"A SITUATION IN WHICH URGENT ACTION IS REQUIRED"
The language of the climate emergency
in Oxford online English dictionaries

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Abstract – In order to foster debate on the treatment of vocabulary related to climate change and environmental sustainability in online English lexicography and, thus, to contribute to the development of an area of great academic interest in Linguistics from a metalexicographic perspective, this paper investigates the language of the *climate emergency* in three Oxford online English dictionaries, namely the Oxford English Dictionary (OED), the Oxford Advanced Learner's Dictionary (OALD), and "powered by Oxford Languages" Google's English Dictionary. The rationale behind this research lies in the special attention recently paid by lexicographers at Oxford University Press to this evolving area of language, an interest which manifested itself first in 2019, when the phrase *climate emergency* was named the Oxford Word of the Year and the entire shortlist was chosen exclusively from climate-related language, and secondly, in 2021 when the editors of the historical OED embarked on a research project which led to the October 2021 update, with almost 100 revised and new climate-related entries and senses added to the dictionary. What attracted lexicographers' attention was the prominence of climate vocabulary in written and spoken communication and the dramatic increase in more emotive and strategic language applied to this global issue. Accordingly, with a descriptive and comparative approach, this pilot study examines a sample of lemmas representing this language development in Oxford research and shows whether and how the three dictionaries record and mirror the sense of urgency, or the *tell it like it is* strategy characterising people's language choices for their respective target users.

Keywords: online lexicography; climate change; climate emergency; Oxford English Dictionary, Oxford Advanced Learner's Dictionary, Google's English Dictionary.

1. Introduction

This paper explores the language of the *climate emergency* in three Oxford online English dictionaries in order to foster debate on the treatment of vocabulary related to climate change and environmental sustainability in online English lexicography. Thus, it aims to contribute to the development of an area of great academic interest in English Linguistics from a metalexicographic perspective, since the role of dictionaries in climate change communication is a neglected research topic. While some studies have adopted a lexicological and lexicographic approach to investigate the use of English in specialised ecological discourse (see Buonvivere 2023; Franceschi, Pinnavaia 2023), the ways in which dictionaries reflect the changing language of the global climate issue remains largely unexplored.

The rationale behind this pilot study lies in the special attention recently paid by lexicographers at Oxford University Press (OUP hereafter) to this evolving area of language, an interest which translated itself into a research project intended to monitor the prominence of climate-related vocabulary in written and spoken communication and the dramatic increase in the use of more emotive and strategic language in the representations and interpretations of this global issue (Oxford Languages 2019; Ions, Wild 2021). The starting point of the research project this pilot study belongs to is indeed the collection, aggregation and discussion of Oxford research findings with the purpose of foregrounding the

professional perspective thanks to the notes and commentaries which are publicised by dictionary editors on their online platforms and which, more importantly, can enrich research with insights into lexicographic practice.

Accordingly, this paper aims to answer the following research questions: How is this sense of urgency, expressed in the use of more strongly worded vocabulary in society, reflected in Oxford online dictionaries of English today? How do lexicographers record and signal the language development they have been monitoring? How are these new ecological concepts defined? To answer these questions, the descriptive and comparative analysis presented in this research examines a selected sample of lemmas in three reference works, comprising the online edition of the Oxford English Dictionary (OED hereafter), the online edition of the Oxford Advanced Learner's Dictionary (OALD hereafter), and Google's English Dictionary (GED hereafter).[1] As regards the latter, this dictionary's content is indeed "powered by Oxford Languages", due to the partnership between OUP and this technology giant (Oxford Languages n.d.).

2. Language and climate change

The role of language in the climate change issue has attracted considerable academic attention in the past decades (see, among others, Fløttum 2013, 2014, 2016, 2017; Fløttum, Gjerstad 2013, 2016; Hulme 2009; Leiserowitz 2005; Lorenzoni, Pidgeon 2006; Moser 2010, 2016; Nerlich, Koteyko 2009; Nerlich *et al.* 2010, 2012; O'Neill 2013; Pearce *et al.* 2015; Penz 2018, 2022; Stibbe 2015; Tvinnereim, Fløttum 2015). At both word and text levels, and across a variety of genres, including, for example, scientific and corporate reports, political documents or statements, and media texts, many scholars have investigated in what way and to what extent language matters in the various contexts of climate communication, how language conveys the meaning people assign to climate change, how it reflects their understanding or perception of the global climate crisis, how it expresses their judgements on and emotional reactions to a phenomenon which is intrinsically physical, but which has become increasingly social, cultural, ethical, and political. Moreover, given the many calls for urgent action to save the planet issued at global level, the climate debate has evolved into a communicational phenomenon, with multiple actors at different levels of decision and in different sectors that voice their interests, opinions, and attitudes, and construct their climate agenda linguistically, thus showing the crucial role of language in the representations and interpretations of expert and non-expert climate discourse.

