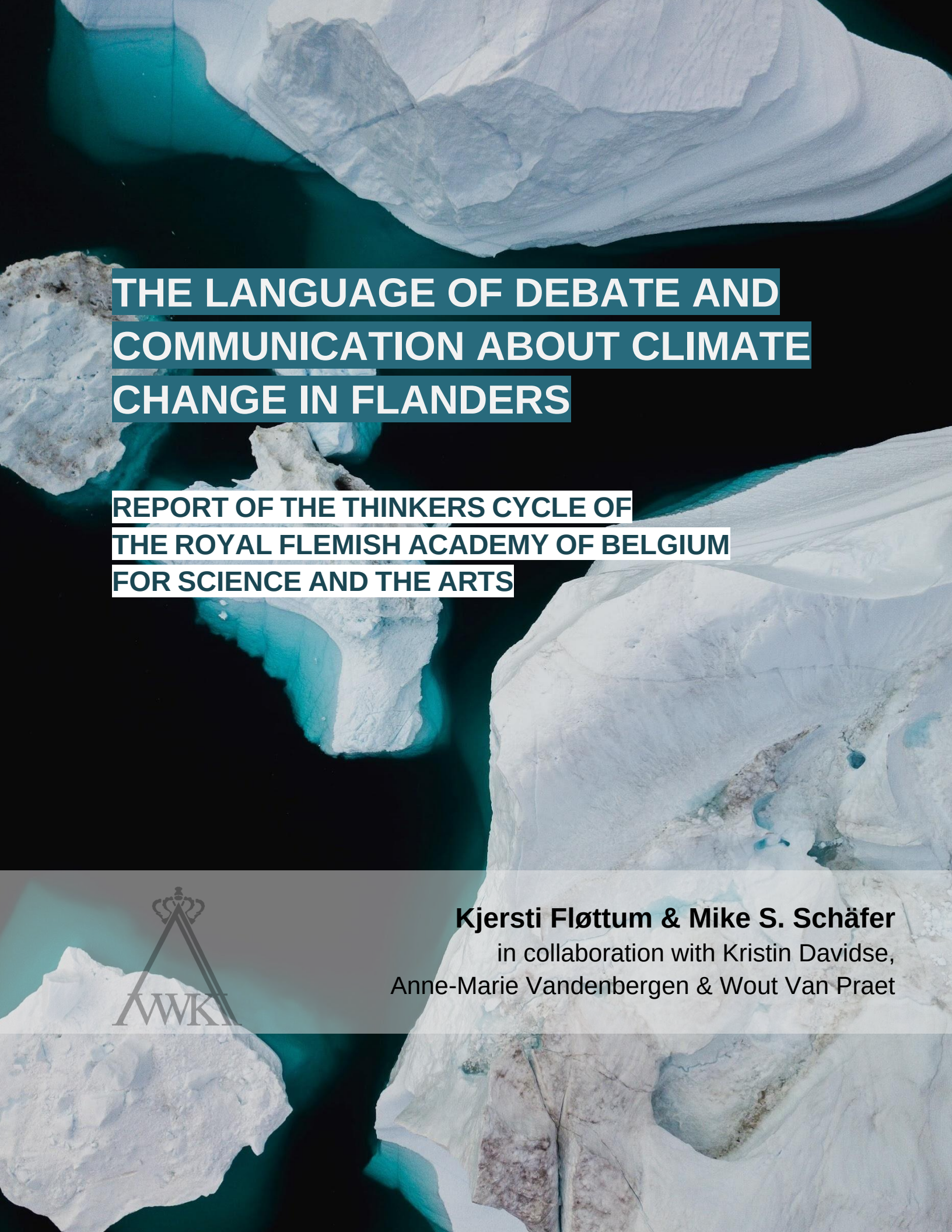

THE LANGUAGE OF DEBATE AND COMMUNICATION ABOUT CLIMATE CHANGE IN FLANDERS

REPORT OF THE THINKERS CYCLE OF THE ROYAL FLEMISH ACADEMY OF BELGIUM FOR SCIENCE AND THE ARTS

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1. INTRODUCTION[1]

1.1 Climate change: A crucial challenge to humankind

Climate change **–** the anthropogenic global warming and accompanying changes in weather patterns around the globe **–** is one of the, if not *the* crucial challenge(s) humankind is facing nowadays. Climate change has resulted in extreme weather events such as heatwaves and droughts, heavy rain and storms. It impacts sea levels and biodiversity as well as human living conditions and the proliferation or scarcity of resources such as water. The "scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years" (IPCC, 2021, pp. 9).

Accordingly, efforts have been made around the globe to counteract climate change. Largely, they center around mitigation **–** i.e. attempts to avoid or reduce greenhouse gas emissions, like the ones agreed upon in the Paris Agreement in 2015 **–** or around adaptation **–** i.e. economic, sociopolitical and/or technological adjustments to better adapt societies, regions or cities to the impacts of climate change, and to moderate potential negative effects (UNFCCC, 2021).

Societal, institutional and individual responses to climate change are necessary and urgent. But these responses are strongly connected to the awareness and perceptions of, as well as attitudes towards, climate change that citizens, stakeholders and decision-makers have: How urgent do they think climate change is? What are the major impacts they perceive, and on what timeline do they expect them? How do they stand towards individual options for action, such as changes in their use of transportation or in their food consumption? How much action do they expect from national, but also trans- and supranational politics, or from organizations such as corporations? And how important are the living conditions of other countries and future generations to them?

These are core questions for dealing with climate change **–** and all of them are connected to the language and communication around climate change. Public debates about the issue have been going on for decades already, with climate change gaining considerable public attention in the 1980s and 1990s (e.g. Weingart et al., 2000) and entering front stage in countries around the world in the mid-2000s (e.g. Schmidt et al., 2013). These public debates, their characteristics and the language used in them have been shown to shape the societal take-up and responses to climate change considerably.

1.2 The relevance of analysing the language of debate and communication about climate change

Does language matter to the global and complex phenomenon of climate change? An answer to this rhetorical question is given by Nerlich et al. (2010, pp. 103): "[i]nvestigations of climate change communication cannot avoid attending to the role of language". According to Hulme (2017, pp. x), not only numbers and mathematics are relevant to understand climate change: "Studying the ways in which climate

[1] The authors would like to thank the steering committee of the Thinkers' Cycle, who provided valuable feedback and guidance throughout. They are also indebted to the contributors and discussants of several workshops on the language and debate about climate change in Belgium held online, in Brussels and Leuven, as well as to the panel members, the co-ordinators of the break-out groups and the audience at the final colloquium in Brussels. Furthermore, the authors are thankful to Annemie Bollen, Barbara Debusschere, Jonathan Hendrickx and Yves Pepermans, who were available for interviews to the thinkers. Finally, the authors thank the KVAB administrative staff who organized the Thinkers' Cycle flawlessly.

change is talked and written about (…), is necessary if the multiple meanings of climate change are to be excavated."

But in what ways does language matter? Research shows that the meaning people ascribe to climate change **–** e.g. their understanding of the phenomenon, their perception of the risks involved, the value judgments they make and the emotional reactions they experience **–** is closely related to how climate change is portrayed in communication (for overviews Fløttum, 2016; Fløttum (ed.), 2017; Fløttum & Gjerstad, 2017; Moser, 2010; Pearce et al., 2015; Schäfer, 2015; Tvinnereim & Fløttum, 2015). We are used to thinking of language as a useful device for reflecting and expressing facts and observations. However, language also influences attitudes and behaviour and can produce new realities. Language thus constitutes a vital component of the sociocultural prerequisites underlying societal development and is indispensable for interaction and participation. The importance of language in the climate change issue is further increased through the complexity of the phenomenon itself, which has developed from being understood mainly as (geo-)physical to becoming political, social, cultural, ethical, and communicational. In addition, the climate change debate is particularly multi-voiced and multi-faceted, with a wide range of actors and voices, which causes multiple communication challenges due to the high number of stakeholders, interests, opinions, and attitudes represented.

Accordingly, scholars have analysed the role of language in climate change communication in recent years, asking questions like: How do actors at different levels of decision making and in different sectors construct their conception of climate change linguistically? How are different voices manifested linguistically? How are arguments and messages organized in texts and talks? How is this heterogeneity of information and often value-laden knowledge understood by laypeople? To answer these questions, which cover both representations and interpretations of climate change, different approaches have been used – qualitative, quantitative, multimodal, manual and automatic. The analysed text corpora have included a variety of genres, such as scientific documents, policy reports and debates, corporate annual reports, newspaper articles, editorials, op-eds, social media posts, blogs and not least narratives or "stories" of personal experiences collected through interviews or surveys. Different levels of analysis may be relevant, from a micro-perspective, focusing on particular linguistic phenomena (words, sentences) to a macro-perspective, integrating entire texts and the context they are produced in.

While climate change communication has been an object of study since the 1980s in various disciplines, such as psychology and social sciences (Capstick et al., 2015; Grundmann & Stehr, 2010), linguistic analysis approaches have developed in particular since the 2010s. In a review article, Fløttum (2016) presents linguistic studies undertaken at different levels – word level, sentence level and text level (for specific references, see the article).

- **Words:** As meaning carriers, words are the basic components of natural language. When talking about the meaning(s) of words, we often make a distinction between denotation (words denote a referent), the strict or literal definition of a word, and connotation, a subjective and/or cultural coloration added to the word. The fact that words may have different meanings and associations, conveying different values, can be viewed as a challenge, typically for interpretative purposes. However, in a different perspective, the potential plurality of meanings can be an obvious opportunity for representative purposes. Studies undertaken on the meanings of words and word components cover the use of "climate change" versus "global warming", surveys revealing what people associate with the compound "climate change" (when answering open-ended questions) and how they may understand different climate terminology. Other studies have investigated how the notion of "future" is represented linguistically: What meanings are conveyed through different representations, and to what extent are the perspectives of gloom-and-doom versus more positive

perspectives of a sustainable society represented? Still other studies have looked at the productivity of "carbon"-compounds, such as "carbon credit," "carbon diet," "carbon sinner" and "carbon capitalism", and more recently compounds with "shame" as in "flight shame" have received attention. This brings the focus towards metaphors that also have been subject to analysis in the climate debate, such as "The planet has a fever". In Dutch we find a great many compounds, such as *klimaatverandering* ('climate change'), *-crisis, -strijd* ('-battle'), *-maatregelen* ('-measures'), *-debat, -ambities*, *-jongeren* ('-youth'), *-spijbelen* ('commit truancy'), *-leider, -retoriek* to name just a few of them. Many of these are innovations and would not even have been understood a few decades ago. For example, *klimaatjongeren* ('climate youth') cannot be interpreted without knowledge of the context of the school strikes. The rise and spread of such new collocations and compounds points to the impact of climate change communication on the language as a whole, its usage and reception.

- **Sentences and polyphony:** When studying climate change discourse at the level of the sentence, there are multiple questions of syntax that are relevant (such as active versus passive voice, with or without mention of an agentive force). However, this paragraph will be limited to studies related to polyphony (or multivoicedness). As the climate change debate has been rapidly evolving, the number of voices has been substantially increasing (as often seen in various media outlets): different actors and stakeholders are getting involved in addressing the challenges, setting priorities for new knowledge and politics, and framing key questions and actions. There are different ways of linguistically analysing this polyphony. One obvious object of interest is reported speech (who says what, and in what context), whether in direct quotes/citations (X says: "A is caused by B.") or in indirect reporting (X says that A is caused by B.), and with a particular focus on the introducing verb (e.g. the difference between the neutral "say" and the argumentative "claim").

  The perspective of linguistic polyphony is not limited to studying explicit voices in the form of reported speech, but also, in a mainly semantic approach, allows one to analyse the presence of implicit or hidden voices in the debate in question (ScaPoLine theory, see Nølke et al., 2004). The main idea is that in one single sentence there may be several voices or points of view present in addition to the one of the speaker/writer. This approach helps to reveal or unpack implicit voices, within one sentence, in a more or less hidden interaction through devices such as pronouns, sentence connectives, modal expressions, adverbs, negation, and presupposition. Polemic or refutative negation is often mentioned as the classical example of implicit polyphony, i.e. where the source is not explicit. In the sentence "Climate change is not human made" there are two points of view (pov): one implicit, underlying pov stating that "climate change is human made" (pov1) and another qualifying this pov1, through the negation "not", as not valid: "climate change is not human made" (pov2). While the speaker is responsible for pov2, the isolated utterance does not indicate the source of pov1. The source might or might not be identified through contextualization. But what is obvious is that the speaker's relation to the positive pov1 is one of refutation. In this case, common knowledge of the climate debate makes it reasonable to interpret the underlying refuted point of view as belonging to a voice representing support for IPCC conclusions. The strategy of using negation is one among many subtle rhetorical ways of polemising without identifying with whom.

  In general, polyphonic analysis enables the reconstruction of different relations between the speaker and the "hidden" voice brought in through a point of view different from the speaker's **–** relations such as agreement, concession, and refutation, typical of the multivoiced climate change debate.

- **Narrative text and talk:** Words and sentences do not typically appear in isolation but are embedded in longer texts and talks. A relevant and often used perspective for analysing text and talk in climate discourse is the narrative one. Reasons for this are, first, the omnipresence of narratives, as one of the main rhetorical modes of discourse, and second, the fact that the majority of climate discourse can be understood as text and talk that construct climate change as a kind of problem (or complication) followed by events or actions with a view to achieve a resolution, possibly culminating in a final situation. Central to such narratives are actors – humans, collectives, society, and natural forces, taking on narrative roles of heroes, villains, and victims. Hence, climate change narratives are considered to implicate actions, or plans or recommendations for actions, at different levels of human existence, from the individual to national and international institutions.

There are multiple kinds of representations of climate change discourse, and there is definitely not one specific discursive genre in which we can put them. Scientific reports and papers, journalistic genres, political speeches and manifestos, NGO programmes, art performances, blogs, social media posts and personal stories have different characteristics. They are based on knowledge from the natural or social sciences, from personal experiences, and influenced by different political and ideological points of view. However, research has been undertaken indicating that climate text and talk can be considered as "climate change narratives", a perspective which identifies typical *components* in a "story" (Initial situation, Complication, (Re-)Action, Resolution, Final situation), sometimes with a moral viewpoint added, and different *actors* or narrative characters, such as heroes, villains, and victims. The societal importance of this is that stories used to communicate climate change knowledge and politics have an important role in shaping opinions related to the issue. And, by applying the narrative lens to different genres, one can take on a comparative perspective which further allows one to explore the impacts of conflicting narratives.

Understanding how climate change narratives are constructed, how they circulate in society, and how they impact people's understanding and willingness to act, may be of vital importance to develop the right communicative tools to stimulate action at all levels of society, from the individual to political institutions. This effort may depend on a cross-disciplinary collaboration, with contributions from a multitude of fields, in addition to linguistics: climate science, psychology, sociology, anthropology and political science.

1.3 The case of Belgium and Flanders

While climate change is a global phenomenon with implications around the world, the issue is 'domesticated' in national and regional contexts (Matthews, 2016). As a result, there are clear differences between countries and regions in the way stakeholders communicate about it, how news and social media represent it, and how the public understands it. For example, explicit climate change denial and scepticism are strongly present in some parts of the world (Painter & Ashe, 2012), like in Australia, where such terms as 'hypocrisy', 'folly', 'false prophesies' are used by influential denialists to describe climate change (cf. Gurney, 2017).

Because of this domestication, which is particularly pronounced when it comes to the sociocultural aspects and implications of climate change, it is worthwhile to focus on the specificity of individual countries and regions. The focus of the KVAB Thinkers Cycle is on the climate change debate in Flanders. The case of Flanders as one of three regions of the federal state of Belgium is a complex one, as many stakeholders participate in the climate change debate: the government, the industry, the civil society, individuals and others. They represent different levels of decision-making, from federal over regional to local levels. They stand for different views and communicate in different formats, often contradicting and blaming each other. While the need for drastic measures is urgent, the lack of clear communication about it leads to distrust in

the climate change approach of the Belgian government (cf. an opinion poll by the American Pew Research Center, *De Standaard*, 15 September 2021, pp.14, "Zorgen over klimaat nemen toe" ('Worries about climate are on the increase')). The differences between the political parties are also evident from the extent to which they demand quick and drastic measures. These differences are reflected not only in their positions in parliament and the manifestos but also in the social media, where polarisation is most visible. While the Flemish elite press propagates the view that change is urgent, this view is not shared by the whole population. Discussions mostly centre around cost and attainability. There is clearly a need to find ways of involving everyone – also the non-politically interested **–** in the debate (cf. Schuermans, 2021). It is this concern that lies at the origin of the thinkers cycle: How is climate change communicated in Flanders, and how can it be improved?

1.4 The aims of the Thinkers Cycle

Against this backdrop, it is crucial to communicate climate change transparently, clearly and efficiently to the Belgian and Flemish public, and to engage in a dialogue about goals, policies and measures with governments, political stakeholders, industry, civil society organisations, social movements and individual citizens. As Frans Timmermans, responsible for the concretisation of the 'Green Deal', with which the European Commission wants to implement its climate change-related goal, formulates it in an interview with *De Standaard*: "Het leven van de Europese burgers zal fundamenteel veranderen. We moeten goed uitleggen hoe we hen daarbij zullen helpen." ('The lives of European citizens will change fundamentally. We must explain very clearly how we can help them in that process') (*De Standaard*, 15 July 2021, p.8).
Therefore, the KVAB Thinkers Cycle addresses climate change communication and the language of the public debate in Flanders. This report, which is the outcome of the Thinkers Cycle, has two aims:

1. It aims to provide an **evidence-based description of the status quo of climate change communication in Flanders**. In doing so, it collects and systematically reviews the – comparatively little – available scholarship in this domain in the country, identifies and presents robust findings, but also biases and gaps on scholarship.

2. Based on this assessment, but also on prior workshops and expert interviews, the report aims to formulate **recommendations for how to improve climate change communication and the use of language in the respective debates** in the region.

The structure of this report is as follows. In Chapter 2, we outline the context of the climate change debate in Flanders: the physical facts, the policies at the federal and regional levels, societal responses, the media ecosystem and public attitudes. In these sections, we focus as much as possible on the situation in Flanders, but for some aspects, we inevitably have to rely on surveys carried out at the Belgian federal level. In Chapter 3, existing scholarship on climate change communication is reviewed. As in Chapter 2, this assessment of the state of the art includes studies of Flanders as well as, for some aspects, studies surveying the situation in Belgium. In Chapter 4, we focus on climate communication and the language of debate and communication about climate change in Flanders.

Overall, the Thinkers Cycle intends to call attention to the gap in scholarship and to stimulate research on the topic. With the guidance of the Thinkers, the cycle aims to arrive at a clearer picture of where we stand and to reflect upon where we want to arrive with regards to climate change communication and the language of the debate.

The results of the Thinkers Cycle will be communicated to the Flemish government and to a wide range of stakeholders in Flanders. They are intended to improve climate change communication and the respective debate in the region by implementing the measures recommended in this report.

2. THE CONTEXT OF THE CLIMATE CHANGE DEBATE IN FLANDERS

Several contextual factors are relevant to, and influence the development of climate change communication and the characteristics of the public debate about the issue in Flanders. These factors range from climatic changes and their natural and societal implications over the political situation of Flanders as a region of the Belgian federal state to media systems and basic perceptions and attitudes of the Flemish population. These contextual factors will be introduced in this chapter.

2.1 Climate change: The physical facts

Belgium is a "developed" (e.g. DARA, 2012, pp. 4) country which, in relation to its size, has contributed considerably to climate change: "If we look at the socio-economic context, the data of the Global Carbon Atlas (2016) show that Belgians have contributed relatively more to climate change than the average person. In terms of actual, global emissions, Belgium is currently responsible for 0.28% of global greenhouse gas emissions. However, Belgium is only a small country (30,528 km²) with a medium-sized population (11.3 million). Therefore, it is more interesting to compare per capita emissions. According to the most recent figures, Belgians are globally ranked 35th in terms of per capita carbon production, 11th in terms of per capita carbon consumption, and 4th in terms of historic carbon consumption" (Pepermans & Maeseele, 2018, p.2).

