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IMMIGRATION AND THE CONTEXT OF BREXIT: COLLOCATE NETWORK AND MULTIDIMENSIONAL FRAMEWORKS APPLIED TO APPRAISAL IN SFL

IMIGRAÇÃO E O CONTEXTO DO BREXIT: REDES DE COLOCADOS E ANÁLISE MULTIDIMENSIONAL APLICADAS À AVALIAÇÃO NA SFL

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Abstract: This article aims to discuss how three conservative UK newspapers (The Sun, The Telegraph and The Daily Star) represent the immigration issue during the days that preceded Brexit. The theoretical framework is based on Systemic-Functional Linguistics (appraisal system) and Corpus Linguistics (factor and collocates analysis). Collocates and network representation were calculated using two programmes (COWO and Gephi), and factor analysis and concordancing were based on R programming language. The results reveal a series of evaluation strategies related to immigrants and to the UK government and its policies. It was also possible to calculate how such strategies co-occur in the texts, obtaining a profile of the newspapers in terms of the most present dimensions and also of which strategies co-occur during instantiation.

Keywords: Brexit. Immigration. Systemic-Functional Linguistics. Corpus Linguistics.

Resumo: Este artigo tem por objetivo discutir como três jornais conservadores do Reino Unido (The Sun, The Telegraph and The Daily Star) representam a questão da imigração durante os dias que precederam o Brexit. A base teórica está na Linguística Sistêmico-Funcional (sistema de avaliatividade) e na Linguística de Corpus (análise fatorial e de colocados). Foram utilizados programas para cálculo de colocados e representação em rede (COWO e Gephi), sendo que a análise fatorial e análise de concordância foi baseada na linguagem de programação R. Os resultados revelam uma série de estratégias de avaliação, relacionadas aos imigrantes, ao governo do Reino Unido e suas políticas. Foi possível também levantar como tais estratégias co-ocorrem nos textos, formando não apenas um perfil dos jornais em termos das dimensões mais presentes, como também de quais estratégias são conjuntamente utilizadas na instanciação de significados.

Palavras-chave: Brexit. Imigração. Linguística-Sistêmico Funcional. Linguística de Corpus.

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INTRODUCTION

This article discusses how three conservative UK newspapers (*The Sun*, *The Telegraph* and *The Daily Star*) represent the immigration issue during the days that preceded Brexit in 2020. The main theoretical background is the appraisal system (MARTIN; WHITE, 2005), part of the Systemic-Functional Linguistics (SFL) discourse analysis framework (HALLIDAY, 1978), and Corpus Linguistics (BIBER, 1988). In order to fulfil this main objective, this paper will answer the following research questions:

1. What are the most common appraisal choices present in the texts?
2. Is it possible to observe any positive or negative correlation between such choices?
3. Is it possible to profile each newspaper and their texts according to the presence (or absence) of such choices?

Bateman et al. (2019) conduct an extensive review of the many software-driven studies in the scope of SFL. According to the authors, there has been a long tradition in computational research, especially in the use of annotated corpora. Such an association is particularly fruitful due to the common origin shared by SFL and Corpus Linguistics (CL) (STUBBS, 1996), as both view linguistics as an applied social science and assume that form and meaning are inseparable (MARTIN, 2016; STUBBS, 1996; HASAN, 2014). Consequently, the analysis of real data is a concern of both (BEAUGRANDE, 2008; HALLIDAY, 1991; SINCLAIR, 1991), as they are refractory to exclusively structural linguistic analysis based on intuitive facts. In this sense, both CL and SFL rely on data collected in the real world, seeking to establish patterns of the language within the various contexts and their linguistic practice. As a result, the analysis reflects the different contexts of language use, in addition to their specific grammars (STUBBS, 1996).

For CL, the construction of meaning is the result of the interaction of a word with its linguistic environment: meaning is constituted only from the collocation and association that different words have in each register (BIBER; GRAY, 2016). In the case of SFL, this relationship occurs through the instantiation of functions within each context of the situation. Such instantiations would lead to the construction of patterns that would manifest themselves in terms of choices which differ in likeness within each communicative situation (BEAUGRANDE, 1991; HALLIDAY, 2005; LUKIN, 2019).