Over the past few years, heightened public awareness has generated considerable discussion about the issue and there has been a significant upsurge in more emotive and strategic language being applied to climate communication. Particularly, the words and phrases more frequently used by media outlets, scientists and organisations like the United Nations reflect the worsening of the crisis, using more intense terms instead of subtler linguistic choices to convey an increasingly urgent threat to the public. In this sense, 2019 seemed to represent a shifting point for the linguistics of the planet. As summarised in Greta Thunberg's tweet (2019): "It's 2019. Can we all now please stop saying 'climate change' and instead call it what it is: climate breakdown, climate crisis, climate emergency, ecological breakdown, ecological crisis, and ecological emergency?"

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[1] While the online editions of the OED and of the OALD are hosted on proprietary platforms, i.e., www.oed.com and www.oxfordlearnersdictionaries.com respectively, the user interface of GED can be accessed via Google search only: www.google.com/search?q=google+dictionary.

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As mentioned in Section 1, it is exactly the prominence of climate-related vocabulary in spoken and written texts, together with more emphatic language being used by people to reframe communication about climate change what attracted Oxford lexicographers' attention. Their monitoring research clearly manifested itself first in 2019, when not only the phrase *climate emergency* was named the Oxford Word of the Year (WOTY hereafter), because it reflected "the ethos, mood, or preoccupations of the passing year", but the entire shortlist was chosen exclusively from climate-related language, including, among others, *climate action*, *climate crisis*, and *eco-anxiety* (Oxford Languages 2019). Secondly, two years later, in 2021 the editors of the historical OED "embarked on a project to broaden and review the OED coverage of vocabulary related to climate change and sustainability" (Ions, Wild 2021), a project which led to the October 2021 update, with almost 100 revised and new entries and senses added to the OED, including, for example, *climate denial*, *global heating*, *climate emergency*, among many others (OED website editors 2021).[2]

As explained in the online commentaries on the WOTY 2019 and on the OED 2021 update, what lexicographers observed was "a demonstrable escalation in the language people were using to articulate information and ideas concerning the climate" (Oxford Languages 2019), "a growing shift in people's language choice […] that challenged accepted language use to reframe discussion of 'the defining issue of our time' with a new gravity and greater immediacy" (Oxford Languages 2019), a "dramatic increase in more emotive language being applied to climate change", which, in their view, "reflects the steadily growing awareness of climate change over decades and the increasing impetus towards actions, innovations, and technology that could tip the balance towards a more favourable outcome" (Ions, Wild 2021).

According to Oxford language experts, this language development was mainly due to influential actions and decisions which have been taken since 2019 by different actors in society, according to Oxford language experts. These include some important media outlets which reviewed their policies and approaches to reporting on climate issues. A prime example is the British newspaper *The Guardian* which "updated its style guide to introduce terms that more accurately describe the environmental crises facing the world" (Carrington, 2019). Similarly, the international scientific community adopted a *tell it like it is* strategy when communicating their research. A representative case is the article published in 2020 in the journal *BioScience* and signed by 11,258 scientists who felt the "moral obligation to clearly warn humanity […] that planet Earth is facing a climate emergency" (Ripple *et al.* 2020). Moreover, an increasing number of local, national, and international bodies officially declared a state of climate emergency and put climate action at the centre of their policies. As regards the UK, for instance, a national climate emergency was declared by the Welsh and Scottish governments in April 2019 (BBC News 2019). Finally, millions of people participated in climate strikes and protests at global level to demand urgent action against climate change. As an example, three global strikes took place in March, May and September 2019, and the one occurring in September was the biggest climate protest in world history (Laville, Watts 2019).

In sum, since 2019 what was described as "the defining issue of our time" by the UN Secretary General Antonio Guterres (2018), that is the state of our climate and the risk of an ecological disaster, has been a major topic of people's talking and writing and, as such, it

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[2] Although it is beyond the scope of this research, it seems relevant to mention that *climate change* was named Oxford Children's WOTY 2023, based on the analysis of the Oxford Children's Corpus and on a survey of young people in the UK (see OUP website editors 2024).

represents a rapidly changing area of vocabulary in terms of frequency of use and of meaning, a development which reflects its wider social and psychological impact.[3]

3. Oxford online dictionaries of English

The three dictionaries scrutinised in this paper are, in their online editions, the OED, the OALD, and GED, whose content is provided by Oxford Languages. These tools are very different reference works, they present very different lexicographic approaches and features and, more importantly, they target very different prospective users, ranging from researchers in the OED to advanced learners of English in the OALD, to even general users of the Internet in Google's English Dictionary. In this light, this paper presents a descriptive and comparative pilot study, for the purposes of which the most important characteristics of the three works selected are briefly outlined.

