunciative practices, bricolage means calling upon a number of already established forms, some of which may be fixed forms. However, the enunciative activity involved in bricolage does not lead to the production of merely stereotyped discourse. Rather, in this case, the selection and exploitation of the facts of usage and the products of history lead to a kind of creativity that constitutes the originality of bricolage as an enunciative praxis. We can, in fact, think of this as a double creativity. For, on the one hand, bricolage leads to statements that qualify as independent entities; while, on the other hand, any such statement will give substance, and hence identity, to an enunciating subject. (Floch 1995: 5).

Sustainability lends itself to local environmentalist tactics that seek to oppose the overall strategy through which power operates in the contemporary world:

In sum, strategies are actions which, thanks to the establishment of a place of power (the property of a proper), elaborate theoretical places (systems and totalizing discourses) capable of articulating an ensemble of physical places in which forces are distributed. They combine these three types of places and seek to master each by means of the others. They thus privilege spatial relationships. At the very least they attempt to reduce temporal relations to spatial ones through the analytical attribution of a proper place to each particular element and through the combinatory organization of the movements specific to units or groups of units. The model was military before it became "scientific". Tactics are procedures that gain validity in relation to the pertinence they lend to time – to the circumstances which the precise instant of an intervention transforms into a favorable situation, to the rapidity of the movements that change the organization of a space, to the relations among successive moments in an action, to the possible intersections of durations and heterogeneous rhythms, etc. (De Certeau 1990: 38)

In other words, while sustainability is not a notion related to the sacred, it can easily be associated with a political theology that takes the Exodus as its model: not a choice between two possible futures (Eden or Gehenna, socialism or barbarism), but rather a collection of instruments to challenge the strategy through which power operates by putting wedges in the critical doorways to keep them open and to guarantee a path towards the future.

Notes

- 1 This article is part of the research project NeMoSanctI (New Models of Sanctity in Italy [1960s-2000s] A Semiotic Analysis of Norms, Causes of Saints, Hagiography, and Narratives), which has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 757314). Dr. Kubas wrote section 2., Dr. Galofaro sections 1, 3., 4., and 5.
- 2 For the critical version of the text, see CONTINI (1995). For the English version of the encyclical letter, the Pope used the following volume: Francis of Assisi (1999), *Early Documents*, New York-London-Manila, New City Press, p. 113-114. The full text is available on the website: <<https://www.franciscantradition.org/francis-of-assisi-early-documents/writings-of-francis/the-canticle-of-the-creatures/129-fa-ed-1-page-113>>.
- 3 In the opinion of the authors, quantum correlation and entanglement are to be preferred to the classical notion of correlation used in statistics because they are more suited to semantics and language in general. One of the many reasons for this suitability is that, while probability is always a positive value, probability amplitudes (i.e., square roots of probability amplitudes) are not, thus allowing phenomena of subtraction between probability amplitude which are interpreted as interference in quantum physics. This method reflects the non-compositional nature of meaning. I hope this note serves to answer a very kind comment addressed to my work by Jean Petitot: "many people are using quantum for-

- malisms beyond physics, but it is in general difficult to justify the Hilbert structure (in particular complex coefficients with phase factors necessary for interference). Nevertheless, the idea is interesting" (personal communication).
- 4 The reduction of words to lexemes is an approximation carried out thanks to the python Lancaster stemmer algorithm, belonging to the NLTK library (PAICE 1990). This explains some issues. For example, the name "Francis" is reduced to "frant". Since "we" and "us" are unfortunately considered two different lexemes, we disregard their scores in the retweet. Lancaster stemmer is considered more aggressive than alternative stemmers such as PORTER (1980). However, several attempts to use Porter stemmer did not significantly change the results presented below.
 - 5 Written "Laudato Si" in the original tweet. It was necessary to merge the two words to avoid an output of two separate lexemes ("laudato" and "laudatos") after applying the Lancaster stemmer algorithm.

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