Climatic changes and their regional and national implications are well documented for Belgium, with a rich amount of scientific facts, projections and methodologies for presenting trends being available from the scientific department of the Royal Meteorological Institute (see e.g. *Klimaatrapport* 2020). Generally, Belgium exhibits many of the same climatic trends that are visible globally: rising temperatures to a degree that is especially threatening in urban areas like Brussels, a rise of sea levels, a rising likelihood of extreme weather events and an increase of floods. In the summer of 2021, the prediction of catastrophic floods became a reality in the south of Belgium. The rise of temperatures in Belgium from 1850 onwards is even slightly steeper than the global average, as a result of the development from rural areas to ever expanding cities (National Climate Commission, 2017).

Haarsma (2021) explains how the predictions of the 6th IPCC assessment report affect different parts of Europe, dividing Europe into four regions: Northern Europe, Middle and Central Europe, Eastern Europe and the Mediterranean region. Belgium, which is in Middle and Central Europe, will have more frequent extreme droughts, with a high risk of forest fires. Belgium actually takes on the colour orange on the map, pointing to a very high risk. (*De Standaard*, 11 August 2021, p.4)

In global comparison, the DARA (2012) Vulnerability Monitor categorizes Belgium as "moderately" to "highly" affected by climate change - with many other countries ranking higher in terms of climate change related-risks -, particularly risks lying in the increase of flooding and droughts, the shortening supply of water resources, damages to infrastructure, and increasing dangers for respiratory illnesses. Germanwatch's Global Climate Risk Index (Eckstein et al., 2021) ranks Belgium 53rd globally, mainly due to pronounced health risks for citizens.

2.2 Climate change politics: mitigation and adaptation policies

Belgium is a federal state where the decisional power is shared between a federal authority, three Regions (Wallonia, Flanders and the Brussels-Capital Region) and three communities (Flemish Community, French

Community and the German-speaking Community). Primary responsibility regarding climate policy lies with the Federal State and the three Regions: "The general context for the preparation of climate change policies and measures is determined by the plans established by the federal and regional authorities, setting out their respective policy objectives and strategies" (*Belgian National Communication on Climate Change under IPCC*, 2017, p. 46). In practice, however, this means that there is frequent disagreement on what action needs to be taken. Very recently, the chairman of the French liberal party called for climate change to be solely a federal matter, a proposal which is unacceptable to most other parties.

As it is, climate change policies are designed and implemented by the federal and regional governments, which set up their own priorities and objectives within the scope of their powers. Regions have major responsibilities in areas such as rational use of energy, promotion of renewable energy sources, public transport, transport infrastructure, urban and rural planning, agriculture and waste management.

Below is an overview of the division of responsibilities and initiatives at the federal and Flemish levels.

Federal responsibilities in CC mitigation policy	**Flemish responsibilities in CC mitigation policy**
– **Invest in incentives to make mobility and transport (more) sustainable** (e.g. optimisation of railway system and of legal framework for 'greening' company car fleet; fiscal reform to promote sustainable mobility)	– **Energy policy agreements** for agriculture and industry
– **Promote renovation (of buildings) and optimise energy efficiency** (e.g. improve energy efficiency of federal government buildings, reduce taxes for renovation and reconstruction)	– Encouraging **renovation** of residential buildings and mandating renovation of non-residential buildings
– **Increase renewable energy** (e.g. boost offshore capacity (i.e. wind energy); strengthen regional ties in projects; anchor biofuel blending requirements)	– **Reduction** of N_2O **emissions**, caprolactam production and F-gas emissions
– **Ensure energy supply security** (e.g. continuously monitoring national supply security; implementing market-wide capacity remuneration mechanism (CRM)[2]; ensure robust energy transmission networks (transnationally and internally) and improve the energy interconnectivity rate; promote projects for energy storage and flexibility; develop an operational crisis plan for all energy vectors	– Encouraging low-**carbon and zero-emission vehicles** among private individuals, company fleets and buses, provide **charging infrastructure** and stimulate innovation for **greening freight transport**
– **Energy transition fund:** created in 2016 to finance innovative projects that seek to improve development of and/or research on systems for supply security and network balance	

Table 1. Division of climate change responsibilities and initiatives at the federal and Flemish levels

For climate adaptation, there is a (general) national plan (dating from 2017), which focuses on 11 abstract principles (Table 2) to be implemented mostly at the regional and (supra-)local level, where specific

[2] The CRM ensures supply security after the closure of all nuclear plants in 2025. The system will work with yearly actions, in which energy producers can bid to receive government support to produce energy. Any kind of energy producer can take part (including energy from renewable sources, from gas plants, etc.).

adaptations can be thought out more carefully. At the national level, the adaptation priorities are research, transversal issues, biodiversity, energy, health, international cooperation & crisis management (Climate Adapt, 2021) (see Appendix 1 for an overview). At the regional level, the priorities are climate adaptive infrastructure and environment, spatial planning, health, water management, green-blue networks and biodiversity, climate adaptive agriculture and food chain and climate adaptive and circular economy (*ib.*) (see Appendix 2). Since the agreement between different governments on a national climate adaptation plan in 2017, progress has been made but there is still a long way to go (*ib.*). Implementation of actions in the field and further awareness raising are necessary.

National plan for climate change adaptation
1. Development of high-resolution climate scenarios for Belgium. These scenarios can then be used as the national reference for future impact and vulnerability assessments. 2. **Development of a roadmap for a Belgian Centre of Excellence on Climate.** This centre will provide a structure for collecting scientific expertise and knowledge at national level and providing information on the expected impacts of climate variability and climate change in Belgium. 3. **Development of a national online platform for climate adaptation.** The goal is to create a national database to share and give access to all the information available dealing with climate change impacts, vulnerability assessments and adaptation in Belgium (research projects, best practice, guidance, plans and programmes...). 4. **Strengthening sectoral coordination at national level by setting up of an integrated vertical and horizontal coordination structure** between federal, regional and local sectoral authorities, stakeholders and scientists. 5. **Take climate change into account in risk analysis for invasive alien species**, since climate change can facilitate the arrival and spread of invasive species. **6. Evaluate the impact of climate change on the security of the energy supply and the energy transport and distribution infrastructures.** 7. **Evaluation of the socio-economic impacts of climate change in Belgium.** This should determine Belgium's level of readiness to tackle climate change and identify the sectors, businesses and categories of workers that will be the most affected and in which way. **8. Take climate change impacts and adaptation needs into account in the framework of the future National Environmental Health Action Plan (NEHAP).** **9. Education and awareness-raising among health professionals on the subject of climate change impacts.** 10. **Promote transnational cooperation on adaptation.** Transnational cooperation aims to increase the cross-border coherence of adaptation policies, but it can also be a way to learn and exchange good practice. A Benelux partnership will be investigated, in particular to analyse cross-bounder risks and the knock-on risks from the transport, energy, health and crisis management sectors. **11. Coordination of preventative, planning and management measures in the event of emergency climate change situations.** In the short term, the aim is to achieve greater consistency between the management and prevention measures for climate-related action/emergency (and response) plans and their coordination, at federal, regional, provincial and local level, by involving the competent authorities for preventative measures in preparatory working groups from the beginning. In the medium term, the aim is to ensure that climate-related incidents and disasters such as wildfires and floods occur less frequently. If these incidents do occur, the aim is to reduce the damage to people, the environment and infrastructures by taking preventive measures and ensuring good crisis management.

Table 2. National Climate Adaptation Plan (National Climate Commission 2017)

Regarding political views, in contrast to the Anglo-Saxon world, Flanders has no political party which will openly and consistently deny climate change, even though individual politicians may occasionally use terms such as "climate hysteria". But "organized denial campaigns by political elites, industry and citizens are rare and increasingly marginal in Belgium" (Pepermans & Maeseele, 2018, p3). Nevertheless, there are important differences between the political parties in Flanders, with regard to the emphasis they put on climate issues, with regard to solutions, and with regard to the relative weight they give to attainability and affordability.

Bouteca & Terrière (2021) point out that the climate issue is an integral part of the new conflict lines between political parties. At first sight paradoxically, the issue receives at the same time more salience and creates more conflict. Cleavages between parties are social-economic and (post)materialist, but parties do not situate themselves in the same positions on the two scales. For example, while the communist party (*Partij van de Arbeid*, 'Labour Party') is at the far left on the social-economic scale, it is in the middle on the materialism scale. While, on the other hand, the Green party (Groen) is on the far left on the materialism scale, it is more to the right on the social-economic scale.

A quantitative analysis of party manifestos from 1999-2019 shows an increase in attention, with the Green party owning the issue. An analysis of the parties' positions on a scale of relative weight given to economic growth and environmental protection shows increasing polarization from 2010 to 2019 (Chapel Hill Expert Survey). Bouteca & Terrière (2021), however, also point out that positions shift and vary from topic to topic. For example, the LEZ scheme (low emission zones) was opposed in Ghent by the socialist party. There is, in other words, positional diversity even within one party. While the N-VA (Nieuw-Vlaamse Alliantie, 'New Flemish Alliance) is towards the right on the socio-economic scale, it has introduced the LEZ scheme in Antwerp, while being in favour of keeping nuclear energy. Nevertheless, there is polarization, especially between the extreme right, *Vlaams Belang*, ('Flemish Interest'), and the Green party (see e.g. the headline 'Green blackmails the majority' (Groen chanteert de meerderheid) in *De Gentse Volksgazet,* autumn 2021) on the introduction of the LEZ scheme in Ghent).

In 2021, we are witnessing what seems to come close to 'climate competition'. *De Standaard* wrote on 6 October 2021 that Paul Magnette, Chairman of the PS, *Partie Socialiste*, by giving top priority to the climate, is entering the domain of the Green party, a development the Green party has mixed feelings about. Elections play a crucial role in shifting party positions on the climate issue, and long-term planning is still missing, notwithstanding the clear increase in attention given to the issue. Political parties mostly disagree with one another on what action needs to be taken. A case in point is the nuclear power debate, which has a long history.

Case study: the nuclear phase out debate – an illustration of how language matters

In 2003, the federal government, which was a coalition of liberals, socialists, and ecologists, decided on a nuclear power phase-out. According to this law, no new nuclear plants would be built in the future, and existing nuclear plants would have to stop working forty years after their launch (i.e. by 2025 at the latest). However, since 2003, insufficient efforts have been made to prepare for the nuclear power phase-out (e.g. by increasing the share of renewable energy in the total energy production, which went from 1.9% in 2004 to 'only' 9.9% in 2019) (Eurostat, 2021). This led some parties (namely the right-wing opposition parties N-VA and Vlaams Belang) to question the nuclear power phase-out, proposing to keep the 'youngest' nuclear plants open and, potentially, to build new 'hypermodern' plants. However, the government, and especially the green parties in it, are determined to have a phase-out by 2025. To meet that goal, they plan to build gas plants to compensate for the potential energy deficit and ensure supply security. That plan is heavily criticised by the right-wing opposition parties as costly, irrational and detrimental to the climate goals (because of the increase in carbon emission that the gas plants will bring).

As a result, the issue is still very much alive at the moment of writing this report. Green is accused by the opposition of holding on to the closure of the two remaining nuclear plants, notwithstanding the need to build new gas plants that such closure entails. Arguments still centre around cost, but more about safety and emission. Experts in different domains (energy, nuclear science, medicine, environment) make it difficult to decide on the best option, as they all contain some grain of truth. See e.g. the headline on the front page of *De Standaard*, 25 October 2021, "Gezondheidsraad waarschuwt voor kernenergie" ('Superior Health Council warns against nuclear energy'). The article appeared just before the

government's plan to have the final discussion on the nuclear phase out in November. This report by the Superior Health Council was then called into question as being subject to ideological considerations and some of the scientists refused to have their names on it. On 27 October a headline read "Kernenergie-rapport draait uit op academische rel" ('Nuclear power report results in academic row') (p. 12, '). While in the article both sides are given a voice and are quoted (referred to as the 'row' in the headline), the lead clearly takes a stance. We quote it here in full:

> "Hoge Gezondheidsraad. Het rapport van de Hoge Gezondheidsraad over de duurzaamheid van kernenergie bevestigt alleen maar de polarisatie in het debat. Het schaadt de reputatie van de raad en die van het SCK CEN."
> ('Superior Health Council. The report of the Superior Health Council on the sustainability of nuclear energy only confirms the polarisation in the debate. It damages the reputation of the council and that of the SCK CEN.')

The sentences in the lead are not in quotation marks, which means they must be interpreted as being endorsed by the reporter. The words "only confirms" imply that "polarisation" is known information. A word such as "signals", or "points to" would not have that implication. Further, the polarisation is judged to be damaging, i.e. a negative evaluation of the Council is explicit in this lead.

An opinion piece in the same issue (p. 33) receives the headline "Is de Hoge Gezondheidsraad nog wel geloofwaardig?" ('Is the Supreme Health Council actually still credible?'). The question is a rhetorical one, suggesting a negation, and hence not an open question inviting discussion, but one closing down the dialogue.

2.3 Societal responses to climate change

Belgian's federal government has committed itself to the UN's sustainable development goals, advised by the National Council for Sustainable Development (NRDO) set up under the law of 5 May 1997. Sustainable development aims to meet the needs of present generations without jeopardising the ability of future generations to meet their own needs. Sustainable development represents a lever for innovation, and an opportunity to reassess our economic model, to ensure that our societies, the planet and our economy have a sustainable future

Belgium has a tradition of a relatively strong environmental movement (Mormont & Dasnoy, 1995, pp. 50). In the 2019 elections, the Flemish ecological party *Groen* did noticeably poorer, with 9.7% of the vote, than its sister party in the French speaking part of the country, Ecolo, which won 16,5% of the vote. One of the main reasons for these poor electoral results seems to have been *Groen*'s inability to counter the perception that its measures would cost Flemings a lot of money. In the Flemish government formed in 2019, Climate change was subsumed under the portfolio of 'Environment, Justice, Tourism and Energy' allotted to N-VA minister Zuhal Demir.

Given the current political context in Flanders, what responses to climate change are there from civic society? These societal responses can in principle be divided into two main types, viz. those addressing *climate policy* and those setting up *citizens' actions* to combat climate change.

With regard to climate policy, a central issue is the fact that, unlike the Brussels and Walloon parliaments, the Flemish parliament does not have a citizens' parliament. Various action groups are demanding that such a parliament be installed, such as *Grootouders voor het klimaat* ('Grandparents for the climate'), and Greenpeace's local branches stating that it is "Time for a Citizens' Parliament about the ecological emergency". Belgium has developed its own branches of the main international movements criticizing

existing climate policies. *De Klimaatzaak* ('The lawsuit in which everyone wins') joined the movement of taking governments to court for failing to take the necessary actions to protect its present and future citizens from the effects of climate change. *De Klimaatzaak* was concluded in 2021, with the judge agreeing with the climate case but failing to impose specific targets. *Klimaatzaak* announced an appeal asking for concrete measures to be attached to the verdict. Youth4climate, the international movement started in 2018 by Greta Thunberg with her iconic climate strikes, was started up in Belgium in 2019, by Anuna De Wever and Kiera Gantois in Flanders and Adélaïde Charlier in Wallonia, and led to the organization of well-attended marches by striking high school pupils in 2019 (Wahlstroem et al., 2019; de Moore et al., 2020). The corona-pandemic and increasing condemnation from the mainstream have reduced attendance and negatively affected popular perception of the strikes, also in so-called more left-leaning Flemish Newspapers like *De Morgen*. The Belgian branch of Extinction Rebellion, whose methods of protest are viewed as very confrontational in the mainstream, formulates as its main demands: declaration of a climate and ecological emergency, a legally binding climate plan to phase out fossil fuels, restore biodiversity and protect the environment, and establishment of a citizen forum that gives means and authority to the regions to secure a controlled transition to a just, post-growth society.

Examples of citizens coordinating actions to combat climate change include *REScoop Vlaanderen* and Translab K. *REScoop,* which stands for 'Renewable Energy Sources cooperatives', is the Flemish federation of citizens' cooperatives for renewable energy. Its aim is to allow its cooperants to use the energy generated by its RES-enterprises via direct citizen participation. REScoop is value-driven, rather than gains-driven, and is democratically accountable to all its users, rather than to a restricted set of shareholders. Translab K, short for 'transition laboratory Kempen (a region in Flanders)', provides a meeting place for people involved in transition projects such as 'deconcreting', greening and spatial reorganization, encouraging citizen participation.

Case Study: Citizen initiative 'Sing for the climate'– an illustration of how language matters

The initiative, which became a worldwide success, was taken by Nic Balthazar in 2015, before the Paris conference. It was meant as a protest with a positive tone, sparking interest and enthusiasm in the population at a time when there was still little or no awareness among the majority of people in Flanders of the urgency of the climate change issue. The first climate school strike initiated by Greta Thunberg took place in 2018, and the first one in Brussels was in 2019, which means the initiative preceded the demonstrations by young people by several years. The fact is that it raised the consciousness of people of the urgency of the issue. The song is called 'Do it now', which is part of the refrain. It's a simple exhortation urging stakeholders to take action. The repetition of the verb 'do', accompanied by the adverb 'now' in all its simplicity could not have sent a stronger message: it expresses a command to be carried out by the addressees (the key figures, stakeholders, politicians) immediately, without delay. The rest of the refrain also consists of the expressions of obligation ('we need to'). As such the refrain takes the form of a series of slogans as used in demonstrations. The song is an artistic version of a demonstration.

2.4 The media ecosystem

Hallin & Mancini (2004) describe Belgium as an example of the "Northern European" or "Democratic Corporatist" model - a type of media system that includes Scandinavia, Germany, Switzerland, Austria, the Netherlands and Belgium. "This model displays a high reach of the press market, relatively high degrees of political parallelism, strong professionalization, and strong state intervention, in the form of strong public service broadcasters and subsidies for the press." (Brüggemann et al., 2014, pp. 1040ff.)

But the Belgian media system is a heterogeneous one: "The cultural and linguistic diversity in Belgium has resulted in a segmented landscape along the lines of the different language communities; it is therefore difficult to speak of a unified Belgian media market" (Evens & Raeymaeckers, 2021), and media-political responsibilities are partly divided into the Belgian regions as well. "As a result, there is essentially no 'Belgian' approach to media regulation and media accountability, but rather, two distinct, and sometimes significantly different, regulation systems." (Evens & Raeymaeckers, 2021)

The country has free news media, ranking 11th globally in the 2021 World Press Freedom Index (Reporters Without Borders, 2021). This is a result of the Belgian "media landscape gradually [becoming] depoliticised starting in the 1960s. At present, none of the major media outlets are clearly associated with a political or ideological position (except for the openly progressive daily *De Morgen* in Flanders)." (Evens & Raeymaeckers, 2021), even though ideological positioning seems to become more important recently again. Trust in the (mainstream) news media is generally high in international comparison, "with Flemish news brands even showing a small trust bump" (Picone, 2021, p.66) during the COVID-19 pandemic.

As in other countries, funding for journalism in Flanders has been eroding in recent years, with subscription numbers declining and a considerable portion of advertisement revenue going to digital platforms, and as a result, working conditions for journalists have worsened (cf. Hendrickx, 2021). Connectedly, the Flemish news media landscape is characterised by a great deal of concentration (Picone, 2021), with most (mainstream) media outlets being concentrated in five media groups: *VRT*, *DPG Media*, *Mediahuis*, *Roularta Media Group* and *SBS Belgium*. These media groups together represent 80 to 100% of the Flemish media market according to the *Flemish Regulator for the Media* (VRM, 2020). Various recent studies have pointed out that the increased consolidation of ownership in the Flemish media market has led to increased content sharing across outlets and to homogeneity across titles belonging to the same company (Beckers et al., 2017; Hendrickx & Ranaivoson, 2019; Hendrickx & Van Remoortere, 2021).