3.1. Oxford English Dictionary

The OED, as defined on its website (oed.com), is a historical English dictionary which provides researchers and students in any discipline with a guide to the meaning, history, and usage of 500,000 words and phrases across the English-speaking world. As a historical work, users can find present-day meanings, as in other dictionaries of current English, but also the history of the language traced through 3.5 million quotations from the 11th century to the present day, from classic literature and specialist periodicals to film scripts, song lyrics, and social media posts. Created more than 150 years ago, and with an online edition platform launched in 2000 and restructured in 2023, the OED is updated four times a year to include revisions to existing entries as well as add new words. In this regard, this paper examines the October 2021 update (OED website editors 2021) and the related commentary written by the OED executive editors Rosamund Ions and Kate Wild (2021).

    Relating to this dictionary microstructure, to look up an entry in the OED online platform users type in the item in the navigation bar on the top of the website homepage and submit their query. They are then taken to the search results page, whose matches are sorted and ordered by the frequency of that item in English, meaning that the most common ones appear first. By clicking on a result in the list, the content of the related dictionary entry is displayed, divided among tabs which present data in a linear format. From left to right, tabs include the Factsheet view, which is free and accessible to everyone, and, only if logged into a subscription, Meaning and use, Etymology, Pronunciation, Forms, Frequency, Compounds and derived words. The number of tabs, however, can vary across entries. Relevant to this research is the Meaning and use tab which contains sense definitions and quotations. The latter are the OED's examples of use, which are chronologically ordered from the earliest known use of the item to most recent one for each sense.

3.2. Oxford Advanced Learner's Dictionary

The OALD, as described in the English Language Teaching (ELT) section of OUP website (elt.oup.com), now in its 10th edition, is an advanced-level dictionary for learners of English.

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[3] The cultural significance of climate change and environmental sustainability in 2019, as expressed in people's communication, is further testified to by other dictionary publishers, namely Cambridge and Collins, whose words of that year were *upcycling* and *climate strike* respectively. These data will be investigated in future research.

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Available in print, online, or as an app, with over 60,000 words, 79,000 phrases, 89,000 meanings explained with clear and simple definitions and 109,000 examples showing language in use, it is a guide to learning English vocabulary.

As the OALD 10th edition development editor Stacey Bateman explains (2020), as opposed to the print edition, which is updated every five years, new content is regularly added to the dictionary website by choosing words based on their frequency in a corpus of 7.5 billion words and based on their usefulness to learners according to the team's experiences of teaching English and working in ELT publishing. Interestingly enough, to explain how an editor writes a dictionary definition, Bateman (2020) chose *eco-anxiety* because it was shortlisted for the Oxford WOTY 2019.

Hosted on a proprietary online platform (oxfordlearnersdictionaries.com), the search features of the OALD are similar to those of the historical counterpart. When users search an item by typing it in the top navigation bar, the content of the relevant entry is displayed, including audio pronunciation, phonetic transcription, word class, grammatical forms, the numbered list of senses, each illustrated by examples of use. Other lexicographic data which can be accessed without subscription may include spelling variants, collocations, extra examples, related entries, word origin, phrases and idioms, links to relevant topic-based word lists, nearby words ordered alphabetically on the right-hand side of the webpage, among others.

3.3. Google's English Dictionary

Google Dictionary is the online dictionary service of Google which, as regards English, can be accessed via operators like "define …", "… definition", "meaning of …" and similar wordings in Google search. More relevantly, its content is licensed by Oxford Languages (n.d.), OUP's provider of digital language data. In this sense, it is worth adding that on the top of each entry, this partnership is explicitly mentioned in the "Definitions from Oxford Languages" wording.

When typing in proper operators with the word or phrase of interest in Google's search bar, if the relevant entry is included, users are offered a dictionary box containing the headword and its definition(s). If available, users can also find data like phonetic transcription, pronunciation audio, word class, grammatical information, the list of senses, one or more usage examples, synonyms, phrases, origin, also in a chart form, and use over time via the Ngram Viewer tool. As lexicographers at Oxford Languages clarify (n.d.), "this dictionary is regularly updated with evidence from one of the world's largest lexical research programmes, and features over 350,000 words and phrases" belonging to many English varieties. Like other Oxford dictionaries, Google's content is created with the evidence-based approach of descriptive lexicography, aimed at monitoring development in real-life examples of spoken and written language gathered through a series of corpora curated by lexicographers at Oxford Languages (n.d.).

4. Materials and method

In this section, the most important methodological aspects of this study are briefly discussed, as concerns the selection of the lemmas to be examined. As already mentioned, given the focus on the two stages of the research carried out by Oxford language experts, data have been collected from the accompanying online commentaries on the Word of the Year 2019 (Oxford Languages 2019) and on the OED October 2021 update (Ions, Wild 2021; OED

website editors 2021). The following paragraphs summarise and discuss the most important points of these explanatory notes.