- *VRT (Flemish Radio and Television broadcaster)* is the public service broadcaster for Flanders and is mandated by the Flemish government to "provide a high-quality offer in the sectors of information, culture, education and entertainment" (www.vlaanderen.be/vrt-de-openbare-omroep). The VRT has three television channels: *Eén* (news programmes and entertainment), *Canvas* (in-depth news and current affairs, documentaries, and non-mainstream entertainment), and *Ketnet*, (aimed at children and teenagers). With *Eén*, VRT also owns the most watched TV channel in Flanders, good for 33% of the market share (CIM, 2020). VRT also has five radio channels: *Radio 1* (news and debate programmes on public policy and social issues), *Radio 2* (music and daily-life topics), *Klara* (cultural programmes and classical music), *MNM* (commercial music), and *Studio Brussel* (alternative music). *Radio 2* attracts the widest audience of all radio channels in Flanders (CIM, 2020). The VRT publishes no newspapers, although the VRT news service – responsible for all news programmes for the VRT channels – does have a website, *vrtnws.be*, for online news articles. Overall, public service broadcasting in Belgium has strong legitimacy: "Public subsidies from the communities are substantial and financing is arranged via multi-annual (4 to 5 years) protocols signed with the government and Flanders and Federation Wallonia-Brussels respectively." (Evens & Raeymaeckers, 2021, online).

- The largest media group in Flanders, however, is not the VRT but *DPG Media*. DPG Media Belgium was founded on 1 January 2019, after the merger of *Medialaan* and *de Persgroep Publishing*. The merger is part of an ongoing media concentration in Flanders (VRM, 2020). DPG Media now owns most commercial TV channels in Flanders, including the biggest commercial channel *VTM* and its smaller 'sister' channels *VTM2* (reality tv), *VTM3* (films, series, and sitcoms), *VTM4* (action and classics), *VTM Kids* and *VTM GOLD* (which reruns old hit programmes). *VTM* is also the second most watched TV channel in Flanders (CIM, 2020), with 22% of the market share. It is also the only DPG media channel that offers a televised news programme, namely *VTM Nieuws*, which is the second most popular news programme in Flanders after the VRT's *Het Journaal*. DPG Media is the owner of three radio stations, including the second most popular station, *Qmusic* (CIM 2020), as well as the radio stations *Joe* and *Willy*. Since 2019, DPG Media also owns two daily newspapers: *De Morgen* (progressive quality newspaper, historically leftist) and *Het Laatste Nieuws* (more sensational and populist, historically liberal). *Het Laatste Nieuws* is the newspaper with the widest audience in Flanders (VRM, 2020).

- DPG Media's biggest competitor where daily newspapers are concerned is *Mediahuis*. Mediahuis owns four newspapers (all of which are historically catholic): quality newspaper *De Standaard*, popular newspaper *Het Nieuwsblad* (specialised in regional and local news), and regional newspapers *Het Belang van Limburg* and *De Gazet van Antwerpen*. Unlike DPG Media, Mediahuis does not own any 'national' (i.e. Flanders-wide) TV channels, but it does have a couple of regional TV channels, i.e. ATV (Antwerp), TV Limburg, TV Oost (East Flanders), and ROB tv (eastern part of Flemish Brabant). Mediahuis, finally, operates two radio stations: *NRJ* (co-owned by SBS Belgium) and *Nostalgie*.

- The *Roularta Media Group* is the third biggest commercial player in the Flemish media landscape (CIM, 2020). The group owns the financial quality newspaper *De Tijd* ('The Times') and its francophone counterpart *L'Echo*, regional newspaper *De Krant van West-Vlaanderen* (West Flanders), and the (free) weekly Sunday newspaper *De Zondag.* It also operates eight weekly magazines, most notably the news and current affairs magazine *Knack* and the financial weekly *Trends*.

- The last main media group in Flanders is *SBS Belgium*. SBS Belgium focuses on TV entertainment, which it provides via its four TV channels (i.e. *Play4*, *Play5*, *Play 6* and *Play 7*). Together with Mediahuis, it is also co-owner of the radio station *NRJ*. SBS Belgium does not operate any newspapers or magazines.

In addition to the mainstream 'legacy' (i.e. newspaper, radio, TV) media, Flanders also has a number of alternative media, all of which are online media platforms mostly focusing on news, current affairs and more broadly information and opinion in general. Some of these alternative media have expanded and professionalized considerably in recent years. On the political right, the most notable players are *Doorbraak* (Flemish nationalist, conservative), *PAL NWS* (Flemish nationalist, conservative, comparable to *Breitbart*) and *'t Scheldt* (Flemish nationalist, conservative, far-right). Considered more left-wing are *De Wereld Morgen*, *Apache* and *Mondiale Ontwikkeling MO**. Both rightist and leftist alternative media criticize mainstream media for their allegedly biased reporting of information and opinions. Leftist alternative media, for instance, aim to provide information and perspectives they believe to be underreported in mainstream media, which includes the consequences of climate change and how these are experienced in the Global South. MO*, in particular, commits itself to reporting on "world news, development cooperation, globalisation and the climate crisis" from other perspectives than the Western perspective offered in mainstream media (mo.be). The size of the audience that these media attract is difficult to determine, but an indication of their relative popularity is the number of their Facebook followers (Figure 1). These numbers suggest that alternative media have a relatively limited audience reach compared to (mainstream) news media.

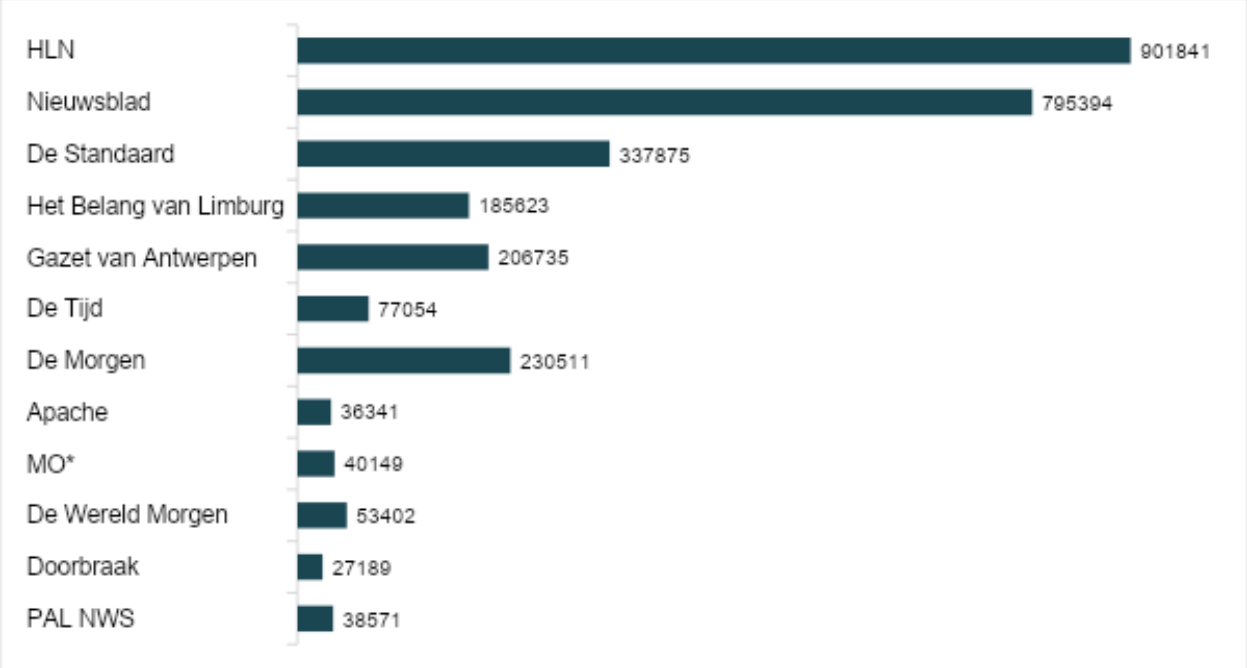

Figure 1. Facebook followers per news outlet in Flanders (April 2021)

Belgium has one of the highest internet penetration rates in the world with 94% of the population being able to use the internet (Newman et al., 2021). When it comes to the use of social media, Facebook is by far the most popular platform in Flanders (Figure 2): 72% of Flemish people visit the platform on a weekly basis and 61% on a daily basis (IMEC 2020). Next are YouTube and Instagram. Notably, instant messengers are widely used in Belgium as well, particularly Facebook Messenger and WhatsApp (Picone, 2021, pp. 67).

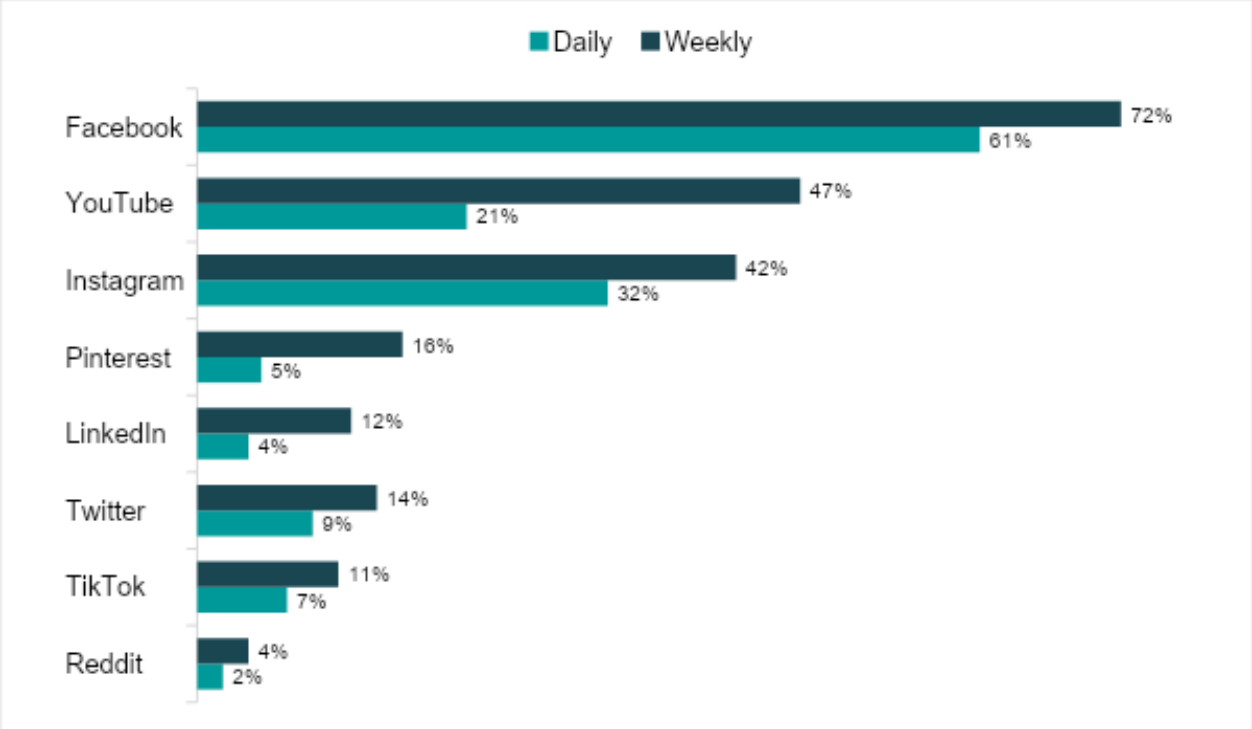

Figure 2. Weekly and daily visits per social media platform 2020 (IMEC, 2020)

2.5 Public attitudes: How the public sees climate change

Information about the perception of and attitudes towards climate change among Belgian citizens is available from several large-scale, nationally representative population surveys. Such surveys are available on the European level - such as the Eurobarometer Surveys which regularly assess climate change-related attitudes of the population in all EU countries and candidates for membership, including Belgium (with the latest one from July 2021 (https://europa.eu/eurobarometer/surveys/detail/2273) or in the European Social Survey (whose 8th wave in 2016 included questions about climate change in 26 countries including Belgium, www.europeansocialsurvey.org). In addition, the Belgian Health and Environment Department of the Federal Government has surveyed citizens on a four-annual basis since 2005 (Dienst Klimaatverandering, 2005, 2009, 2013, 2017) about their knowledge, emotions, and personal behaviour regarding climate change. They are conceived of as national surveys, but note significant differences between Flanders, Wallonia and the Brussels region. No systematic surveys on attitudes towards climate change of the Flemish population have been carried out by the Flemish government.

As Pepermans & Maeseele (2017, p.13) found a high degree of convergence between the European and Belgian surveys, we will concentrate on the latter because of the specific information they contain about Flemish attitudes, while noting that, unfortunately, the most recent survey is four years old.

Regarding **attitudes**, we see the following evolution from the 2013 to the 2017 survey: 85% (up from 80%) view climate change as a problem that has to be addressed urgently. Only 8% (down from 12%) view it as a purely natural process, while the number of those who think there is no climate change has remained stable at 7%. 78% (up from 75%) of Belgians are worried about climate change. Inhabitants of Flanders are on average less worried about climate change than inhabitants of Brussels and Wallonia.

As for their **knowledge** and perceptions of climate change, 83% of Belgians view climate change as a global phenomenon whose effects are obvious in Belgium (73%, up from 61% in 2013) and even more so in other countries (84%, up from 77%). The four surveys show that Belgians have ranked the relative importance of factors influencing climate change fairly stably as follows (% between brackets from 2017 survey): industry (91%), freight (83%), people transport (64%), agriculture (44%), individual families (34%). Flemings systematically attribute smaller effects to all these activities. For instance, the effect of car exhausts is viewed as having a (very) great effect on climate change by 81% of Flemings, 91% of inhabitants of the Brussels region, and 89% of Walloons. The perceived contribution of individual families (e.g. heating, electricity, food) remains underrated at 34% (although up from 24% in 2005), This ranking of factors is matched by a similar ranking of who will have to make the greatest efforts to combat climate change, again underrating the contributions that can be made by life-style changes. Regarding the effects of climate change, Belgians identify melting of glaciers and the arctic ice pack and rising sea levels as the three most serious effects of climate change. Higher-educated and younger (16-35) Belgians more often give correct answers, as do Flemings as a group. In reaction to the question where climate change will be most felt, only 49% says that this will be in developing countries.

The federal surveys have also investigated climate-friendly **actions**: which actions are judged to make the greatest difference, which are actually undertaken and which are intended in the future? The results here are uneven. In the domain of personal travel, we see a discrepancy between knowledge and actual behaviour. The three actions judged to make the biggest difference (%) were in fact least frequently chosen (underlined %), i.e. carpooling (59%, 31%), avoiding flying (45%, 33%), public transport (49%, 38%), with the respondents professing weak intentions, hovering between 41% and 46%, to do better in future. In the domains of household and, particularly, housing, Belgians have taken on, or committed to, a number of climate-friendly actions already, such as a number of energy-saving measures. Solar heating, judged to be the action that makes the greatest difference (55%), is currently used by 22% of Belgians. Better insulation, which is thought to have less impact (37%), is invested in by 54% of Belgians. Flemings are the largest group that already uses solar heating or intends to use it in future, while Walloons and inhabitants of the Brussels region invest more in climate-neutral insulation. Belgians are generally fairly well informed about government subsidies for climate-friendly actions, which they apply for, with awarded subsidies for insulation coming out on top (29%) in the 2017 survey.

Finally, the federal surveys investigate the positions assumed by Belgians vis-à-vis international and national **policies**. In general, support of climate change policies at all levels has slightly increased in comparison with the 2013 survey. In the 2017 survey, 70% (up from 63% in 2013) agrees with the idea that the EU has to play a leading role in climate change action, but only 46% thinks Belgium should play a leading role within the EU. Just 50% support the idea that rich industrial countries, which have contributed most to climate change, should make the greater effort to combat climate change. On the Belgian level, 70% feel the various levels of government should collaborate more, with the federal government playing a more important coordinating role (57%). 62% agree that Belgium should transition to a carbon-neutral, green economy. However, of the measures to be taken those with a direct financial impact, like a carbon tax (39% support), are unpopular. We can conclude that the (2017) federal survey reveals some, albeit limited, progress in the attitudes and knowledge about climate change in Belgium and Flanders in comparison with 2013, but that the willingness to make any ‘sacrifice’ for the climate cause is restricted, particularly when it is not-financially rewarded, while measures that entail a type of financial sanction of climate-unfriendly behaviour are very unpopular. A proportion of just under 50% says that climate policies will be a factor in which political party they will vote for.

In addition, these population surveys have been supplemented with surveys among 16- to 17-year-old Flemings at the secondary schools GO! Erasmusatheneum De Pinte, Atheneum De Ring Leuven and Heilig Hartinstituut Heverlee (n=131). The questions put to them were not modelled on the federal survey just discussed but on the questionnaire in Fløttum et al. (forthcoming) filled in by Norwegian young people of the same age group.

Regarding **attitude** to climate change, 79% say they are worried about climate change (34% are very or extremely worried). (See also Section 4.2.2.5 for an analysis of the meanings and connotations of words associated by the young people with climate change.) 76% do not agree with the proposition "Climate change is a big problem in some parts of the world, but for us it is positive because we now have warmer summers.", rejecting the idea that there are positive aspects to climate change here.

Regarding **knowledge** of climate change, 76% of young people in our sample feel they have a reasonable to good knowledge of climate change. Three respondents (2%) thought they had a very good knowledge. Overall, young people actually show a good grasp of the causes and effects of climate change (see Section 4.2.2.5), for which they identify school and social media as the main sources of information. Two thirds know what fossil fuels are. 96% agree with the proposition "In 20 years, our society will be strongly affected by climate change." 92% agree with the proposition "Because of climate change, our summers are already warmer, but they pose an even bigger problem in some parts of the world". An even larger majority of 95% agrees with the statement "The rich West has emitted enormous amounts of greenhouse gases that have contributed greatly to climate change. However, the worst consequences of climate change will be experienced by the poorer countries that have contributed the least to the problem.' We find a big discrepancy here with the mere 49% of the general Belgian population who agree with this idea. In sum, Flemish youth are very aware of the fact that climate change already is and will be a bigger problem for people living in other parts of the world, which on the whole are less prosperous.

Regarding mitigating **actions**, 74% do not agree with the statement "Climate change is a fact, but I can't do anything about it." In the comments added to this question, about 50% stress that they can have some effect, while about 33% say that they can do little or nothing, because most other people, polluting industries and governments are not doing anything (see Section 4.2.2.5). Indeed, these young people do not expect very much from future energy policy or technological innovation: only 21% agree with the statement "In 20 years, we will have reduced our energy consumption to an extent which enables us to live in a "green" society barely affecting climate." and only 37% agree with the proposition "In 20 years, we will have developed many technological innovations that enable us to live in a modern society barely affecting climate." 61% view a climate-friendly lifestyle as the most important action open to them at this stage (as opposed to the options of school strikes, protest marches and talking with adults who can vote). In response to the question 'Do you consciously do something for the climate?', 117 out of 131 respondents, i.e. 89%, say yes. The most frequently listed climate-friendly activities are: eat no/less meat (28), recycle (29), cycle (45), use public transport (31), reduce energy use (17). As the two most important features of a climate-friendly life-style they mention: a feeling of satisfaction because you are actively doing something (66%) and a moral obligation (50%).

In sum, Flanders can be evaluated, in Pepermans & Maeseele's (2017, p.5) terms, as a region that combines "an economic surplus" with "an ecological deficit". For a majority of the general population, there remains a disconnect between the insight into the reality and importance of climate change, as set out by the IPCC, and a personal reluctance to engage in equitable action as advocated by the UN's sustainable development goals. The - admittedly small sample of - young people surveyed show an awareness of climate change that is in a number of aspects superior to general knowledge (e.g. on the plight of developing

countries as a result of climate change caused by the West), and which has led for a large part of them to at least some changes in their lifestyle.

3. CLIMATE CHANGE COMMUNICATION IN FLANDERS: REVIEWING THE SCHOLARSHIP

While research on climate change communication has grown strongly in the past 20 years, and while the majority of this research is focusing on countries of the "Global North" (Comfort & Part, 2018; Schäfer & Schlichting, 2014), there is relatively little research focusing on climate change communication in Flanders and Belgium. Large-scale comparative studies on climate change communication (like the MECCO project by Maxwell Boykoff et al. (2020) or the internationally comparative studies by Schmidt et al. (2014) or Vu et al. (2019)) have often left the country and the region out.

Nonetheless, a number of Flemish and Belgian scholars have researched climate change communication in their country, several of them over longer periods of time. Their studies - albeit having a number of gaps due to the small amount of scholarship overall - allow for the identification of several robust findings about climate change communication in Belgium and Flanders.

3.1 Stakeholder communication about climate change

Many, and many different, citizens, stakeholders and decision-makers have been, and still are, voicing their views about climate change around the world. The existence of the phenomenon, its evaluation and urgency, but also the necessary actions to take are "deeply contested [, with] considerable competition among (and between) scientists, industry, policymakers and non-governmental organizations (NGOs), each of whom is likely to be actively seeking to establish their particular perspectives on the issues" (Anderson, 2009, p. 166). Stakeholders have used different communicative means, channels and messages to be seen as legitimate voices on climate change, to position themselves publicly on the issue and to make their positions heard to influence how society deals with climate change.

Accordingly, a "considerable number of studies from political science, sociology, communications, and public relations have analysed these efforts" (Schäfer, 2015, p.854). Such studies exist for a variety of countries, focusing, e.g. on the communication of scientists and scientific organizations (e.g. Post, 2016), on corporate communication (e.g. Schlichting, 2013), on political organizations and NGOs (e.g. Segerberg, 2017), climate change sceptics (e.g. Dunlap & McCright, 2011), etc. Often using qualitative methods like expert interviews or document analyses, but sometimes also quantitative approaches like surveys or social network analyses, these scholars have tried to reconstruct and explain the aims of stakeholders' climate change communication, their communicative strategies, the way they implemented these strategies and the degree of success they had.

Only few such studies exist for Belgium or for Flanders, however. This is one of the aspects of climate change communication where research is almost absent. Apart from several studies examining how Belgian politicians and political parties communicate about climate change, there is the rich description of climate change communication of Belgian policymakers' and civil society from Pepermans & Maeseele's overview article (2018, pp. 3ff) which largely does not rest on scholarly research but on an intimate knowledge of the domestic situation.

Pepermans & Maeseele (2018, p.3) argue that "Belgium is characterized primarily by a consensual, technocratic policy environment, in which debate is narrowed down to limited perimeters and citizens are engaged according to the (information) deficit model." They describe the sociopolitical climate in Belgium as "a broad social consensus amongst most political party elites, government administrations, business

leaders, NGOs, journalists, and academics" (2018, p.3; see also Mormont & Dasnoy, 1995, p.55), which was brought about by transnational driving forces like the UNFCCC and domestically mediated by a political system that included many voices. As a result, **the necessity of "an international climate policy framework (i.e. the UN Convention framework process), which focuses on the reduction of greenhouse gasses while remaining within the boundaries of the global market economy … is not up for legitimate public debate in Belgium"** (Pepermans & Maeseele, 2018, p.3). Especially compared to Anglophone countries, "organized denial campaigns and criticism of climate science and policy by political elites, industry, and citizens are rare" (2018, p.3; cf. Painter & Gavin, 2016).

While stakeholders such as corporations, NGOs, think tanks, social movements etc. contribute strongly to climate change communication in Flanders, research has not analysed these contributions yet. More scholarship is needed here. It should assess, e.g., as similar studies have done in other countries, how corporations strategically communicate about and frame climate change (e.g. Dahl & Fløttum, 2019; Schlichting 2014), or how NGOs and social movements aim to mobilize the Flemish public (e.g. Segerberg 2017).

Case study: Climate change as a corporate strategy

Dahl and Fløttum (2019) explore how energy companies discursively construct climate change when integrating it into their overall business strategy. This linguistic study uses a quantitative/qualitative approach to investigate three instances of recent climate disclosure, climate strategy reports, by the energy majors Statoil (now Equinor, Norway), Suncor Energy (Canada) and Total (France). The qualitative analysis focuses on how keywords and expressions function in their immediate linguistic context. The discussion takes the socio-political and business context of the companies into account.
The paper finds that the reports discursively construct climate change in different ways. Total presents climate change primarily as a responsibility the company is ready to take on; Suncor Energy presents it primarily as a business risk; and Statoil as a business opportunity. In the material as a whole, however, the risk representation is the most prevalent. The material is relatively modest; however, the three reports represent the first comprehensive accounts of how energy players fit climate considerations into their overall strategy. The study can inform corporate strategy discussions and indicate the rhetorical implications of discourse-related choices in climate disclosure.

As a result, **the intensity of public and policy debates about climate change is moderate in comparison to other countries**. Crabbé et al. (2015), for example, show that policymakers in the Flemish government have considered climate change as important in the past, but less so than other problems such as economic crises. Similarly, a more recent study by Lefevere, Van Aelst & Peeters (2020) shows that during the 2019 national election campaign, Facebook and newspaper advertisements by Flemish political parties did not focus strongly on issues related to climate change. Climate change and related topics like 'environment', 'energy', or 'mobility' were not among the topics most talked about in these election campaigns (with the notable exception of the Flemish Green Party ('Groen'), which used the 'environment' theme in 61% of their online and offline ads).

Policy issue	Facebook	Newspaper
Work	25%	17%
Migration	12%	20%
Government & governance	10%	2%
Social affairs	8%	45%
Economy	8%	43%
Health	7%	0%
Justice	7%	19%
Environment	5%	1%
Energy	4%	17%
Education	4%	17%
Mobility	3%	5%
Civil rights	2%	0%
Housing	2%	0%

Table 3. Percentage of ads discussing a specific policy issue (Lefevere et al., 2020, pp. 6)[3]

To the extent that public and policy debates exist in Belgium, **those debates mostly focus on the means, the timing and the distribution of costs and benefits of measures to counter climate change**. Crabbé et al. (2015), in their analysis of Dutch and Flemish policy proposals on water management, show that Flemish policymakers see adaptation and mitigation as important, and as two sides of the same coin. When it comes to proposed actions, they prefer low-technology, low-maintenance, energy-efficient and simple measures, framed as contributing to integrated water management and ecosystem services. The necessary measures are described as needing to be effective, efficient, flexible, robust and multifunctional.

Climate change communication by Belgian policymakers has been described "as either technocratic information deficit, social marketing, or public participation approaches" that essentially perceive the involvement of the public as "an apolitical act" (Pepermans & Maeseele, 2018, p. 3) of "awareness-raising, education and training of citizens" (Dries, 2013). "In this approach, the relationship between the state and its citizens is constructed in vertical terms. The state positions itself as the source of scientific knowledge to be disseminated to the individual citizen, who is constructed as a passive recipient who needs to be informed about the physical causes and consequences of climate change and how they can change their individual lifestyle and become climate-friendly." (Pepermans & Maeseele, 2018, p. 4, see also Mormont & Dasnoy, 1995, pp. 54ff.) To do so, political actors have partnered with scientists and scientific organizations as well as NGOs and organized events and awareness campaigns, brochures and educational material, websites and social media appearances (cf. Pepermans & Maeseele, 2018).

[3] The total percentages for each column do not add up to 100%, which the authors explain is due to the fact that they coded a maximum of three policy issues per ad. The percentage per policy issue, therefore, represents the number of ads talking about that issue relative to the total number of ads in which at least one policy issue was mentioned.

It is notable, however, that "**things have been moving more toward deliberation and participation recently**" (Pepermans & Maeseele, 2018, p.3) and that formats with more pronounced public participation have been developed. One example is the public consultation on energy policy in 2016, where "70 citizens were eventually invited to the Flemish Parliament to work on concrete policy proposals after proposing, selecting, prioritizing and discussing various ideas" (Pepermans & Maeseele, 2018, p.4).

This is mirrored by an **intensification and diversification of civil society mobilization around climate change** in Belgium. Platforms like the "Climate Coalition," "The Platform for Climate Justice" or the "Transition Network" have existed for years. "For a long time, the dominant approach amongst NGOs was to convince, persuade, or nudge citizens to make individual behaviour changes" such as eat less meat (e.g. "Days without meat"), make their home more energy-efficient (e.g. "Climate Neighborhoods"), take the bike to work (e.g. "I Kyoto"), make them more aware of their energy use (e.g. "Earth Hour")" (Pepermans & Maeseele, 2018, p.5). These approaches were flanked by "more collective forms of ecological citizenship" aiming to fundamentally "relocalize the economy and revitalize local communities", who used public communication to emphasize "being positive, avoiding political conflict, and collaborating with local councils and businesses" (Pepermans & Maeseele, 2018, p.5; cf. Kenis & Mathijs, 2014). In late 2018, around the 24th Conference of the Parties to the UNFCCC conference (COP24) in Katowice, the "Fridays for Future" mobilization reached Belgium. It attempted to contest and pressure climate change policies and policymakers using collective action (Wahlström et al., 2019, esp. pp. 42ff.; de Moor et al., 2020, esp. pp. 69ff.). Throughout 2019, large-scale protests were held in many Belgian cities, facilitated by the "Youth for Climate" group or local organizers, and with a degree of participation surpassing many other countries (van der Heyden et al., 2020; Wahlström et al., 2019). This mobilization was dampened by the COVID-19 pandemic in 2020 but taken up again in 2021. In parts, the climate-related mobilization of Belgian civil society has taken strong confrontational stances towards politics, such as *De Klimaatzaak* (The Climate Case) initiative, which "summoned Belgium's federal and three regional governments to court for failing to decide on and comply with policies to reduce greenhouse gas emissions" (Pepermans & Maeseele, 2018, p. 5) or the "Extinction Rebellion" movement which encourages civil disobedience.

Despite these instructive descriptions and findings, however, **many desiderata exist in terms of Belgian and Flemish stakeholders' climate change communication**. A large number of such stakeholders exist that engage in this communication, from individual scientists and scientific organizations over a broad range of institutional political voices like political parties or non-institutional political voices like NGOs or social movements such as Fridays for Future all the way to corporations, artists and others. But on most of these voices, and on many important aspects of their communication – such as their repertoire of formats and messages or the language used therein - no research exists as yet.

3.2 Journalists, influencers & tech platforms: Intermediaries of climate change communication

Stakeholders can communicate with the public, other stakeholders and decision-makers directly - and have often, and increasingly, done so in recent years, employing formats such as campaigns, advertisements, events and social media (e.g. Schlichting, 2014). But **communication efforts by stakeholders often depend on intermediaries to reach a broad public** as well. "Intermediaries" are third-party actors that mediate communication between communicators and a given audience (e.g. Kleis Nielsen & Ganter, 2018).

News media and journalists have played, and still play, a crucial role in this respect (Schäfer & Painter, 2021). While they are not omnipotent "gatekeepers" of the news flow anymore and their roles have diversified (Fahy & Nisbet, 2011), they still have a strong influence on the topics, perspectives and voices that are represented in news media and, thus, to the public. Accordingly, the role of journalists in climate

change communication has received considerable scholarly interest (for overviews Gibson, 2017; Engesser, 2017). Methodologically, the majority of these studies are analyses of news content that "measure journalistic output and extrapolate information about the journalists from there" (Schäfer, 2015). In recent years, surveys among "climate journalists", qualitative interviews and, albeit very few, in-depth ethnographic studies in newsrooms have been added to this literature (Schäfer & Painter, 2021). **Apart from journalists, other intermediaries exist as well, such as social media influencers or digital platforms** (Helmond, 2015). But analyses of social media influencers on climate change are scarce, as are analyses of the role of tech platforms and the algorithmic curation of climate change communication (Pearce et al., 2020).

For Belgium and Flanders, almost no studies have analysed these intermediaries of climate change communication. While studies on Belgian journalists (e.g. Raeymaeckers et al., 2012) and of the Belgian media landscape (e.g. Hendrickx & Ranaivoson, 2019) exist more broadly, they do not focus specifically on 'climate journalists'. A notable exception is the somewhat dated study by Mormont & Dasnoy (1995) that showed how country-specific configurations of journalists, scientists and environmental movements in Belgium, Germany, and France resulted in different patterns of news media coverage about climate change in these countries (cf. Pepermans & Maeseele, 2018, p.5). They also mention that environmental journalism was not strongly recognized in Belgium at the time (Mormont & Dasnoy, 1995, p.60). More than 20 years later, Moernaut et al. (2018d) combined the analysis of 144 newspaper articles about climate change with interviews with climate journalists, assessing how "journalist frames" influence "news frames". They showed that anthropocentric frames prevail among journalists, and that these frames are typically mirrored by news frames, which suggests that the two reinforce each other, but also that individual journalists have a strong influence on the framing of news articles about climate change. In alternative media, the authors found more diversity in journalists' frames, reflected in a diversity of reported frames.

In addition, it seems that **problematic trends that have been shown in many other countries - including neighboring countries like France, Germany or the Netherlands - hold true in Flanders and in Belgium as well**, such as the overall erosion of journalistic infrastructures, the increasing scarcity of available resources in media houses and the worsening of working conditions for individual journalists (Schäfer & Painter, 2021).

This seems to have hit specialized journalism particularly hard and to affect climate journalism in Flanders considerably, as several interviewees have stressed. As of now, almost no specialized teams working on climate change exist in Flemish media, De Standaard being one of the exceptions, and the number of specialized climate journalists is very low, with estimations of interviewees indicating ten or less. Still, more in-depth research on these matters is needed.

Similarly, **while first studies on social media influencers are currently in the making**, such as van de Mieroop & Schoofs' analysis of climate activists' identity work on Instagram (2021), **published research on Belgium is lacking**.

3.3 News and social media portrayals

Analyses of news and social media representations of climate change are prominent in scholarship of climate change communication in general. Coming from fields such as linguistics, communication and media studies, political science, sociology or geography, among others, scholars have analysed how visible climate change is as an issue in different media (Schmidt et al., 2014), what voices are presented most prominently (Boykoff, 2011), how the issue is framed (Schäfer & O'Neill, 2017), what role imagery and

visualizations play (O'Neill & Smith, 2014), etc. Methodologically, the respective studies usually use linguistic analyses (Fløttum, 2016), standardised, qualitative or computational content analyses (Metag, 2016), or variants of discourse analyses (Koteyko & Atanasova, 2016). Such studies are available for many countries (for an overview Painter & Schäfer, 2018), even though scholarship still primarily focuses on the "Western" world (particularly on Anglophone countries) and even though many studies analyse print media only (Schäfer & Schlichting, 2014).

A considerable number of analyses of news media or social media representations of climate change are also available for Belgium (Pepermans & Maeseele, 2018, p. 5).

This scholarship shows that, first, **news media coverage about climate change in Belgium and Flanders is not very pronounced in international comparison**. Barkemeyer et al. (2017), in their analysis of 41 countries from the "Global North" and the "Global South", show that the included Belgian newspaper "De Tijd" published an average number of 0.46 articles about climate change in 2008. This number is well below the average across all countries (1.20) and also below the neighboring countries Germany (1.58) and the Netherlands (0.72). This finding is underlined by Walgrave & Kuypers (2021), who examined how much coverage different 'themes' received in the two main TV news outlets in Flanders, i.e. the state-sponsored channel Eén and the commercial channel VTM. Figure 1 (taken and adapted from Walgrave & Kuypers, 2021, p.3) shows that in the 7 PM newa the most popular climate change-related topics such as "environment and nature", "mobility" and "disasters" only make up for a small percentage of all news (while they are likely to still include news items that belong to these categories but are not climate change-related). Interviewees have emphasized, however, that some Flemish media, like De Morgen and more recently De Standaard, have made editorial decisions to cover climate change more intensely and more consistently, even though these efforts suffer from lack of resources and worsening working conditions of journalists.

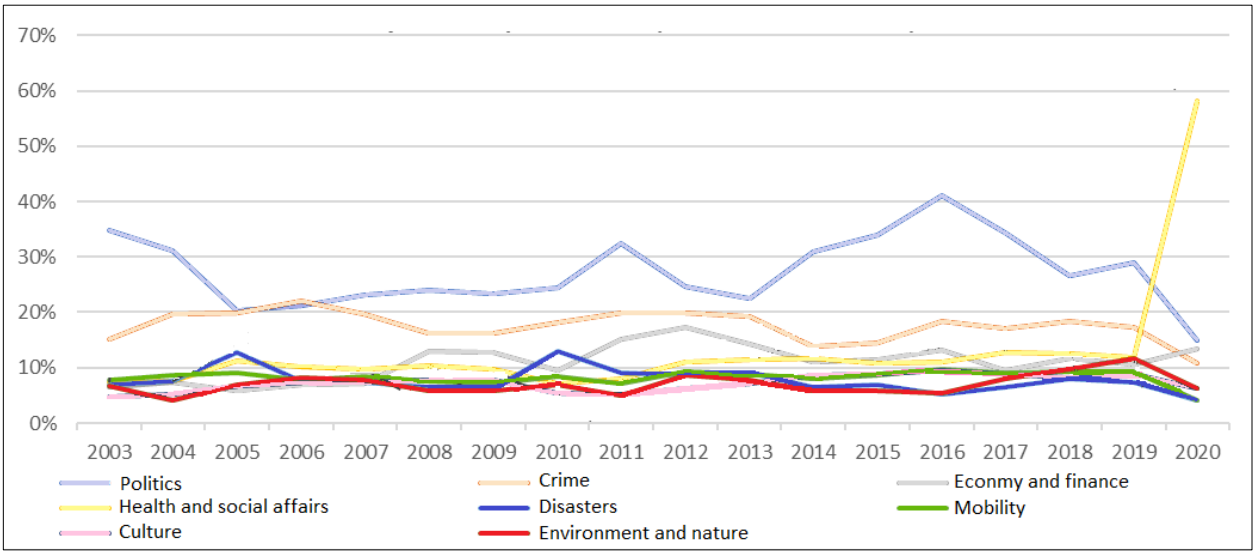

Figure 3. Time devoted to different topics in the 7 PM news programmes on Flemish channels *Eén* and *VTM* (2003-2020; N=869 hours) (Walgrave & Kuypers, 2021, pp. 3)

Walgrave & Kuypers (2021) also demonstrate a second finding: **The amount of news media coverage on climate change in Belgium fluctuates strongly over time**. Figure 3 shows that the coverage of "mobility" in TV news peaks slightly in 2019 - maybe due to the 2019 elections, during which the subsidization of company cars was a popular topic. The "disasters" topic exhibits several peaks, in 2005

(likely due to hurricane Katrina), in 2010 (likely due to the earthquake in Haiti) and in 2018 (likely due to a combination of several natural disasters). Coverage on the topic “environment and nature” peaks in 2019, coinciding with the “School strikes for climate” and “Fridays for Future” mobilization. Analyses of media coverage of climate change specifically make these fluctuations even clearer: Consistent with international studies (Hase et al., 2021; Schmidt et al., 2014), the most pronounced peaks in news media coverage were triggered by the COP conferences in Copenhagen (COP15 in 2009) and in Paris (COP21 in 2015; Pepermans & Maeseele, 2018, pp. 6). Other notable peaks in Belgian climate change reporting were triggered by international events, such as the publication of the Assessment Reports by the IPCC, the Intergovernmental Panel on Climate Change, by Al Gore’s film *An Inconvenient Truth*, the awarding of the Nobel Peace Price to the IPCC and other events. In addition, domestic events played a role: In 2006, the “Belgian release of Al Gore’s documentary An Inconvenient Truth, an unusually warm fall and winter, together with the climate summit in Nairobi kick-started a “climate hype” of unprecedented media coverage and political attention[.] Climate change even became a major topic in the federal election of 2007.” (Pepermans & Maeseele, 2018, p. 6). In addition, Pianta & Sisco (2020, p. 1) show that news media coverage, in Belgium and 27 other countries, is driven by “positive deviations from short-term average temperatures”, i.e. by some extreme weather events like recent floods in southern Belgium which triggered news media attention. More studies are needed here, however - especially ones taking recent initiatives of Belgian media into account which have emphasized the issue of climate change (e.g. *De Standaard*’s “The Big Shift” debates which took place in October 2021, or TV channel Canvas’ new programme “Wat houdt ons tegen?” (‘What is holding us back?’)).