Regarding the WOTY, every year editors from across dictionary teams, including the OED editors, decide on a word or expression that has attracted a great deal of interest over the last 12 months and that is judged to reflect the ethos, mood, or preoccupations of that particular year and to have lasting potential as a word of cultural significance. Candidates do not need to be neologisms, or words which have been coined during the past 12 months, they can be already known and used too, but brought to prominence by global events and/or given extra significance in that particular year. Each WOTY is discussed by Oxford Languages experts in an online commentary which contextualises the selection of the winner and of the related shortlist by defining each expression and describing the findings of the analysis. As to 2019, the prominence of the climate debate documented in Oxford corpora was clearly encapsulated in the WOTY *climate emergency* and in a domain-specific shortlist of ten expressions, which are listed in the 2019 column of Table 1.

As discussed in Section 3, the OED is updated on a quarterly basis and the material added includes revised versions of existing entries, and new words and senses. The OED website editors offer an overview of the features of each update together with a list of the different changes made, classified into new words, new sub-entries, new senses, etc., each presenting a single related list. The 2021 column of Table 1 shows the lemmas included in each group based on the October 2021 update. Moreover, each update is provided with an online note or commentary in which the OED editors report on the results of their monitoring activity. As to 2021, this commentary is titled *The language of climate change and environmental sustainability* (Ions, Wild 2021) and explores some of the new and revised entries added to the OED in this October update.

The following table (Table 1) lists in alphabetical order the total of 62 terms extracted from the online commentaries mentioned above. From left to right, based on Oxford research findings, the second column relates to the WOTY 2019 shortlist (11 terms), while the third column shows data concerning the OED 2021 update (58 terms). As to categorisation, (0) means that the term is not included in one of the two stages, (1) indicates terms belonging to the 2019 research, while (2), (3), and (4) are used to further classify terms in the 2021 research stage, meaning that they are all comprised in the OED update. Specifically, (2) refers to new entries, (3) defines new sub-entries, which are now also treated as main entries, and (4) signals new senses. In terms of word class, unless otherwise specified in brackets next to the term, all items in the list are nouns. The following columns, under the 2024 label, show data concerning the presence of the same terms, as main entries, in the three dictionaries examined as of February 2024. The symbol (x) is used to classify those included.[4]

Term	2019	2021	2024		
			OED	OALD	GED
active travel	0	3	x		x
air source (adj.)	0	3	x		
artificial capital	0	2	x		
carbon capture	0	3	x		x

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[4] It must be specified that in the OALD, *CO2* is recorded in the entry for *carbon dioxide* and described as a symbol, while *offshore* is not recorded as a preposition. In GED, *carbon capture storage* and *carbon storage* are both included in the entry for *carbon capture*, *offshore* is not recorded as a preposition, and *solar park* appears in the entry for *solar farm*.

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carbon capture and storage	0	3	x	x	x
carbon storage	0	3	x		x
clean (adj.)	0	4	x	x	x
climate	0	4	x	x	x
climate action	1	3	x	x	
climate catastrophe	0	3	x		
climate crisis	1	3	x	x	x
climate denial	1	3	x	x	x
climate denialism	0	3	x		x
climate denier	0	3	x		x
climate emergency	1	3	x	x	x
climate justice	0	3	x		
climate refugee	0	3	x		x
climate sceptic	0	3	x		
climate strike	0	3	x	x	
CO2	0	2	x	x	x
cogeneration	0	2	x		x
decarbonisation	0	4	x	x	x
decoupling	0	3	x		
degrowth	0	2	x		x
digester	0	4	x	x	x
dirty (adj. and adv.)	0	4	x	x	x
eco-anxiety	1	3	x	x	x
ecocide	1	0	x	x	x
ecosystem service	0	3	x		
energy from waste (n. and adj.)	0	2	x		
extinction	1	0	x	x	x
extreme weather	0	3	x		
flight shame	1	0		x	x
food insecure (adj.)	0	3	x		x
food insecurity	0	3	x	x	x
food secure (adj.)	0	3	x		x
food security	0	3	x	x	x
global heating	1	2	x	x	x
ground source (adj.)	0	3	x		x
kaitiakitanga	0	2	x		x
microgrid	0	2	x		x
natural capital	0	2	x		x
net zero	1	3	x	x	x
offshore (adv., adj. and prep.)	0	4	x	x	x
plastic footprint	0	3	x		x

plant-based (adj.)	1	0	x	x	x
rain garden	0	3	x		x
range anxiety	0	3	x		x
smart charging	0	3	x		
solar park	0	3	x		x
tidal (adj.)	0	4	x	x	x
unsustainable (adj.)	0	4	x	x	x
urban agriculture	0	3	x		x
vertical farm	0	3	x		x
vertical farming	0	3	x		
waste-to-energy (adj. and n.)	0	2	x		
water insecurity	0	3	x		
water security	0	3	x		x
wind park	0	3	x		x
windmill	0	4	x	x	x
wood-fired (adj.)	0	4	x		
zero waste (adj. and n.)	0	3	x		

Table 1
Sample of terms extracted from Oxford research.

Before examining the definitions of some of these lemmas in the following section, the major general aspects of the data set shown in Table 1 deserve a brief discussion.