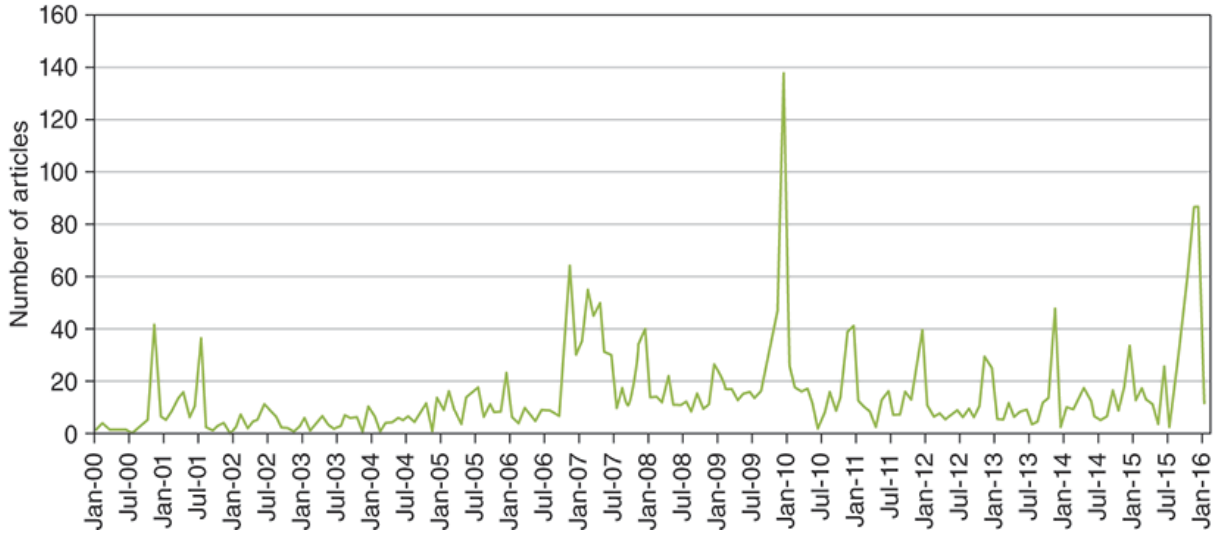

Figure 4. Amount of news attention to climate change in major Flemish newspapers over time, 2000 to 2016 (Pepermans & Maeseele, 2018)

Apart from the quantitative importance of climate change in the media, scholarship has also analysed news media content, showing, among other things, that **climate change skepticism does not feature prominently in established Belgian news media**. In line with the absence of explicit climate denial among political parties (Section 2.2), legacy news media in Belgium and Flanders typically do not challenge the reality of climate change, and a skeptical framing of climate science and climate change is almost absent in newspapers, radio and TV (Moernaut, Mast & Pauwels, 2018a,b). Interviewees have emphasized, however, that climate change skepticism has become more prominent in social media and that this might lead to a stronger representation of it in news media as well.

It is notable, however, that alternative news media have emerged on the left and right side of the political spectrum - such as *Doorbraak*, a news and opinion site with a nationalist Flemish ideology that aims to "give a voice to contrarian opinions" (https://doorbraak.be/wat-is-doorbraak). Interviewees have mentioned that climate change is a relevant issue for these alternative media – both on the left and the right – and they interpret the issue from their ideological positions. **Scholarly analyses of these online-born, politically right media are lacking**. But in 2019, another online-born medium, Apache, published a series of investigative journalistic articles about an (alleged) network of climate deniers and sceptics in Flanders with ties to conservative American think tanks that aims to promote a skeptical narrative around climate change (Cochez & Walraven, 2019). Many of the actors (allegedly) involved in this network are (frequent) contributors to Doorbraak and/or have ties to politically rightwing parties. While Apache's claims have not been confirmed by academic research, the climate-sceptic discourse that the network allegedly wants to push can indeed be found in various degrees of strength in communication by members of and voters for the right-wing political parties, especially in the social media (cf. Section 4.2.2.4 below).

The news media framing of climate change in Belgium has received considerable scholarly attention as well. Scholarship has shown that **climate change is framed in diverse ways in the country, and that these frames differ between legacy and alternative media and between media with different political ideologies**. Moernaut et al. (2018a, b) found that legacy news media report on climate change almost exclusively from an anthropocentric perspective, which sees humans and nature as separate and typically promotes values such as human domination, utilitarianism, economic growth, or competition (Moernaut et al., 2018a, pp. 4). The authors argue that such an anthropocentric framing portrays climate change as an "external threat that requires efficient solutions by Western governments to protect the helpless victims of climate change in developing countries", thus reinforcing "the anthropocentric ideology and Western development model which causes climate injustice" (Pepermans & Maeseele, 2018, p.6). Alternative media from the left, in contrast, were shown to approach the topic more frequently from a biocentric perspective, seeing humans as part of nature and emphasizing values like equality, mutual dependence, respect and sufficiency, and to also portray frames that "address and challenge the ruling political–economic model of neoliberal globalization, anthropocentric ideology, and the unequal attribution of global wealth for how it influences the direction of both climate policy and climate change" (Pepermans & Maeseele, 2018, p.6). Analysing the framing of climate change in four newspapers from the French-speaking part of Belgium between 2001 and 2012, Vokou (2015) found eleven frames, among which two stood out: a political frame, which "aims to support the political solution at the international level to address the problem of global warming", and a scientific frame, which "aims to make its effects concrete for the public". Both frames correspond to the "anthropogenic climate change as a global problem" frame found in international studies (Schäfer, 2015). "Alternative representations of public health, the adaptation of developed societies, sustainable economic development, conflicts over the impacts of global warming and the paradigm shift in Western energy consumption are absent." (Vokou, 2015, p. 1) More recent analyses are urgently needed, however, to analyse (potential) changes in climate change reporting during the "Fridays for Future" mobilizations and the COVID-19 pandemic.

Apart from news media, several, albeit few, studies have analysed online and social media communication about climate change in Belgium. Moernaut et al. (2020) studied interactions between so-called climate-believers, or non-sceptics, and climate-sceptics on Twitter. They found that, **while climate skepticism is a minority position, it is voiced more frequently on social media than in (mainstream) news media**. Moreover, and similar to international studies (Williams et al., 2015), the authors observed that there is little interaction between non-sceptics and sceptics on Twitter. Non-sceptics generally do not address sceptics and, when they do, they tend to talk about sceptics as a homogeneous group, denouncing them. Sceptics address non-sceptics more frequently, opening up the debate but with the aim of challenging the hegemonic view on climate change (i.e. the existence of climate change, the anthropogenic impact and/or the gravity

of its consequences). In terms of discursive strategies, both non-sceptics and sceptics use similar antagonistic strategies to delegitimize and denaturalize the other: opposing arguments are presented as illogical and unreasonable. Sceptics do this more explicitly by using labels like “fake (news)”, “hoax”, “nonsense”, “fairytales” – showing that **social media seem to promote polarization more than constructive debate** (Moernaut et al. 2020). This holds true in another recent study by Van Praet et al. (2021) on climate communication between political parties and citizens on Facebook. They found that commenters on Facebook are mostly negative towards climate policies. Commentators who align themselves with right-wing parties like Vlaams Belang express their negative attitude typically by criticizing the financial impact of climate policies, but also more generally by condemning the supposed unethical behaviour, deceit and corruption of politicians. Commentators who align themselves with left-wing parties like Groen are roughly equally negative, but their disapproval is mostly targeted at the lack of resolve of politicians and the immorality of climate inaction.

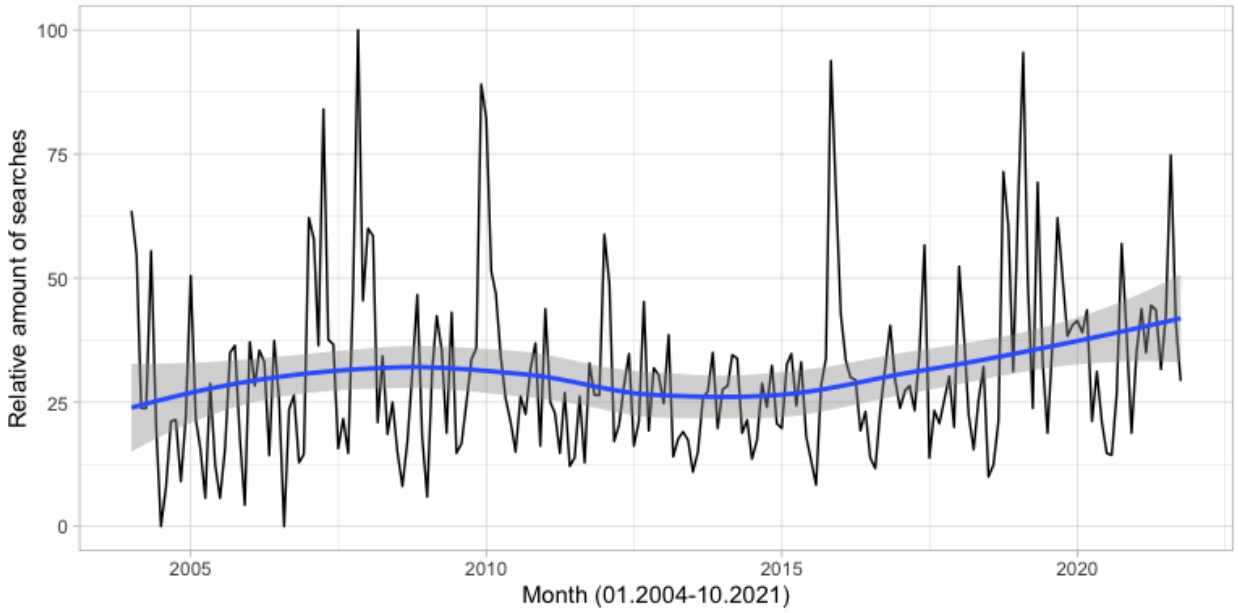

Figure 5. Relative number of Google searches for Flemish keywords about climate change and the term “climate change” in English in Belgium, 2004 to 2021 (included search terms are “climate change”, “klimaatverandering”, “klimaattop”, “klimaatrapport”).

3.4 Audience

Analyses of news and social media portrayals of climate change are often justified, implicitly or explicitly, with their (alleged) impact on the general public or on specific audiences. Media portrayals are described as widely used among the population (Newman et al., 2020), as having effects on citizens’, stakeholders’ or decision-makers’ awareness of climate change, on their knowledge about it, on their attitudes towards climate change or on their behaviour (Klinger & Metag, 2021) - and therefore, as fundamentally impacting societal responses to climate change.

Correspondingly, international scholarship on the uses and effects of climate change communication has mushroomed and diversified in the past years, and tackled a multitude of issues, from individuals’ use of news and social media for information about climate change (Newman et al., 2020, pp. 52ff.) over the identification of specific audience segments and target groups of climate change communication (Hine et

al., 2014; Metag & Schäfer, 2018) to effects on climate-friendly behaviour (Anderson, 2017). Often, such studies use experimental research designs to identify causal effects, either in laboratory settings or in the field. Recently, many have used survey research, partly with embedded experiments. Qualitative research has been employed as well, e.g. to detail findings from quantitative studies or for ethnographic analyses of specific milieus (for an overview Klinger & Metag, 2021, esp. pp. 52ff.).

For Belgium, several databases and studies exist on the populations' use of climate change communication, and on their specific sources. On this basis, it can be said that, first, **the interest of the Belgian population in climate change is considerable, that it fluctuates over time, but that it has risen in recent years**. Figure 5 shows, for example, that the number of Google searches for the English term "climate change" and for several climate change related terms in Flemish has risen in Belgium between 2004 and 2021 – although considerable fluctuations are also visible which mirror news media coverage, e.g. in the peaks in 2009 around COP15 in Copenhagen or in 2019 surrounding the "Fridays for Future" mobilizations.

In addition, and in line with international scholarship (e.g. Newman et al., 2020), studies show that **news media sources play an important role for the general population in Belgium**. TV and newspapers are the main sources from which Belgians get information about climate change, followed by the radio (FOD, 2017, p.74). More than half of the population says they get topical information from these media, considerably more than from conversations with friends, family and colleagues (48%) or schools and education (31%). Not surprisingly, websites (38%) and social media (35%) play an increasing role in climate change communication. In addition, TV and websites are the sources the Belgian population would trust the most if they had to decide between different sources (FOD, 2017, p.77).

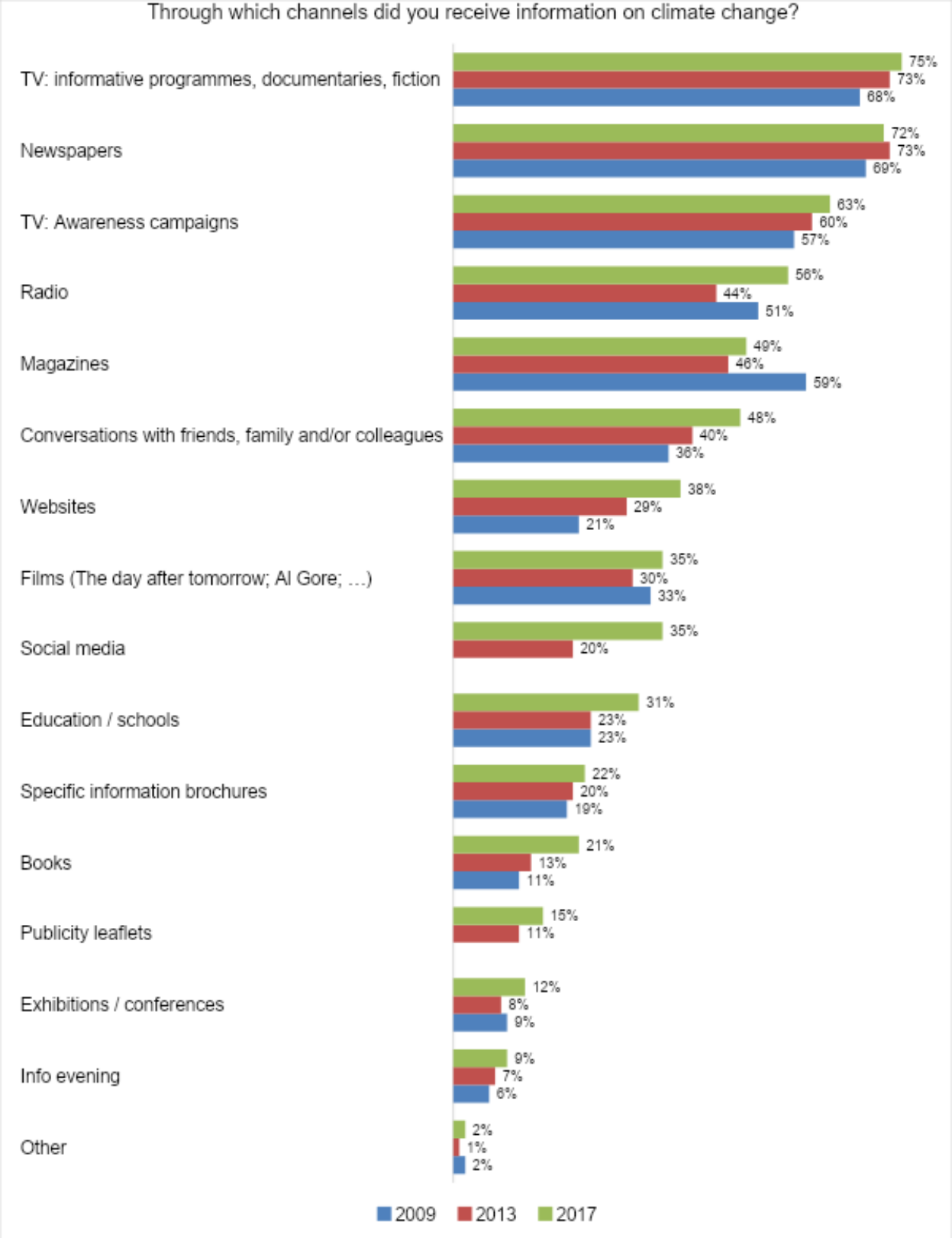

Figure 6. Belgian population's sources of climate change-related information, over time, 2009-2017 (based on nationally representative survey data from FOD, 2017)

As in other countries, it has also been shown that the Belgian population can be subdivided into several segments that differ in their attitudes towards climate change and that probably also differ in their patterns of information and media use, as has been shown in other countries (Hine et al., 2014; Metag & Schäfer, 2018). Pepermans & Maeseele (2017, pp. 13ff.) cite market research (IVOX, 2013) that segments the Belgian population into four "profiles of engagement" (see Table 4)

39%	concerned consumers	think climate change is an important issue and are willing to take personal action
30%	reluctant / doubters	acknowledge that something is happening, but don't know what it is and are unwilling to take action
21%	climate sceptics	are sceptical about anthropogenic climate change, reject personal or political action, and believe that technological progress can solve most problems
10%	Activists	believe that global warming is a very pressing, serious issue. They call for drastic political and personal change to stop climate change and (possibly) refute technological fixes to climate change.

Table 4. Segments of the Belgian population with regards to their attitudes towards climate change (IVOX, 2013)

For Belgium and Flanders, almost no studies on the effects of news and social media in the field of climate change communication are available. This is partly due to the nature of scholarship in this field, as studies on media effects often assume universal effects and are therefore not done specifically for certain countries. Therefore, the **major findings about the effects of climate change communication that have been described in systematic reviews may also apply to Belgium and Flanders**.

Klinger & Metag (2021) write that most of the respective research focuses on media effects on individuals, e.g. on potential "impact on cognition, emotions and behaviour of recipients. Media communication on environmental issues can influence (1) the acquisition of knowledge of recipients on specific environmental topics, (2) the perception and assessment of environmental issues as well as actual behaviour or behavioural intentions of citizens and (3) people's emotions toward an issue." (Klinger & Metag, 2021, p.37). According to them, the **impact of media use on objective or perceived knowledge of audiences is "well documented**. Media are fundamentally capable of creating or expanding knowledge stocks." (Klinger & Metag, 2021, p.38). **Furthermore, "there is empirical evidence that media shapes attitudes and perceptions toward environmental issues … as well as actual behaviour or the intention to act"**, even though such effects are mediated by the specific medium, the kind of media use, the users' "perception and assessment of media content and sources", and specific characteristics of the message (Klinger & Metag, 2021, p.39). In addition, user characteristics "such as political ideology, cultural worldview, interest in the environmental issue or sceptical preconceptions toward such an issue can strongly influence media effects" (Klinger & Metag, 2021, p.40).

In addition to individual-level effects, some research has assessed societal- or macro-level effects of media in climate change communication. It has demonstrated that **agenda-setting effects exist** and "media content influences the public agenda" (Klinger & Metag, 2021, p.41), i.e. that the importance media ascribe to climate change influences the ways in which important members of the public and even decision-makers see the issue. **Scholarship about the knowledge gap hypothesis, i.e. about the question whether the**

use of news media and online use widens or narrows pre-existing differences in knowledge about an issue like climate change, is "not that extensive" and has been inconclusive so far: "Yang & Ho (2017) investigated at individual level how mass media use, knowledge about climate change and socioeconomic status are related. The authors conclude that use of mass media can narrow the knowledge gap between high and low socioeconomic status individuals. Nisbet et al. (2015) found evidence of belief gaps for news and entertainment content and a knowledge gap for edutainment content by focusing how belief gaps, knowledge gaps and media formats are linked to differences in climate change knowledge between liberals, moderates and conservatives." (Klinger & Metag, 2021, p.42)

4. THE LANGUAGE OF THE CLIMATE DEBATE AND COMMUNICATION IN FLANDERS

4.1 Views on climate change communication in Flanders

While we have information on citizen views on climate change, we have no research data on views on communication about the issue. We can consequently do no more than refer to views which have been expressed by individuals in the media and elsewhere. We do not necessarily subscribe to these views, but it is important in an overview such as the present one to mention them as voices in the debate.

Make the impact concrete to specific stakeholders

With regard to communication with stakeholders, Termonia (2021) formulated a number of suggestions, which we summarise here. First, stakeholders are - in Termonia's words - less interested in the global picture than in concrete impact scenarios applicable to them. What are the consequences for their specific activities? What is the risk and what is the potential for adaptation? These are key issues to be spelled out. The impact on health, agriculture, safety, energy and water needs to be formulated in concrete terms. This implies that the consequences of scientific trends need to be explained clearly: what are the consequences of say a rise in temperature of 1.5 or 2 degrees? Estimates on a more local scale may be much more convincing. The RMI makes pseudo-weather forecasts up to the year 2100, for example showing the probability of heatwaves of 36° for longer periods in 2063. One other prediction is the increase of extreme precipitation, also for example worked out in models up to 2100. Second, Termonia argues that stories are more convincing than pure facts. How to make a story out of scientific models is a question which can again not be answered in the same way for all stakeholders: communication about projections, impacts, adaptation tools will need to be taken into account for the specific concerns of the parties affected. (See Sections 1.2 and 4.2 for more on stories).