The total number of terms recorded is 61 in the OED, 25 in the OALD, and 45 in GED. However, these results must be read in light of the influence of the OED and of its October 2021 update on the analysis, due to this research focus on lexicographers' public commentaries. First, differences depend on the size of the OED in absolute terms, if compared to the sizes of the OALD and the GED, as described in Section 3, and, as to the OALD's scope in particular, differences are also deeply connected to the learner's genre or type it belongs to (see Wirag 2021, p. 46). Second, the quantity of terms extracted from the OED October 2021 update represents the large majority of the expressions in the whole set. As previously mentioned, as in this case, the commentary on Oxford Languages' WOTYs typically contains 11 terms (1 WOTY and a shortlist of 10 expressions), while the number of words covered in commentaries on the OED updates is usually higher and depends on the extent of the specific update. Concerning the one of October 2021, editors mention 100 revised and new entries and senses, but the number of lemmas included in the relevant notes is 58 (OED website editors 2021), of which only 27 are more or less thoroughly discussed in the related commentary (Ions, Wild 2021) to contextualise the increase in use motivating their inclusion into the OED October update. Moreover, as data in Table 1 show, four terms belong to the WOTY 2019 group and are not mentioned in the OED editors' research, namely *ecocide*, *extinction*, *flight shame* and *plant-based*, among which only *flight shame* is not recorded in the OED. On closer inspection, however, the entries' histories available in this dictionary confirm that *ecocide* and *extinction* have not been revised yet, but they

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also state that the entry for the adjective *plant-based* was first published in June 2020 and last modified in September 2023.[5]

In the following section, thus, in line with the research objective and scope of this pilot study, whose approach is descriptive and comparative, the analysis focuses on a sample of terms which have been further selected from the data set shown in Table 1 to be illustrative of the language development lexicographers have been monitoring because they are included in both stages of Oxford research, and, for comparative purposes, because they are recorded in all three dictionaries.

5. Defining the language of the climate emergency

As Table 1 illustrates, out of the twenty-two terms appearing in all three resources, six expressions feature in both research phases: *climate crisis*, *climate denial*, *climate emergency*, *eco-anxiety*, *global heating*, and *net zero*. More specifically, however, four terms out of the total of six more clearly exemplify the new gravity and greater immediacy, or the *tell it like it* is approach, characterising people's language choices in Oxford teams' view, because they have been deliberately used as more intense and emphatic terms to replace subtler alternatives. These expressions, which are examined in the following paragraphs, can be divided into three different sets: (1) *climate emergency* and *climate crisis*, both used in preference to *climate change*, (2) *climate denial*, in place of *climate scepticism*, and (3) *global heating*, instead of *global warming*.

Regarding the other two terms in the group, namely *eco-anxiety* and *net zero*, they have also presented a remarkable increase in use over the period 2018-2021, but their frequency in spoken and written communication exemplifies a different aspect of this evolving area of language, which will be explored in future research. Indeed, *eco-anxiety*, like *climate action*, *climate justice*, *climate refugee*, *climate strike*, *food* and *water (in)security*, *flight shame*, among others, express concepts related to the physical, social and psychological impact of climate change on people's lives, they testify to people's stronger beliefs, rising concerns, moral standpoints, risk perceptions and emotions affecting their well-being and serving as a motivation for taking action against climate change at different levels, including the urgent actions required to meet the target of *net-zero* CO2 emissions by 2050, which represent one of the Paris Agreement goals.

5.1. Climate emergency and climate crisis

As discussed in Section 4, the prominence of the climate debate and the hardening of language documented in Oxford corpora was clearly expressed in the WOTY 2019 *climate emergency*. According to Oxford lexicographers, this term and *climate crisis* have been progressively used in preference to *climate change*, presenting an increase in frequency of 76 times and 20 times respectively over the period 2018-2021. They have been increasingly favoured as "more scientifically robust" terms to describe "the broader impact of climate change" (Oxford Languages 2019) and to communicate "a sense of urgency about the problem" (Ions, Wild 2021), because, as summarised by *The Guardian*'s editor-in-chief, Katharine Viner, who is quoted by lexicographers at Oxford Languages (2019), the phrase

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[5] These pieces of historical information are extremely interesting and meaningful, but since they concern the OED only, their analysis is beyond the scope of this comparative study. Thus, they will be used to inform future research about this historical reference work, especially to assess whether and how the October 2021 update is currently reflected within the OED entries.

climate change "sounds rather passive and gentle when what scientists are talking about is a catastrophe for humanity".

As regards *climate emergency* in particular, based on the analysis of language data collected in the Oxford Corpus, statistically significant was the "new trend in the use of the word *emergency*", which, being increasingly modified by the word *climate*, indicated "an extension of 'emergency' to the global level, transcending (…) more typical uses" at "a very personal level, often relating to the health of an individual" like "health, hospital, and family emergencies" (Oxford Languages 2019). In other words, "in 2019, *climate emergency* surpassed all of those other types of 'emergency' to become the most written about emergency by a huge margin, with over three times the usage frequency of health, the second-ranking word" (Oxford Languages 2019).

Table 2 lists the definitions of this term in the three dictionaries scrutinised.

OED	The increasing risk of hazardous, irreversible changes to the climate, resulting from global warming; the environmental crisis arising from this risk, requiring urgent action to reduce or halt climate change and avoid the consequent damage to human and environmental welfare (cf. climate crisis n.); (also) a state of emergency declared by any legislative body in response to this
OALD	(also climate crisis) a situation in which immediate action is needed to reduce or stop climate change and prevent serious and permanent damage to the environment
GED	a situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it

Table 2
Definitions of *climate emergency* in the dictionaries.

Despite some differences in the phrasing of descriptions, the three resources adopt strongly worded vocabulary to define the meaning of this expression: urgent, immediate action; required, needed; serious, permanent damage; increasing risk; hazardous, irreversible changes, etc. In more detail, a comparable wording based on synonyms can be observed in GED and the OALD, where *climate emergency* is in both "a situation in which" urgent or immediate action is required or needed to, one might add, simply reduce climate change or, even, to halt or stop climate change and to avoid potentially irreversible environmental damage, or to prevent serious and permanent damage to the environment. Another similarity can be observed in the OALD and the OED, in terms of the relation linking *climate emergency* to *climate crisis*, which, as already mentioned, like *climate emergency*, has been increasingly used in preference to *climate change* over the period 2018-2021. However, if the OALD suggests *climate crisis* as an equivalent expression, "(also climate crisis)", as if they can be used interchangeably, in the OED *climate crisis* is an expression to be compared ("cf. climate crisis n."), an aspect which will be described in more detail later on in the paper. Emotive language is also used in the description of *climate emergency* in the OED, which, however, compared to the other dictionaries, presents a longer and more detailed definition also mentioning the sense of an official declaration of a state of emergency by legislative bodies.

The second entry examined in this set is *climate crisis*, and the definitions of this phrase in the three dictionaries are shown in Table 3.

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OED	The increasing risk of hazardous, irreversible changes to the climate, resulting from global warming; the environmental crisis arising from this risk
OALD	(also climate emergency) a situation in which immediate action is needed to reduce or stop climate change and prevent serious and permanent damage to the environment
GED	a situation characterised by the threat of highly dangerous, irreversible changes to the global climate

Table 3
Definitions of *climate crisis* in the dictionaries.

The OED definition is an abbreviated version of the definition of the first sense of *climate emergency*, which seems to suggest that the two phrases can be exchanged only to a certain extent, that is, except for the fact that "the environmental crisis arising from this risk" does not require, like *climate emergency*, "urgent action to reduce or halt climate change and avoid the consequent damage to human and environmental welfare". This omission might be read in the light of the comparison the OED entry for *climate emergency* suggests in the description of that sense, namely "(cf. climate crisis n.)", a comparison which, however, is not included in the entry for *climate crisis*. In other words, the user might understand that there is a semantic difference between the two phrases due to the more direct sense of urgency and immediacy the word *emergency*, in comparison with *crisis*, implies. As regards the OALD, on the contrary, *climate emergency* and *climate crisis* refer exactly to the same ecological concept: the definition is worded exactly in the same way and both entries clearly indicate the use of the alternative expression to mean the same "situation". In GED, the definition of *climate crisis* is also similar to the definition of *climate emergency*, but here "highly dangerous, irreversible changes to the global climate" only represent a threat and no urgent action is mentioned, like in the OED, which might be interpreted in view of the difference between *emergency* and *crisis* mentioned above.

Although *climate change* is not included in Oxford research, it is worth mentioning that the three definitions of this term, as listed in Table 4, are quite neutral and scientific in the three lexicographic tools. Moreover, only the OED comprises human activity as a cause of climate change and the term to be compared in the OED ("cf. global warming n.") and in the OALD ("COMPARE global warming") is not *climate emergency,* or *climate crisis*, but rather *global warming*, a term discussed in the following paragraphs.

OED	An alteration in the regional or global climate; esp. the change in global climate patterns increasingly apparent from the mid to late 20th century onwards and linked largely with increased emissions of carbon dioxide and other greenhouse gases caused by human activity; cf. global warming n.
OALD	changes in the earth's weather, including changes in temperature, wind patterns and rainfall, especially the increase in the temperature of the earth's atmosphere that is caused by the increase of particular gases, especially carbon dioxide COMPARE global warming
GED	a change in global or regional climate patterns, in particular a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels

Table 4
Definitions of *climate change* in the dictionaries.