No gloom-and-doom tone and no moralising

The editorial comment in *De Standaard* on 10th October 2021 emphasised the urgency of action, claiming that playing down that urgency and slowing down action will raise the costs. Government and industry must stake out the lines, and youngsters play a pioneering role in raising awareness. However, too many doom scenarios may threaten to have a demoralising effect, according to the comment, and belief in science, technology and human adaptability should encourage optimism. (Brinckman, 2021, p. 2). This comment is a soft plea for a communication style which gives hope and positive energy. The same position is voiced in an interview in the weekly magazine of *De Morgen* (De busschere, *Zeno,* 9th October 2021, pp. 6-11)*,* 'De klimaatkerk is te weinig vergevingsgezind' ('The climate church is not forgiving enough'). In this interview climate activist Jill Peeters argues that what she refers to as "the climate church" is a very strict movement, full of commandments and prohibitions, which, in addition to the fact that many people do not understand the economic and fiscal systems, and the fact that many distrust the political system, is counter-productive. Peeters claims that people's reaction of irritation is understandable, even though the viciousness of reactions she herself receives is painful. Preaching will not help. It is the politicians' duty to make the right choices. The problem is, according to Peeters, that they know what they should do but fear they might not be re-elected if they act accordingly.

Focus on the need for a broader embedding of the climate issue

Another type of discourse is heard from the more extreme movement Extinction Rebellion. In an opinion piece 'Why we'd better not speak about the climate anymore', Hendrickx (*De Morgen*, 9th October 2021) argues that the current discourse reduces the problem to the climate, whereas the threat to the whole eco-system is much larger. The story then becomes much more complex, he admits, but if we continue describing the problem in the wrong way the solutions threaten to be insufficient:

> "Vandaar deze dringende oproep aan alle journalisten, politici en medeactivisten: laten we vanaf nu het woord 'klimaatcrisis' vervangen door 'milieucrisis' of 'ecosysteemcrisis'. Niet als vrijblijvend woordspelletje, maar voor een perspectiefverschuiving met verstrekkende economische en politieke implicaties" ("Hence this urgent appeal to all journalists, politicians and fellow activists: let us from now on replace the word 'climate crisis' by 'environment crisis' or 'ecosystem crisis'. Not as a noncommittal wordplay, but as a shift of perspective with far reaching economic and political implications, p.27).

This discourse pleads for seeing and representing the climate problem as only one part of the larger problem of how the world is run, with social inequality as a consequence. This view fits into the plea for 're-politicizing' the debate, voiced by Pepermans & Maeseele (2018).

Government communication suffers from political quarrelling and election driven statements

The view that constant bickering between politicians of the diverse parties in the government or in the opposition diminishes their credibility but - even worse - prevents the governments at the different levels from taking the necessary action has been voiced many times. It is for example clearly voiced with regard to climate change policy by Beatric Delvaux in her opinion piece 'For another kind of capitalism' (*De Standaard*, 30th October 2021, p.53). Delvaux, senior writer of the newspaper *Le Soir*, argues that "the fundamental debate has derailed". Instead of praising or rejecting reports purely on the basis of the extent to which they are in line with politicians' own ideology, we need rational argumentation without black-and-white thinking. For more than 20 years, according to Delvaux, our Belgian politicians have been quarrelling and postponing decisions on climate and energy. In order to persuade the population they must communicate with a rationally based and pragmatic plan and strategy, coordinated and applied at all levels. The corona epidemic approach has taught us what works. It should be a lesson in communication.

The above selection of views is interesting but is based on the intuitions and ideologies of the writers. No research has been done on what works, how people react to different styles of communication. Such research is highly needed.

4.2 Linguistic analysis of the debate and communication about climate change in Flanders

In this section, we consider the specifically linguistic aspect of climate communication in Flanders. As far as we could ascertain, little linguistic research on this topic seems to have been carried out so far in Flanders[4]. This is why in this section we, firstly, discuss the tools for linguistic analysis (Section 4.2.1) and,

[4] This literature review we carried out focused mainly on the notion of 'climate change'. Future research should also examine related topics like 'environment', 'energy', and 'mobility. Such analyses may lead to different types of studies dealing with, for instance, more business-oriented communication (e.g. Goossens, Y. et al 2017). Other fields for future study should include climate communication in the arts, i.e. literature,

secondly, summarize recent case studies that analyse different linguistic aspects of the climate communication of different groups (Section 4.2.2). Some of these studies are work-in-progress to be continued, and still others offer tools and insights to be usefully applied in future work on climate change communication.

4.2.1 Tools for analysis

Overall, there seems to be little research on linguistic aspects of climate communication in Belgium or Flanders. Most of the existing work focuses on framing and polarization, to some extent related to 'sceptics' versus 'believers', and to environmentalist movements or political parties. Data are collected from both mainstream and more alternative (leftist) media, and some from social media such as Twitter and Facebook. In some cases, interviews are included in the datasets. Quantitative and qualitative methods are used. Findings from different papers are listed below.

While research on language and language use in climate change communication in Flanders is badly needed, the references given below constitute interesting and valuable work that may provide points of departure for more linguistically oriented analysis. For illustrative purposes,we suggest a re-thinking across the three levels presented in Section 1.2 (Fløttum, 2016): words, sentences and text[5]. At each of these levels a number of foci and approaches are possible.

4.2.1.1 Words

Framing constitutes an important perspective in existing Flemish research, and more in-depth lexical analyses of words constituting the frames that characterise different discourses would be a valuable elaboration of what is already done. The general idea underlying framing analysis is that a communicating text emphasises some aspects and de-emphasises others. Thus, what are the words that produce frames like the ones identified, such as 'Scala Naturae' and 'Environmental Justice', with its two subframes: 'Unequal Vulnerability' and 'Unequal Attribution'? This kind of word or lexical analysis can reveal to what extent the perspectives of gloom-and-doom versus more positive perspectives of a sustainable society are represented (Fløttum et al., 2014). For example, the co-occurrence of terms such as *klassenstrijd* ('class struggle'), *ongelijkheid* ('inequality'), *rijke en arme landen* ('rich and poor countries'), *kwetsbaarheid* ('vulnerability'), *klimaatvluchtelingen* ('climate refugees'), *uitbuiting* ('exploitation'), *onrechtvaardigheid* ('injustice') in a text on climate change are likely to present a different frame from the co-occurrence in another text of words such as *transportsector* ('transport sector'), *bankiers* ('bankers'), *industrie* ('industry'), *innovatie* ('innovation'), *politiek draagvlak* ('political support'), *economische vooruitgang* ('economic progress'), *winstmarge* ('profit margin'), *kostenplaatje* ('cost'), *betaalbaarheid* ('affordability').

Appraisal theory is another tool for investigating how lexical and grammatical choices express the writer's subjectivity in their representation of states-of-affairs (Martin & White, 2005). By means of the study of attitudes (concerned with feelings), including emotions and judgements, engagement (the play of voices, discussed under 'polyphony' below) and graduation (grading phenomena such as amplification or blurring), the writer's position can be made explicit.

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visual art, music, film, etc., which evoke notions as 'ecological grief' and 'climate trauma' as well as 'climate justice' and 'climate hope' (e.g. Craps & Mertens 2020).

[5] As suggested to us by Geert Jacobs (p.c.), in addition to these three linguistic levels, a fourth supra-textual level could be added, viz. the metapragmatic level (Silverstein 1993), at which the contexts and effects of language use themselves are negotiated, and at which different discourses representing different identities vie for dominance (Silverstein 1993).

***Case study*: Judgement, emotion and amplification in headlines**

An example of evaluative language in a newspaper report is the frontpage headline "'Gevaarlijk' grote kloof tussen klimaatretoriek en realiteit" ('Dangerously big gap between climate rhetoric and reality' (DS, 21 October 2021, p.1). This headline is full of appraisal choices. The article is based on and quotes from a report of Unep 'The production gap'. The only signal that the headline is a quote is in the inverted commas around the word 'dangerously'. In addition, the thematic positioning of this negative judgement evoking feelings of fear is a deliberate choice by the newspaper. The word 'big' is also subjective, and so is 'climate rhetoric'. The gap referred to thus refers to what is said but untrue and what is real and true. In other words, 'rhetoric' in this context conveys a judgement of untrustworthiness of the speakers referred to. It is another way of Greta Thunberg's 'blablabla'. What the headline shows is how the newspaper report subtly takes a stance even though it is apparently bringing in another voice.

In general, the tone in newspapers tends to be negative. Amplification of emotion, i.e. grading towards the maximum, is naturally the greatest in the opinion pieces. Words such as 'catastrophe' and 'suicidal' in connection with climate change evoke strong emotions of fear in the readers:

"Zal ik eens zeggen wat realistisch is? Dat we naar een klimaatcatastrofe gaan" ('Shall I say what is realistic? We are heading for a climate catastrophe', quote from an interview with Philippe Henry, DS, 7 October 2021, p.12).

"Als we niet afkicken van onze fossiele verslaving, zijn we suicidaal" ('If we don't rehabilitate from our fossil dependence, we are suicidal', quote from an interview with Ignaas Devisch, DS, 2-3 October 2021, p. 12).

Metaphor, the expression of one thing/event by means of another, is a strong way of conveying attitude. Work on metaphor relating to climate change has been done by e.g. Nehrlich. In the Flemish debate the word 'strijd' (English 'battle') is a mainstream way of referring to actions undertaken to deal with climate change. The compound 'klimaatstrijd' (climate battle), however, appears to cover many different types of battle, with different enemies: the polluting agents (as in 'The world takes battle against methane seriously' (Wereld neemt strijd tegen methaan ernstig, *De Standaard,* 3 November, p.7), but also between groups of people in society, where it is only activists who fight, or believers against sceptics. In those cases 'climate battle' is an expression within the well-known metaphor 'Argument is war' (Lakoff & Johnson, 1980). It is illustrated in the headline "IPCC biedt sceptici steeds minder munitie" ('IPCC offers sceptics increasingly less ammunition', *De Standaard,* 11 August, p.5). But such almost dead metaphors, which have little emotional impact, can be revived to call attention, as in "Een Pearl Harbor-moment voor het klimaat" ('A Pearl Harbor moment for the climate', *De Standaard,* 21 October, p.26), the headline of an opinion piece which pleads for taking action as in the second world war: everything needs to be mobilised in the fight for one common cause. One step further away is the association between types of battles. The headline "Klimaatstrijd is klassenstrijd" ('Climate battle is class struggle', Eggermont in MO*, 29 November 2018) shifts the meaning of the war metaphor by invoking social inequality.

The choice of metaphors and the contexts in which they are embedded is an important linguistic decision in the expression of and influence on opinion.

4.2.1.2 Polyphony

There is evidence in the existing research that polarization, perhaps more than constructive dialogue, characterises climate change communication in Flanders, in particular in the interaction taking place on social media, such as Facebook and Twitter. This interaction seems perfectly well suited for polyphonic

analysis, taking into account the different voices integrated, explicitly (through citations) or implicitly (through linguistic markers, for example the negation 'not' and the connective 'but'). Polyphonic analysis enables the reconstruction of different relations between the speaker and the other voices brought in, relations such as agreement, concession, and refutation. The analysis can be further developed by approaching the climate issue from different perspectives through social actors with different backgrounds, world views, interests, values, and beliefs (Hulme, 2009).

Case study: The role of negation

The title of the editorial in *De Standaard* of 30th November 2021 was "Klimaat is geen ideologie meer, het is een onderneming" ('Climate is no longer an ideology, it is an enterprise'). This is an assertion which by means of the negation 'no longer' responds to an earlier assertion 'Climate is an ideology'. Instead of simply stating 'Climate is an enterprise', the negation of the voices (real or imagined) which call it an ideology, turns the assertion into an argument in a debate. It is in other words polyphonic. At the same time it is a firm rejection of the alternative position, closing down the dialogue. There is a second reason why this polyphonic headline may be persuasive: it sets up an opposition between 'ideology' (view of the world) and 'enterprise' (action upon the world). In addition, it turns out that 'enterprise' here refers to the big enterprises, such as transport, which claim they are ready to take action. This example shows how one title through word choice and the voices it builds in captures the viewpoint of the writer, intrigues and aims to convince.

Collocation refers to the regular combination of some words with others. Some words precede some other words very frequently (and are almost predictable in that position), others are rare or do not occur at all before those same words. A collocation which has become current in the climate change discourse of some political speakers is "realistisch ambitieus" ('realistically ambitious'). This collocation is analysed by Ignaas Devisch in a column "Een realistisch plan is niet realistisch" ('A realistic plan is not realistic', DS, 9 November 2021, p.31). The political speaker used the collocation to justify Flanders' plans to be presented at COP26 in Glasgow. As Devisch argues, both 'realistic' and 'ambitious' are vague enough to accommodate various interpretations, but the collocation does more than express vagueness: it turns the word 'realistic' into a grading term which puts 'ambitious 'somewhere at the lower end of the scale. Hence, 'realistically ambitious' means 'not overly ambitious', or, in other words, 'not ideologically and idealistically ambitious'. The collocation sounds perfectly acceptable and sensible but hides a conservative ideology. The study of collocations in the context of climate change can lay bare what viewpoints circulate in what contexts.

4.2.1.3 Narrative text and talk

Since frames can be conceived of as "storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who or what might be responsible for it, and what should be done about it" (Nisbet, 2009), the notion of narrative receives an obvious place in a text linguistic perspective of framing. Existing framing analysis of the debate in Flanders could thus quite easily be elaborated into narrative analysis in order to get a more comprehensive understanding of how various actors tell the story of climate change, a geophysical phenomenon influencing and influenced by civilisation at several timescales. At the centre of such a narrative are characters, who are given or assume the roles of heroes, villains, and victims. To what extent is there a role attribution in the climate debate in Flanders? The notion of narrative could also be a useful frame for comparative studies and thus for better understanding both consensus and controversy in the climate change debate.

Case study: Shifting roles of characters in the climate narrative

The initiative of "De grote shift" ('The big shift'), debates with key figures in transport, banking, industry & energy, food and politics, focusing on one central question, "What do you do to save the climate?" illustrates the current sense of urgency expressed by the newspaper *De Standaard*. The form of this question is revealing of the paper's attitude that (i) the climate is in need of being saved, and (ii) the sectors need to take responsibility.

Taking the same editorial discussed above, 'Climate is no longer an ideology, it is an enterprise', we find it is a narrative in which the distribution of the roles of heroes, villains and victims is complex. The victims are clearly the citizens, who are demanding action (cf. one reaction "I thought I would be watching the Big Shift. But I see managers who are saying "This is not my shift"). However, the managers are partly villains (as in the above quote), partly heroes, because they are ready to make the shift. The real 'villains' are the politicians, who lag behind. *De Standaard* concludes from the debate on transport with the headline "Transport sector is waiting for green 'push' from government" (Transport sector wacht op groene 'push' van regering). The message which the newspaper is clearly giving to the politicians is that society is expecting them to act. Thus, although industry realises they have to act and are prepared to do so, the political class is slow to respond. This division of roles and responsibilities is evident from other articles in the same newspaper, which holds the political system responsible. The voice of the citizen accusing the managers is admittedly presented in the editorial, but it is not foregrounded.

The debates had follow-ups the next days with analyses and opinion pieces. It is to be expected that opinion pieces use subjective evaluative language (e.g. "Met blablabla zal de transportsector het klimaat niet redden" ('With blablabla the transport sector is not going to save the climate', Vroman, *De Standaard,* 27 October, p.34)), but reports also take stances in more subtle ways. What we see is a constantly evolving distribution of responsibility roles and attitudinal representations of the main characters. The Glasgow conference was a new trigger for a redistribution of characters, with for example the banking sector as one of the would-be heroes brandished as frauds: "Het Olympisch minimum van de financiële wereld" ('The Olympic minimum of the financial world', Editorial in *De Standaard*, 4 November 2021, p.2), next to the report "Gaan de bankiers dan toch de wereld redden?" ('Are the bankers going to save the world after all?') in which the wording "dan toch" ('after all') expresses the writer's stance that banks do not as a rule have such goals. While the opinion piece uses a metaphor to express the contrast between what appears to be a huge achievement and the real effort made by bankers, the report suggests negative expectations, skepticism and disbelief by the use of the word 'after all' in a question.

The climate issue as dealt with in this newspaper points to the wish to represent as many voices as possible, while at any one moment some voices dominate and others are backgrounded. The distribution of roles and voices can shift over time, depending on external triggers such as local initiatives and world events.

All of the above examples show the importance of studying both the quantity of climate related articles in papers but also the attitudes revealed by the language of the reporters in news reports, of opinion pieces and of the quotes from interviewees which are chosen as headlines.

Linguistic analysis of word choice, polyphony and narrative structure can throw light on the extent to which the communication and debate in Flanders have evolved over the past three years or so. It is obvious that the climate issue has not only occupied an increasingly important place in media coverage, with several pages on the topic almost every day in some newspapers (notably *De Standaard*), but it has also been subject to shifting attitudes expressed in increasingly urgent messages and strong opinions.

4.2.2 Analysis of climate communication by different groups

4.2.2.1 Policy makers

(i) Adapting flood management to climate change: Comparing policy frames and governance practices in the low countries (Crabbé, Wiering & Liefferink, 2015)

This paper studies how adaptation to climate change is framed in Dutch and Flemish policy proposals and compares how differences in framing may lead to different organizational practices. For Flanders, Crabbé et al. (2015) found that policy makers consider adaptation and mitigation as two sides of the same coin. But other problems are considered more urgent, e.g. the economic crisis. When it comes to proposed actions, there is a strong preference for low-technology, low-maintenance, energy-efficient and quite simple measures, framed as contributing to integrated water management and ecosystem services. Measures explicitly need to be effective, efficient, flexible, robust, no-regret and multifunctional.

(ii) The covid-19 pandemic and climate change: scale and the mediatised representation of what we know, where we stand and what we should do (Slembrouck, 2021)

The global-local duality in worldwide crises has been particularly salient in the case of Covid-19, but equally so in the case of climate change communication. Slembrouck (2021) concentrates on similarities and differences in the discursive articulation of climate change and the Covid-19 pandemic. The comparison has been made in the press, with regard to the urgency, the role of scientists, the political reactions and the communication by scientists, politicians and the press. Slembrouck (2021), however, also raises the question of the differences. Using the notion of 'scale', Slembrouck examines how the scale from local through regional, national and transnational to global has operated in the case of the pandemic, where the most 'local' level was the body, and how it seems to be working in the representation of the climate news. He wonders what the effect would be if the same sense of urgency led to similar ways of reporting on climate. If we apply the scale model as used by Slembrouck in an examination of climate news in the press we would need to look at the extent to which the local and up to the other levels dominate the news in Flanders. Intuitively the more popular press seems to foreground the local level more than the higher levels, while the prestige press has a mix, depending on the external triggers.

(iii) Global-local duality in climate change discourse (Laureys, 2021)

Laureys (2021) is work-in-progress which focuses on "domestication" (e.g. Eide & Kunelius, 2010), i.e. the ways in which the media in different countries domesticate global climate politics by presenting them in local ways. The research question is to what extent both official documents and the press in Flanders, The Netherlands and Denmark show differences in content and style and present the topic in ways which can be linked to more general characteristics of these countries. A comparison of self-assessment discourses in response to a questionnaire sent out by the European Council shows clear differences in self-representation. The further aim is to compare positions in the Danish, Dutch and Flemish press on the basis of headlines. Such comparative work is important and yet another way in which linguistic analysis can offer insight into how attitudes are expressed and created. It will also lay bare how the global issues are dealt with, planned and presented in local ways, where countries strive to balance what they wish to present as achievements on the European and world scenes on the one hand and what they judge to be do-able and acceptable by their respective electorates on the other hand. A comparison of how other European countries communicate on the issues can be most informative to Flemish politicians.