5.2. Climate denial

Climate denial is another expression which reflects, in Oxford lexicographers' view, the hardening of the language used in society over the period 2018-2021. With a 153% increase in usage, it has been progressively favoured over *climate scepticism*, together with the associated term *climate (science) denier* being used instead of *climate sceptic*. Table 5 lists the definitions of *climate denial* in the three resources, two of which choose the strong and unambiguous word "rejection" to describe its meaning. What is rejected is "the idea (or the evidence)" in the OED and "the proposition" in GED, followed by a that-clause presenting identical or very similar phrasing used to define this highly contentious issue: climate change is real, it is caused by human activity, and it is seriously threatening the future of humanity. Similarly, in the OALD, *climate denial* is defined as "the fact of refusing to accept" the same aspects of reality, but, while no mention is made of the threat posed by climate change, the dictionary provides learners with an alternative and longer variant, namely "climate change denial", which, on the contrary, is not recorded in the OED and GED.

OED	Rejection of the idea (or the evidence) that climate change caused by human activity is occurring, or that it represents a significant threat to human and environmental welfare
OALD	(also climate change denial) the fact of refusing to accept that climate change is happening and is caused by human behaviour
GED	rejection of the proposition that climate change caused by human activity is occurring or that it constitutes a significant threat to human welfare and civilisation

Table 5
Definitions of *climate denial* in the dictionaries.

Although, as Table 1 shows, *climate denier* does not appear in both stages of Oxford research and it is not included in all three dictionaries, it is worth adding a brief description of this associated form, which is recorded in the OED and GED, and not in the OALD.

OED	A person who or institution which rejects the idea (or the evidence) that climate change caused by human activity is occurring, or that it represents a significant threat to human and environmental welfare.
GED	a person who rejects the proposition that climate change caused by human activity is occurring.

Table 6
Definitions of *climate denier* in the OED and GED.

As illustrated in Table 6, in the OED, the relation between this term and *climate denial* is clearly expressed in the phrasing used to explain the meaning of *climate denier*. If compared to the definition of *climate denial*, indeed, what varies here is only the first part of the explanation, which is consistently worded to define the compound head as "a person who or institution which rejects" that idea or evidence. Similarly, in GED the beginning of the definition agrees with the head *denier*, like in the OED, but the referent of this expression is just a person, and not also an institution like in the OED; moreover, in comparison with *climate denial*, the proposition rejected is shortened and the second that-clause is not included. Given the link between the two terms, it is not clear why *climate denier* does not refer to a person who rejects also the proposition "that climate change caused by human activity […] constitutes a significant threat to human welfare and civilisation".

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Concerning the OALD, it is interesting to observe that, although *climate denier* is not recorded, it appears as an illustrative phrase and collocation for *denier²*, precisely as "climate change/Holocaust deniers", to exemplify "a person who publicly refuses to accept something that most people accept, such as a historical event or scientific fact".

Lastly, going back to the hardening of language demonstrated by the usage increase of *climate denial* and *climate denier* to replace *climate scepticism* and *climate sceptic* respectively, it is worth pointing out that no entries for *climate scepticism* are found across the three reference works, and the only dictionary recording *climate sceptic* is the OED, which offers the definition illustrated in Table 7. The latter proves to correspond exactly to the one of *climate denier*, even though the dictionary comprises this term in the description of sense (a) of *climate sceptic* as a noun to be compared, namely "cf. climate denier n.", a comparison which, however, is not included in the OED entry for *climate denier*. Moreover, since the two definitions are identical, it is difficult to understand the meaning of the comparison suggested by the dictionary, unless this metalexicographic piece of information is used to invite users to observe and learn that *climate denier* and *climate sceptic* mean the same.

CLIMATE SCEPTIC (OED)	(a) n. A person who or institution which rejects the idea (or the evidence) that climate change caused by human activity is occurring, or that it represents a significant threat to human and environmental welfare; cf. climate denier n.; (b) adj. that rejects the idea (or the evidence) that climate change caused by human activity is occurring, or that it represents a significant threat to human and environmental welfare

Table 7
Definitions of *climate sceptic* in the OED.

5.3. Global heating

Global heating has been progressively used in preference to *global warming*, presenting a 15-fold increase in frequency over the period 2018-2021. In the words of Professor Richard Betts, the UK Met Office's climate research lead, who is quoted by lexicographers at Oxford Languages (2019) in their commentary, "global heating is technically more correct because we are talking about changes in the energy balance of the planet". In other words, "global warming doesn't capture the scale of destruction" (Betts cit. in Oxford Languages 2019) and the pleasant temperature implied in the meaning of *warm* is completely misinforming (Watts 2018). In this respect, it is worth briefly mentioning that the three dictionaries confirm the connotation of this adjective, defined as "having a fairly high temperature" in the OED, "at a fairly high temperature in a way that is pleasant" in the OALD, and "of or at a fairly or comfortably high temperature" in GED.

The three definitions of *global heating* are listed in Table 8.