(iv) Use and spread of terminology: the study of collocation (Butler & Simon-Vandenbergen, 2021)

The suggestion mentioned in section 4.1 above for the term *klimaatcrisis* ('climate crisis') to be replaced by *milieucrisis* ('environment crisis') or *ecosysteemcrisis* ('eco-system crisis'), proposed by the activist group Extinction Rebellion, is based on a legitimate view that the climate problems need to be seen in a broader perspective. From a linguistic point-of-view, however, there is evidence that once a term is widely used and appropriated by the public, it is not easy to replace it by another one, unless there is widespread agreement that the current one is objectionable on ethical grounds for example. The press plays a crucial role in such processes. By means of a collocation study in pre- and post-Covid 19 corpora, Butler & Simon-Vandenbergen (2021) have shown how the term *social distancing* very quickly spread in public and private discourse and has remained the dominant one, notwithstanding the appeal by the *WHO* for the use of *physical distancing*, on the ground that the former is misleading. The spread and evolution of terms and collocations in the semantic field of 'climate change' is another interesting niche in linguistic research.

4.2.2.2 Journalists in legacy and social media

(v) Moernaut & Mast, 2018; Moernaut, Mast, & Pauwels, 2018a,b; Moernaut, Mast, & Pepermans, 2018) – Analyses of climate change communication in Flemish media

These papers study the representation of climate change in Flemish media, focusing on three mainstream newspapers (*De Standaard*, *De Morgen* and *Het Laatste Nieuws*) and two alternative online outlets (*De Wereld Morgen* and *MO**). The dataset consists of 1,256 articles collected between 28 February 2012 and 28 February 2014, of which a random sample of 25% was analysed in depth. In Moernaut, Mast & Pauwels (2018a,b) and Moernaut & Mast (2018), the authors find that anthropocentric framing is more common than biocentric framing in both mainstream and alternative (leftist) media: the frame 'Scala Naturae' (with the implication that humans are both responsible for and impacted by climate change) is particularly prevalent in all media. Alternative (leftist) media are more likely than mainstream media to use biocentric frames (which identify anthropocentrism itself as the problem of climate change and other global issues). Moreover, all five media outlets overwhelmingly use non-sceptical framing; climate scepticism has no platform in mainstream media or alternative (leftist) media. On the other hand, the authors argue that the adherence to anthropocentric frames in mainstream media does not contribute sufficiently to (communication about) far-reaching climate policy: the hegemonic (anthropocentric) view is claimed to manipulate passive individuals into supporting short-term pragmatic actions that fit within that anthropocentric system. To stimulate fundamental change, the authors argue long-term (biocentric) alternatives in the interest of humans and nature are needed.

Moernaut, Mast & Pepermans (2018) examine the same set of data, focusing on the occurrence of one specific frame, namely 'Environmental Justice', divided into two subframes: 'Unequal Vulnerability' (i.e. of non-elite groups) and 'Unequal Attribution' (i.e. of common goods, with elite groups receiving/taking more, harming resilience of non-elite groups). They found that the first subframe is prevalent in Flemish mainstream media: it casts non-elite groups (e.g. the global South) in the role of victim(-witnesses) and elite groups (e.g. the West) as '(villain-)heroes' (i.e. while mostly responsible for climate change, elite groups are also leaders of climate change battle). 'Unequal Attribution', by contrast, is found in alternative media, and the authors claim that the absence of the 'Unequal Attribution' frame in mainstream media reinforces the hegemonic view in which policy proposals fail to address the root causes of the climate change issue and other social issues.

In Moernaut, Mast & Pauwels (2018b), the authors studied a new set of articles, from the same five media outlets but collected between October and December 2016. They combine the analysis of climate change articles with interviews with climate journalists, with the aim of studying how 'journalist frames' influence 'news frames'. The study showed that Anthropocentric Subframes (particularly Scala Naturae and Unequal Vulnerability) prevail among the mainstream reporters, who tend to reproduce frames they feel are consonant with 'newsroom frames' (i.e. shared by their peers). These journalist frames are typically mirrored by news frames, which suggests that the two reinforce each other but also that individual journalists – considered 'climate specialists' – have a strong influence on framing in news articles on climate change. In alternative media, there is more diversity in journalist frames, which is reflected in a diversity of news frames (often focusing on personal stories). This leads to a more frequent occurrence of biocentric frames, which the authors see as more constructive than anthropocentric frames.

(vi) Hot weather, hot topic. Polarization and sceptical framing in the climate debate on Twitter (Moernaut et al., 2020)

This paper analyses the Twitter debate among climate change 'sceptics' and 'believers'. It focuses on tweets (in Dutch) that link the 2018 heat wave in the low countries to climate change and that were shared by Dutch and Flemish users between 28 July 2018 and 4 August 2018. The question the paper aims to address is whether Twitter debates about the heat wave and climate change in general induced a (more) constructive dialogue or tended towards polarization.

The authors found that three frames dominate the debate. First, the frame 'Scala Naturae' emphasises that fragile nature is the victim of human activity, while humans should protect it. Second, the frame 'Consumer Rights' stresses that humans are jeopardizing their own future, and we should protect human health, safety and well-being. Finally, the frame 'Natural Machine' implies that climate change is the effect of natural processes, but the perfectly designed 'natural machine' can regulate these changes. The first two frames are labelled as non-sceptical; the third one as sceptical.

In terms of 'form', the paper found that both believers and sceptics use discursive strategies to 'close' the debate, presenting their own view as the only valid one. Both groups mostly use similar antagonistic strategies to delegitimize and denaturalize their out-groups. Both present the others' arguments as illogical and unreasonable; sceptics do this more explicitly by using labels like 'fake (news)', 'hoax', 'nonsense', 'fairytales'. The authors conclude that interventions by sceptics as well as non-sceptics promote polarization rather than a constructive agonistic debate.

(vii) Climate in the news (Boeren, 2019)

Boeren (2019) is an ethnographic study of climate journalism, based on interviews with Flemish climate scientists and journalists. The two parties agree that important shifts have taken place in the past thirty years or so, which require recalibration of the idea of 'balanced' reporting. Scientists feel that their warnings about climate change and its effects have not been met by mitigating actions that are in any way sufficient. This is recognized in the legacy media, where the climate has become a prime news topic. At the same time, climate change and climate action have become political tools, in a way that they were not in the 1980s, when, for instance, liberal PM Margaret Thatcher denounced the world's complacency in the face of climate change. Scientists feel that legacy journalism in Flanders reflects the state of research reasonably well, despite sometimes focusing on eccentric figures or ideas for their news value and tending to negative reporting. In particular, solutions are typically represented as involving restrictions on the socio-economic and individual level, rather than as positive innovations. Boeren's study also reveals indirectly that science reporting has been clouded by issues of linguistic categorization and connotation, which differ across

contexts of use. Scientists state that it is appropriate to ring the “alarm”, but this term has become conflated with pejorative “alarmism”, which is contrasted with “realism” in the political debate. This leads to scientists being accused of ‘alarmism’, whereas in fact policy documents like IPCC reports err on the side of conservatism. Climate scientists offer different scenarios or “projections” of climate change, dependent on variables such as mitigating action, and indicate the “uncertainties” in these scenarios, which in the scientific context are ‘margins of error’. The projected scenarios of what will happen if the climate warms up by 1.5, 2 or 2.7° C. are, in fact, based on great certainty and consensus, and can be made concrete in terms of local implications. However, in daily language “uncertainty” suggests ‘absence of reliable knowledge’, which can then be used to dismiss the worst-case scenarios that should be part of informed choices of action. In contrast with the science-based representation of climate change in the legacy media, non-consensus messaging is found on social media in Flanders. Both scientists and legacy journalists feel that these non-science-based representations can only be counteracted in their own environment.

4.2.2.3 Influencers

(viii) Young climate activists’ identity on Instagram (Van De Mieroop & Schoofs, 2021)

By means of a multimodal analysis Van De Mierop & Schoofs (2021) investigate how young activists deal with the ‘double bind’ of portraying themselves as having expert knowledge about climate issues on the one hand and yet being attractive to the followers on the other hand. The research question is based on the tension between ‘Instagrammable’ and reliable identities. The authoritative identity is essential for reliability, while the personal identity is essential for followability. Finding a balance is therefore essential in order to be influential. The study compares three different personalities in this respect: Anuna De Wever and Adelaïde Charlier (two leading activists in the Belgian Youth for Climate movement), and Greta Thunberg. A quantitative analysis of posts on climate and of certain linguistic features, in particular modal choices (obligation, exhortation, possibility, etc.) and deixis (the use of ‘I’, ‘we’, ‘you’) shows clear differences between the three activists. A qualitative analysis of choices of images and language features confirms the existence of these differences. The link between discourse and identity is an interesting focus of research because of the expected impact of the personality as it is portrayed on the activists’ credibility and influence. Further research on the actual reception of the individual choices and the impact they have on readers is promising.

4.2.2.4 Citizens

(xi) **Climate communication between Flemish politicians and citizens on Facebook (Van Praet, Davidse & Vandenbergen, 2021)**

This paper uses a functional linguistic approach to ‘appraisal’, the expression of the writer’s stance or subjectivity in language (see Martin & White 2005). It looks at expressions of emotion towards and judgement of climate policies by Facebook users commenting on Facebook posts published by Flemish political parties. It focuses specifically on a comparison between the two ‘polar opposites’ in the Flemish climate debate, i.e. the ecological party *Groen* (‘Green’) and the radical right-wing party *Vlaams Belang* (VB).

Based on an analysis of 350 Facebook comments, the paper demonstrates that commentators on both parties are overwhelmingly negative, though VB-commentators are more negative than Groen-commentators. Evaluations mostly take the form of expressions of judgement (of policies or politicians) rather than expressions of emotion. For emotions, the paper further distinguishes between emotions

towards future events (desire/fear) and emotions towards past/present events (happiness/unhappiness): VB-commentators express mostly negative emotions, particularly fear; Groen-commentators express mostly positive emotions, particularly happiness. For judgements, the authors distinguished first between judgements of people and judgements of policies: commentators are overwhelmingly negative for both policies and people. In their judgement of people, VB-commentators comment mostly on 'ethics' (e.g. corrupt government) while Groen-commentators focus mostly on negative capacity/resolve (e.g. politicians are too lax). In their judgement of policies, VB-commentators comment particularly on negative impact (esp. financial impact); Groen-commentators comment less frequently on negative impact, but when they do, the focus seems to be more on environmental impact.

Finally, in the frequency of particular word and topic choices, it is shown that VB-commentators praise what they refer to as "realistic" policies over so-called "climate mania"; Groen-commentators, on the other hand, criticize inaction and weak policies as immoral, stressing the urgency and the gravity of the climate crisis.

4.2.2.5 Youth

The survey of Flemish youth (Davidse, Fløttum, Vandenbergen & Van Praet, 2021) contained a number of open questions the answers to which allow us to analyse the meanings and connotations of the words chosen by 16-17-year-olds to communicate their emotions about climate change and the actions they think can be taken.

In the first open question, the respondents were asked to note down 3 to 5 words they think of when they hear or read the term 'climate change'. The words produced (roughly 310) by 130 of the 131 respondents can be subsumed under (i) causes, (ii) effects, (iii) attitudes, (iv) solutions. About 14% were largely neutral terms for causes of climate change like *uitstoot '*emission' (10), *CO2/koolstof* 'carbon dioxide*'* (22), *broeikasgassen/-effect* 'hothouse gasses/effect' (9)*, exhaust gasses* (2), *government* (3), *fossil fuels* (2), *cars* (2), *overpopulation* (2), but also include *mens hun schuld* 'humankind's fault', *gevolgen van onze levensstijl* 'consequences of our lifestyle'. A much greater proportion (41.5%) dealt with the effects of climate change: *opwarming (van de aarde)* 'warming (of the earth) (40), (*natuur)rampen* '(natural) disaster(s*)'* (22), *smeltend ijs* 'melting ice' (23), *verandering* 'change' (11), *extreem weer* '(weather) extreme(s)' (7), *uitsterven, verwoesting, catastrofe, apocalyps '*extinction/destruction/catastrophe ' (15), *vervuiling* 'pollution' (6), *stijging temperatuur* 'rising temperature' (13), *stijging zeespiegel* 'rising sea levels' (13), *overstromingen* 'floods' (11), *probleem* (6), *branden* 'fires' (11), *leed/nood* 'suffering' (3), *toekomst* 'future' (6), *hittegolven* 'heatwaves' (3), *ongezond* 'unhealthy' (1), etc. These words describe overwhelmingly negative phenomena (even *climate change* has acquired a negative aura in this context), and some like *disaster, catastrophe, apocalypse* have intensely negative connotations. These negative properties are profiled in themselves (8%) by attitudinal adjectives like *erg* (4)/ *slech*t (5)/ *ernstig* (2) 'bad', *negatief* (3), *dringend* 'urgent' (2), *gevaarlijk* 'dangerous' (1), and descriptions of emotions like *eng* 'scary', *bang* 'scared', *angst* 'fear', *depressie*, *stress*, *teleurstelling* 'disappointment', *onmacht* 'powerlessness'. Reactions/solutions to climate change account for only about 6%: *protest* (3) *klimaatmarsen* (4) *Greta Thunberg* (9), *recycleren'* 'recycle' (2), *actie, stop*, *vegetarisch, aanpassen* 'adapt', *overeenkomsten* 'agreements', *rekeningrijden* 'road tax', and include the pessimistic *geen oplossing* ('no solution'). This analysis reveals that 50% of the concepts which the Flemish young people of this survey associate with 'climate change' are quite negative: they think of negative effects and explicitly express negative emotions. The reactions and solutions that spontaneously come to their minds account for a meagre 8%.

In the light of this last point, it has to be pointed out that 74% did *not* agree with the proposition "Climate change is a fact, but I can't do anything about it." (See Section 2.5 above). 62 respondents added one or more sentences in the comments section, most of which juxtaposed a positive and negative clause

connected by the contrastive coordinator *maar* ‘but’ (32). One third of these juxtapose a positive first clause with a more negative second clause, e.g. *Het individu heeft invloed op het klimaat, maar het is zeer beperkt ten opzichte van de grote corporaties* ‘The individual has some impact on the climate but it is very limited in comparison with the big corporations’. But one half juxtapose a negative first clause with a more positive second clause, e.g. *Ik kan er alleen bijna niks aan doen, maar ik kan een bijdrage leveren bij een organisatie, project* ‘On my own I can do almost nothing, but I can contribute to an organisation or project’.

A final question asked what the respondents thought about the term ‘shame of flying’ **–** without explicitly pointing out its negative connotation. A majority thought it was a good idea to use this term because it is important to discourage people from taking the plane. About one third thought it was not a good idea to shame people for taking the plane, with a number of them noting there is no alternative to taking a plane in certain circumstances.

5. RECOMMENDATIONS

Apart from collecting and synthesizing the available scholarship on climate change communication and the language of the debate in Flanders, the second aim of the Thinkers Cycle was to formulate recommendations for how to improve this communication and the use of language in the respective debates. The Thinkers and the hosts of the Thinkers Cycle formulated these recommendations collaboratively.

The recommendations are, on the one hand, based on the available scholarship on Flanders which, however, has only started to explore the full extent of climate change communication and the language of the debate in the region. On the other hand, and due to the small amount of such scholarship being available, the recommendations are also based on similar reports from other countries, e.g. on the effective climate change communication for IPCC authors (Corner & Shaw 2018), on communicating the scientific consensus on climate change (Cook et al. 2018), on the role of the IPCC in climate change communication (O'Neill & Pidcock 2021), or on science communication in Germany (e.g. Union of the German Academies of Sciences and Humanities 2017), Switzerland (Swiss Academies of Arts and Sciences 2021), the US (e.g. National Academy of Sciences, Engineering and Medicine 2017) or on the European level (ALLEA 2019, 2021). In addition, the recommendations benefited from interviews with experts and stakeholders and from the feedback of experts, stakeholders and participants at the final colloquium of the Thinkers Cycle in Brussels.

1. **More research on climate change communication and on the language of the debate on climate change in Flanders is needed.** There are many, partly substantial gaps in scholarship, including on issues for which consolidated knowledge exists in other countries. These gaps could be filled by academic research, but also by a wider use of evaluations in practical climate change communication. For example, more research on the communicative and semantic strategies of different stakeholders in climate change communication is necessary, including on communication between politicians within the government(s) and between governments and stakeholders, corporations, civil society and individual citizens. The situation of "climate journalists", their (apparently deteriorating) working conditions and challenges needs monitoring against the backdrop of the general, and fundamental, media change that is occurring in Flanders. There is also a need for research on Flemish citizens' views on, and responses to, language around climate change, as it is likely that different target groups react differently to it. Young people are a particularly important group in this respect. Generally, more linguistic research is needed, on all levels of language use:

    a. ***More analyses are needed at the* word *level*:** Certain climate vocabulary can be entrenched in citizens' and stakeholders' minds in terms of specific terms and combinations through frequent use. But like other lexical domains, it is subject to changes in meaning, sometimes rapidly, which need to be studied as such. Top-down attempts to replace seemingly problematic with allegedly "better" terms – like calls to replace "climate change" with "climate crisis" or "climate emergency" (e.g. Henson 2021) – have to be aware of this. Aspects that should be studies at the word level are:
        - **Denotations** such as the meaning and frequency of use of *klimaatverandering*, *klimaatopwarming*, *opwarming van de aarde/ van het klimaat*, *klimaatverandering* (cf. Mortelmans 2021), *klimaatcrisis*, *milieucrisis*, *ecosysteemcrisis* (see Section 4.2.1) or the meaning of new compounds like *klimaatjongeren* ('climate youth', see Section 1.2);

- **Connotations** such as the different connotations of word choices like *klimaatprobleem, klimaatcrisis, klimaatnoodtoestand* ('climate emergency') or the ideological colouring of terms like *realistische/ ambiteuze/ realistisch ambitieuze klimaatactie* (see Section 4.2.1) in regional or local political contexts.
- **Collocations**, i.e. the (often fast-developing) combinations of key words with other words, such as *existentiële bedreiging* ('existential threat') that is associated in peoples' minds with *klimaat*, but maybe not with other collocates like *immigranten.*
- **Metaphors** that are frequently used by politicians and stakeholder, convey views on society and may be taken for granted by the public – like sports metaphors (e.g. *speelveld* ('playfield') or *zijlijn* ('sideline') to describe societal situations, or metaphors of nature (like *grondstroom* ('undercurrent', Hertmans 2021) to refer to Flemish identity and to contrast those who are in the centre with those in the periphery of society).

b. ***Analyses are needed at the* sentence *level*,** assessing how speakers/writers relate to their representations (e.g. as factual, hypothetical, or potential/desirable), to other voices in the debate and to their addressees. Such analyses, e.g. in policy documents, news media texts or citizen statements, could focus on different rhetorical effects:
   - **Expressions of directives** to act which can have different degrees of directness and (im)personality, from imperatives like '*Do it now'* over modal expressions with specific actors like '*We need to wise up'* to 'objectified' directives like '*het is belangrijk dat we minder vlees eten'* ('it is important to eat less meat');
   - **Connectives** linking clauses into complex sentences which involves speakers choosing specific linkers and ordering two clauses. It could be investigated, for instance, if the survey question "*Klimaatmaatregelen vragen een zeer grote inspanning van de huidige bevolking, maar ze zijn noodzakelijk voor de toekomst van de planeet"* is answered differently by respondents than the (reversely ordered) question "*Klimaatmaatregelen zijn noodzakelijk voor de toekomst van de planeet, maar ze vragen een zeer grote inspanning van de huidige bevolking*" (Fløttum 2016). The two clauses being linked by *maar* ('but') are 'climate measures demand great effort of the current population' and 'climate measures are necessary for the future of the planet'.
   - **Multivoicedness** which refers to other voices and positions than the speaker's that are often present in discourses, albeit in a half-hidden way. This can be the case in policy documents which "typically construct and reproduce patterns of interests and conflicts between different actors" (Fløttum & Gjerstad 2013: 4) – like the "*Vlaams Energie- en Klimaatplan" ("*Flemish Energy and Climate plan", 2021-2030) writing "*Niettegenstaande Vlaanderen reeds een koploper is, blijven we ambitieus en scherpen we op dit vlak de doelstellingen verder aan"*. Implicitly positioned against parties that do not find the plan ambitious enough, the concessive linker *niettegenstaande* (even though) foregrounds the point that despite Flanders already leading in this area, we remain ambitious and further ramp up our goals.

c. ***Analyses are needed at* text *level*,** where narratives and framings of climate change are established. Focusing, for example, on journalistic texts, textbooks, policy documents, individual stories or interactions between texts and voices, linguistic analysis could reconstruct different interpretations of climate change embedded in texts, opening up the debate to different perspectives.
   - **Narratives** could be analysed by assessing the role and representation of heroes, victims and villains, and the construction of complications and solutions, and by tracking the evolution of climate change-related narratives over time and in different

contexts (e.g. in activist communication, in the scientific community, in corporations etc.) (Fløttum & Gjerstad 2017).