OED	An increase in the average temperature of the earth's atmosphere, waters, and land surface; spec. the long-term gradual temperature increase occurring in the wake of the Industrial Revolution, becoming apparent from the late 20th century onwards, and linked to increased emissions of carbon dioxide and other greenhouse gases caused by human activity; = global warming n. Often used in preference to global warming to convey more emphatically the seriousness of climate change caused by human activity and the urgent need to address it
OALD	the increase in temperature of the earth's atmosphere that is caused by the increase of particular gases, especially carbon dioxide. Some people now use this term instead of 'global warming' to emphasise how rapid and serious this increase in temperature now is
GED	a term adopted in place of *global warming* to convey the seriousness of climate change caused by human activity and the urgent need to address it

Table 8
Definitions of *global heating* in the dictionaries.

As definitions illustrate, the dictionary which immediately signals the evolution in people's language choice is GED, which explicitly defines this expression as "a term adopted in place of *global warming* to convey the seriousness of climate change caused by human activity and the urgent need to address it" (original emphasis). In the OALD, people's usage preference aimed at stressing the gravity of the problem is also plainly explained in the definition, according to which "some people now use this term instead of 'global warming' to emphasise how rapid and serious this increase in temperature now is", but human responsibility is not openly mentioned, as opposed to GED and the OED, where the wording "caused by human activity" occurs. Moreover, as regards the OED, it must be also observed that people's preference is signalled and explained in a note placed below the definition in smaller font, even though the dictionary simultaneously suggests that *global heating* equals and means the same as *global warming*, as in "= global warming n.". This term is defined in the three resources as follows:

OED	A long-term gradual increase in the average temperature of the earth's atmosphere, waters, and land surface, spec. that occurring in the wake of the Industrial Revolution, becoming apparent from the late 20th century onwards, and linked to increased emissions of carbon dioxide and other greenhouse gases caused by human activity.
OALD	the increase in temperature of the earth's atmosphere that is caused by the increase of particular gases, especially carbon dioxide COMPARE climate change
GED	a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.

Table 9
Definitions of *global warming* in the dictionaries.

If we observe and compare the explanations of the sense of *global warming* in the three dictionaries, as listed in Table 9, this term actually means the same as *global heating* according to the OED and the OALD, which offer the same definitions for both terms. However, in the network of relations liking these expressions, it is worth noticing that no references to *global heating* are made in the OED and GED and that the term to be compared in the OALD's entry for *global warming* is not *global heating*, but *climate change*. In this respect, some interesting similarities emerge between the definitions of *climate change* (Table 4) and those of *global warming*, regarding, first, their neutral and scientific phrasing

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and, secondly, the fact that the OED is the only tool comprising human activity as the cause of the increased levels of CO2 and greenhouse gases mentioned in all definitions.

This aspect is noteworthy because the question of who is responsible for the climate emergency we are facing is a necessary one in the climate debate and in expert and non-expert climate communication, not only because environmental awareness is growing in this regard, but also because it inevitably impacts the solutions to work towards in every sector and at every level. Together with urgency, immediacy, and personal action, human responsibility is one of the semantic values motivating the increase in use of these words in place of more passive ones, inspiring the need to reframe discussion about the issue, to raise social consciousness and to encourage people to do what they can to contribute to improving the situation. By mentioning human activity as a cause of the global ecological breakdown, dictionaries might play a part too.

6. Conclusions

Climate change is the most crucial existential problem of our age, social changes are necessary to counter it, and raising public awareness is key to support urgent action. Changing climate does change everything, including language: new words or new senses of old words are continuously created to articulate information and ideas concerning the pressing relevance of the environmental crisis and to reflect its sociocultural impact, which dictionaries, as a mirror of society, cannot but record.

Despite the limitations of a pilot study, with respect to this research questions, preliminary findings seem to suggest that even though some important differences can be observed, also depending on the diverse nature, design, function and target users of these reference works discussed in Section 3, the three Oxford online dictionaries quite clearly reflect the new gravity and greater immediacy expressed in the language applied to climate change in the past few years. They record these new combinations purposefully used by people in preference to accepted ones as main entries and they echo heightened public awareness by adopting emphatic and forceful wording in the sense descriptions of these expressions or by introducing usage information in the definitions or in notes which accompany definitions and which explicitly portray these entries as currently favoured terms aimed to convey the seriousness of climate change caused by human activity and the urgent need to address it, thus mirroring the ethos, mood and preoccupations of people in society.

As to further research, several avenues are open for future studies. The scope of the analysis will be broadened to comprise the other lemmas Oxford lexicographers have been monitoring in the two different stages of their study, and their treatment in the three dictionaries will be described and compared. The examination will be also extended to other important lexicographic data such as examples of use, which are of special relevance in the OED to examine the history of climate-related vocabulary, but they are also very important in the pervasive 'powered by Oxford Languages' content of GED to focus on the perspective of the general user of the Internet. Moreover, definitions and examples of use will be scrutinised to observe the underlying frames, if any, based on the application of Entman's model (1993) to environmental research (Lele *et al.* 2018, p. 5). Lastly, as regards the OALD in particular, future research will also explore the environment-related word lists users typically find in this language-learning tool.

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