- **Framing** could be analysed using existing framing approaches (see Schäfer & O'Neill 2017), assessing whether climate change is framed as anthropocentric or biocentric, whether it is framed more regionally or globally, or which actors are presented as vulnerable and responsible.

2. **Training courses and training materials for climate change communicators and multipliers in the field should be offered to sensitize them for the language of the debate.** While linguistic and language questions are highly important for successful and effective communication about climate change, this importance, existing best-practice examples and the related findings of linguistic research are not well known enough among communicators and trainers in the field of climate change communication. For example, the training of 'climate coaches', an initiative of the 'Dienst Klimaatverandering van de FOD voor Volksgezondheid' (https://klimaat.be/in-belgie/communicatie-en-educatie/educatief-aanbod/klimaatcoach), would benefit from including sessions on the importance of language in climate communication. Similarly, the curricula of journalism schools in Flanders should include courses or content on the language of climate change communication, as should internal education courses within media companies. Generally, it would be useful to establish such trainings, as well as train-the-trainer formats, supported by specific teaching materials like the reports provided by the Norwegian Climate Foundation (www.klimastiftelsen.no; "2 degrees"-reports) or the materials compiled by Think Tanks such as "Climate Outreach" in the UK, to sensitize multipliers and opinion-leaders such as scientists, science communicators, teachers, climate coaches, journalists and others for linguistic and language issues.

3. **A debate about the aims and underlying values of climate change communication in Flanders is necessary.** It should be acknowledged that different potential aims of climate change communication exist **–** from providing and disseminating information over changing peoples' perceptions and attitudes towards the issue all the way to trying to change their behaviour. It is necessary to reflect upon and discuss which aims should be pursued, among which target groups, with which means, and by whom. This discussion should be based on a reflection about the underlying values, which includes a clarification of the related terminology. Values are expressed with terms such as *equity*, *justice* or *sustainability* – all terms with strong, and differing, connotations that one has to be aware of when trying to establish common values and base joint actions on it.

4. **Different target groups for climate change communication within the Belgian and Flemish population should be identified,** similar to the "Global Warmings Six Americas" studies in the US or similar analyses in other countries (see Hine et al. 2014; Metag & Schäfer 2017). Communication about climate change should be done differently depending on its audience. Its content, language and format should be guided by its aims and geared towards its specific target groups: there is no one-size-fits-all solution. Similar to other countries, where centers like the 4C – Center for Climate Change Communication in the US or the Monash Climate Change Communication Research Hub in Australia assess such target groups on a regular basis, and building on findings from Belgian market research company IVOX (2015), domestic target groups, their climate change-related attitudes and behaviours, their sources of information off- and online, and their linguistic characteristics and preferences need to be identified, as fine-grained as possible. Communication with different target groups should also entail a reflection about the channels of communication. For instance, the shift of a considerable part of the (especially younger) population to social media as a main source of information has to be recognized in climate change communication.

5. **Communication should try to anchor climate change in the diverse life worlds of their target groups.** Large-scale descriptions of climatic changes and factual scientific accounts do not relate to many people's life worlds, biographical horizons and day-to-day experiences. Climate change communication should start "on common ground, using clear language and examples your audience is more likely to be familiar with[.] Most people understand the world through anecdotes and stories, rather than statistics and graphs, so aiming for a narrative structure and showing the human face behind the science when presenting information will help you tell a compelling story." (Corner & Shaw 2018: 5). Projects like *what's your#my climate future*, hosted by the Free University of Brussels (www.vub.be/en/events/2021/what27s-your-23myclimatefuture3f), can serve as best-practice-examples in this respect: The interactive website enables users to find out how many more climate change-related extreme weather events they are likely to face in their lifetime compared to a world without climate change.

6. **Researchers should be encouraged to speak up in climate change communication – and when they do, they should be supported and protected against problematic reactions.** Researchers should not be the only voices in climate change communication. But they do have a specific position, expertise and credibility in parts of the population that is useful in public communication. It has to be underlined that this includes scientists from the STEM field, but also social scientists and scholars from the arts and humanities. All of them should be encouraged to engage with the public, and to proactively communicate relevant findings to journalists and stakeholders as well. Beforehand, they should be sensitized to the specific dynamics of public debates, the logics of certain (news and social) media, and the implications of a certain language use when engaging with citizens and stakeholders. Training offering such information could be provided by Flemish research institutions, funding agencies or other organizations, in the way they are in the US by the Association for the Advancement of Science (AAAS), or by the Swiss National Science Foundation (SNSF). When researchers do engage with the public, they should be supported by their peers and organizations, and incentivized symbolically with awards etc., but also more tangibly. In case they receive overly negative feedback, insults or threats, scientific organizations should have procedures in place to support communicating scientists with all means available, including legal means.

7. **Apart from outreach, 'inreach' into the scientific community and towards authorities is necessary.** Scientists and authorities should engage in *dialogic* communication in which citizens can participate and have a voice. In such formats, researchers and authorities should also *listen* to citizens, and acquaint themselves with citizens' viewpoints, needs, demands and (maybe seemingly irrational) fears. Such formats could be in-person (e.g. in the form of public events, science cafes or citizen conferences), or the inclusion of open-ended questions in surveys where respondents can answer in their own words. They could also be online and social media formats, where a wide range of affordances for interaction is provided. It is also important to create informal deliberative formats where everyday questions, such as lifestyle, are included. A special interest should be taken in including young people, such as the initiatives/groups of Fridays For Future and Youth for Climate, as the young generation will have to manage and live with the consequences of climate change today and in the future.

8. **Climate journalism and other intermediaries of climate change communication should be strengthened.** The economic sustainability of journalism in Belgium and Flanders – similar to other countries – is endangered and the working conditions for journalists have worsened in recent years. This affects specialized journalism – like "climate journalism" – in particular, both those working in

legacy media houses and those working as freelancers. The organizational and business models of (climate) journalism, and potential options for improving the situation, need to be assessed. Such options could include support funding of the Flemish government for innovation in media – which already exists – being devoted to climate change reporting and trainings in this field.

9. **A reflection about the appropriate balance between negative language, which is often used in climate change communication, and a more constructive, positive language is necessary.** In climate change communication, fear appeals, a language of crisis and catastrophe and a doom-and-gloom perspective are often used. Research has shown that such language can successfully direct attention to the issue of climate change. But research has also demonstrated that such language can have adverse effects on considerable parts of the population, lowering their perceptions of self-efficacy and hindering climate action. Stakeholders and Flemish journalists have reflected on this: The Sociaal-economische Raad van Vlaanderen, for example, has emphasized that "positive communication is crucial" on climate change (SERV, 2016: p. 6). Frans Timmermans, Vice-President of the European Commission spoke out in De Morgen against negative predictions surrounding the COP26 summit in Glasgow, diagnosing *geen doorbraken verwacht* ('no breakthroughs expected'), *wordt een fiasco* ('will be a fiasco'), etc. Against this *klimaatwanhoop* ('climate despair'), he argued "Ik ben er niet voor om elke klimaattop te omringen met apocalyptische verhalen. … Glasgow is heel belangrijk, we moeten stappen vooruitzetten, liefst sprongen, maar de wereld is niet verloren als we nu niet alle gaten dichten." ('I don't think we should surround every climate top with apocalyptic stories. Glasgow is very important, we have to make progress, but the world is not lost if we can't close all holes now.') Similarly, De Morgen journalist Barbara Debusschere called for *Eerste hulp bij klimaatdepressie* ('First aid for climate depression'), calling to balance negative facts with positive observations like the surge of solar and wind energy. Communicators as well as journalists and other intermediaries should be aware that negative or alarming language needs to be combined with laying out concrete options for action, if possible. Generally, more positive and constructive messaging and language should be considered, pointing to the opportunities, best practices and solutions that exist for a transition to a low-carbon society and a more sustainable future.

10. **A standing task force on climate change communication and the language of the debate in Flanders should be implemented.** Involving researchers, representatives of public funding agencies and foundations, stakeholders, citizen representatives, journalists and others, it should aim to implement the recommendations made here, and to improve the climate change debate in the region. A central concern should be to raise awareness of the importance of language in communication about climate change.

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7. APPENDICES

Appendix 1. Overview of federal contributions to the National Climate Adaptation Plan

Transport
- Take climate change adaptation into account in the Belgian air transport safety plan
- Mapping of rail vulnerabilities
- Take the expected impacts of climate change into account in the long-term planning of railways
- Take the expected impact of climate change into account in the long-term planning of the Marine component of Belgian Defense

Crisis management
- Take the expected impact of climate change into account in risk and impact analysis
- Take the expected impact of climate change into account in the crisis management activities of Defense at national level
- Enhanced collaboration between member states for crisis management in case of natural disasters
- Long term analysis of future extra capacity needs to prepare for crisis management during natural disasters

Transversal issues
- Address Climate Change Adaptation in federal policy development
- Take climate change adaptation into account in the assessment of NAMAs and CDM
- Organization of sectoral information sessions on climate change adaptation
- Inform on climate change adaptation

Appendix 2. Overview of Flemish contributions to the National Climate Adaptation Plan

Water management
- Optimization of sustainable water consumption in all sectors and optimization of use of alternative water sources
- Expansion and optimization of the distribution network (tapwater, grey water, rainwater)
- Development of a uniform and incentivising grant policy and price structure
- Remediation and protection of groundwater reserves and surface water management in drinking water protection zones and other protected areas directly dependent on groundwater
- Development and application of a groundwater level and region-specific licensing policy
- Active water level management
- Reduction of the effects of water scarcity and drought (e.g. development of low water strategies)
- Protection or safeguarding of water conservation areas to counter regression of hydraulic regime for body of surface water
- Legislation and licensing of surface water extraction
- Prevention:
  - Banning new flood sensitive developments
  - Removal and/or alteration of constructions in flood sensitive areas
- Protection:
  - Water retention and storage
  - Protection of coastal and transitional waters
  - Protection from non-tidal waters
  - Ensure safety-based drainage-capacity
  - Maintenance measures and rehabilitation of canals (including those with towpaths)
- Preparedness:
  - Conversion and development of forecasting and warning systems
  - Increase of public awareness and preparedness
- Measures after a flood to return to the same or a better position than before the flood
- Reduction of diffuse pollution of surface water by nutrients from the agricultural and horticultural sector
- Integrated management of banks
- Structural repair (based on hydromorphological development potential)
- Integration / adjustment of recreational pressure in / on the system capacity
- Countering sedimentation in watercourses
- Studies and research projects

- When protecting the coast against storm surges and floods the following principle applies: ”soft (natural) measures where possible, hard (concrete) measures where necessary”. This means looking first at the possibility of a soft sea defence through sand nourishment before turning to a “hard” construction. The Coastal Safety Master Plan operates according to this principle.

Environment

- Study the need to make certain erosion prevention works more enforceable
- Further develop policy on organic matter
- Climate adaptation and the associated climate reflex to be included in MER handbooks
- Awareness-raising of the need for healthy soil, in particular with reduced soil treatment, possibly grant-aided
- Study of the effect of climate change on the nitrogen cycle and amounts of organic matter and on the various links in material circuits

Biodiversity

- Join together isolated nature areas, increase their size and make them more robust
- Weave nature into other functions to achieve a basic ecological structure
- Take into account climate change in the establishment of natural and other green areas; among others choice of types and origin
- Adaptation of nature conservation and forest management, with special attention to maintenance and calamities
- Adjust the management of verges
- Inclusion of climate adaptation in the development of species protection programmes and plans
- Study and monitoring of the effect of climate change on specific (Flemish) species

Industry & Services

- Consultation with the insurance sector relating to possible development of new insurance products
- Development of a climate strategy in the New Industrial Policy
- Investigate the benefit of specific adaptation case studies through a few corporate testcases
- Awareness raising of the tourism sector

Transport

- Adjust design, specifications and maintenance of roads, including a drainage manual
- Analyse building and user instructions for civil engineering works and adjust where necessary
- Consider and adopt ARISCC (in part)

Agriculture

- Study and awareness-raising on subject of switching to other cultivars or species, or alteration of sowing and harvest dates
- Study and awareness-raising on subject of breed choice and feed composition and on subject of preventing plant disease and infestations and animal disease
- Create support, facilitate and incentivize the application of blue services in the integral water policy for the area
- Awareness-raising of importance of shade (including small rural elements) for cattle

Fishery

- Amend regulations to facilitate flexible, sustainable fisheries
- Study the effect of climate change on fish populations

Built environment

- Study and possible adjustment of ‘Energy Performance Calculation’ method
- Make adaptation a parameter in the development of sustainable new stable development concepts
- Construct and maintain sustainable industrial estates
- Adapt the buildings of the Flemish Government
- Develop and improve instruments to assess sustainability of various building typologies
- Steer and guarantee the adaptation aspect in urban renewal projects
- Make adaptation part of (relevant) training courses
- Study the effects of Flemish spatial structure on climate policy

Health

- Specific awareness raising among target public about the dangers of heat waves

Transversal issues

- Be alert to new initiatives and plans of the Government of Flanders requiring a climate reflex. Support the policy areas involved in applying the climate reflex
- Each pilot will organize an opening meeting with the stakeholders. It is up to the policy areas to decide if they wish to make this an annually recurrent element
- Organize and report on adaptation consultation
- Periodic compilation of the various sectoral reports to create an adaptation progress report

- Development of a screening tool to monitor the climate reflex in the Government of Flanders and effectively carry out this examination
- Extend the CcASPAR network to become a new think tank for a climate-resistant Flanders

Appendix 3. Organisation and activities of the Thinkers Cycle

Thinkers-in-residence

Kjersti Fløttum (University of Bergen, Norway)
Mike S. Schäfer (University of Zürich, Switzerland)

Co-ordinators

Kristin Davidse and Anne-Marie Vandenbergen

Organising committee

Co-ordinators, Thinkers, Jo Tollebeek (chair of the class of the humanities), Kristiaan Versluys (former chair of the class of the humanities)

Steering committee

Elisabeth Monard (President of the Academy), Christoffel Waelkens (Vice-president)
Freddy Dumortier (Permanent secretary)
Inez Dua (Staff)

Leen d'Haenens, Marc De Clercq, Godelieve Gheysen, Godelieve Laureys, Christiane Malcorps, Koen Matthijs, Michaël Opgenhaffen, Luc Steels, Dirk Van Dyck, Jef Verschueren, Dominique Willems

Activities

First fact-finding event: presentations of linguistic research on climate change communication in Flanders by Ilse Boeren, Renée Moernaut and Wout Van Praet. 30 April 2021. Online event.

Second fact-finding event: roundtable "Climate change in Flanders: climatological, ecological and political context" with Piet Termonia, Nicolas Bouteca & Lorenzo Terrière, and Dirk Draulans. Moderator: Pascale Mertens. 3 June 2021. Online event.

Linguistic workshop: 'The language of debate and communication about climate change'. Brussels and Leuven, 21-22 September 2021.

Meetings of thinkers with experts in Flanders: Annemie Bollen, Jonathan Hendrickx, Barbara Debusschere. Brussels, 17-18 November 2021.

Final colloquium: 'The language of debate and communication about climate change'. Panel: Nic Balthazar, Pieter Boussemaere, Kim Buyst, Barbara Debusschere, Pascale Mertens (moderator). Co-ordinators of the break-out groups: Citizen initiatives (Nic Balthazar), Journalism (Barbara Debusschere), Education (Samuël Fouret), Science communication (Steven Janssens), Government (Lorenzo Terrière). Brussels, Palace of the Academies, 19 November 2021.

Appendix 4. Findings of breakout sessions

At the final colloquium on 19 November 2021, the Thinkers presented their analysis of climate change communication in Flanders, and formulated general recommendations for enhanced and inclusive communication. Representatives from science communication, journalism, politics, education and citizen initiatives coordinated breakout groups which discussed how these recommendations could be implemented in all the areas concerned.

Science communication (coordinated by Steven Janssens, KU Leuven, Botanic Garden Meise)

The aims of science communication about climate change are: to put information about ongoing and projected climate change processes across realistically but constructively, in ways that connect with the different groups in society, avoiding polarization, and activating people to concentrate on shared concerns and possible joint actions. These aims are daunting for individual scientists because their own research addresses only some aspects of climate change and because they often feel they lack the skills for written and spoken science communication. To overcome these difficulties, it is recommended to set up multidisciplinary *teams* for climate change communication and to include science communication *training*, ideally itself based on research, in university and post-university programmes.

Journalism (coordinated by Barbara Debusschere, science journalist *De Morgen*)

In Flanders, the small group of science journalists in general and climate journalists in particular feels beleaguered by restricted means and increasing hostility towards scientists and journalists from certain corners. The best way to support science journalists and their readers is greater investments in education – in science communication in postgraduates for future journalists, and in the teaching of media literacy in educational programmes. The media landscape in Flanders has been evolving towards increasing control by fewer media houses. They have their own academies offering in-service training to journalists. Means should be found to interest these academies in climate change journalism and to investigate the effectiveness of different types of online engagement with readers about climate awareness and climate action. The Flemish government could help with financial support for science journalism and climate reporting. Finally, there should be more networking between journalists and (multidisciplinary teams of) scientists.

Education (coordinated by Samuël Fouret, biology teacher H. Hart Heverlee)

Education, as the site where young people and teachers are together involved in learning activities, has a central role to play in climate communication. For this, three recommendations were formulated. Firstly, climate change narratives in the classroom should be honest and balanced. While they should not paint a doom scenario or rosy-coloured picture, they must convey the urgency and complexity of the problem and stress humans' ability to find solutions through cooperation. Secondly, young people should be listened to. The question of how they can acquire a voice in the debate should be dealt with. A form of participation is experience-based learning, e.g. on-site observation of the effects of climate change. For this, more means should be made available. Thirdly, young people need authentic and diverse role models, women, men and young people from different cultures and ethnic backgrounds, who with their words and actions address the global problem of climate change.

Politics and government (coordinated by Lorenzo Terrière, doctoral researcher in political science, Ghent University)

The question which was raised in this group was how the government should communicate with the citizens. Within the institutional context of Belgium, in which responsibilities are divided and fragmented, the answer is multi-faceted. Several points need to be taken into account. One is that "the citizen" does not exist, and that communication should therefore be diversified. At the same time, all citizens fulfil a range of roles (as parents, customers, employees, etc.), and official communication should address these different roles. Further, rather than blaming individual groups for being responsible for the problems, communication should focus on the system which is in need of change. The question of how to deal with the long-term and the short-term goals was discussed and it

is clear that the long-term vision of climate change should not exclude aiming for short-term deliverables. Politicians must formulate concrete goals they can realise within their own legislature. Finally, bottom-up communication with all enablers, including enterprises, is essential.

Citizen initiatives (coordinated by Nic Balthazar, activist, writer, film maker)

The focus in this group was on the question of how to engage everyone for the climate cause. As the large majority of people in Belgium are 'believers' in climate change, the next step is to find ways of persuading them to act. In our different roles we can do more than we may think. As consumers, we have the power to make decisions as to how to buy ecologically. As youngsters, we can decide to think about climate issues, and then whether we want to join the climate movement. It is obvious that the climate marches and school strikes have had an impact on political thinking, that young activists have acquired a voice that is reckoned with. Reverse socialization with regard to ecological behaviour, which means that children educate parents, is another way in which youngsters can act. Of course there is polarization in society but we need to look for what unites us all, and find the language that will overcome the division. Communication which appeals to citizens' feelings of solidarity can play a crucial role, and this is where finding the right words and tone is a challenging task.