Despite this long tradition of analysing real language, the use of computers and corpus tools in SFL is still in its infancy, as the use of semi-automatic or automatic computational tools is not extensively present within the scope of most SFL studies. The only exception is the set of tools developed by Mick O'Donnell,[1] which is one of the few continuously maintained suites in use in the last few years. O'Donnell's SysCoder allows the qualitative classification of data in a semi-automatic way and offers some basic statistics and the retrieval of examples.

This paper follows a mixed approach (JOHNSON; ONWUEGBUZIE; TURNER, 2007), investigating the co-occurrence of lexicogrammatical choices which would translate into appraisal meanings. Such an approach combines the qualitative classification of appraisal choices, the

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[1] http://www.wagsoft.com/

analysis of collocates (BREZINA; MCENERY; WATTAM, 2015; WILLIAMS, 1998), and Factor Analysis (BIBER, 1988).

The analysis is twofold. First, a network of collocates was processed. Such collocates aided in recognising the main aboutness, appraisal and linguistic features of each set of newspaper articles. This network of collocations worked as an initial survey of the categories and lexicogrammatical choices that would represent them within the corpus. This approach made it possible for the categories of analysis to emerge from the corpus, instead of being defined beforehand. Although the theory of appraisal proposes a series of possible lexicogrammatical elements for analysis, it is believed that the texts, within their specific register, would reveal their own particular features. As the aim of this paper is to analyse how immigrants and the UK immigration system are represented in three conservative UK newspapers, the survey will take into account lexicogrammatical categories which might translate into appraisal meanings. This is because, in some cases, the expression of the evaluation process was instanced by choices at both levels of analysis. To some extent, fear of immigration and EU policies might translate such frameworks into some linguistic choices. The understanding of such choices would contribute to the analysis of roles they might play in this representational scenario.

The tools for this analysis were COWO (LEVALLOIS, 2012), a tool responsible for creating the networks of collocates, Gephi (BASTIAN; HEYMANN; JACOMY, 2009), which plots networks, and a set of scripts written in the R language for statistical analysis, concordancing and statistical plotting.

After this initial analysis, the texts underwent semi-automatic tagging using the categories elicited in the cluster analysis, the tagged text was the basis for the factorial analysis (BIBER, 1988) of the appraisal system in the 98 texts collected. The lexicogrammatical choices were statistically grouped into dimensions which would represent their positive (and negative) co-occurrence within the texts. The factor analysis was also the basis for profiling each newspaper in terms of the appraisal meanings they actualise.

Some specific characteristics of SFL and the appraisal system motivated this approach. SFL is a theory that defines meaning as context-dependent, as it explains how instantiation occurs through socially motivated choices. Meaning and structure could not be analysed separately, as grammar would be a paradigmatic system that allows the speaker to make socially and contextually motivated language choices (Halliday, 1994; Halliday; Matthiessen, 2014). Such choices could be defined as a systematic use of signs within a communicational context, a result of the communicational functions the speakers perform (Kress, 2010; van Leeuwen, 2005); form and meaning have the same importance within a system that sees them as inseparable (Halliday, 1994, p. 15). Therefore, as we express meaning, any choice at the structural level would also reflect at the semantic level and vice-versa (KRESS, 1993; STUBBS, 1996). Thus, for SFL, the relationship between language choices and representation of meaning occurs within what Halliday (1994) defined as semiotic potential. This relationship would create a system of choices that would be semantically and contextually motivated (Halliday, 1994; GEE, 1999).

Therefore, as the choices are non-arbitrary and context-dependent, it would be unwise to predetermine a set of lexicogrammatical choices *a priori* and search for them in the corpus. Both the classification of the appraisal meanings and the elicitation of the lexicogrammatical choices that instantiate them have to occur within the linguistic and social contexts represented

by these three newspapers. Hence, collocation and network analysis might offer an initial and necessary understanding of the appraisal system choices.

The factor (or multidimensional) analysis seeks to observe whether these appraisal meanings elicited in the collocation analysis co-occur in the texts as well as in the newspapers. The lack of specific tools might be a result of SFL qualitative tradition, especially in appraisal studies. In most cases, the interpretation of this system is subjective, as SFL considers choices as a result of the individual's interaction with his/her contexts of culture and situation (FAWCETT, 2013; HALLIDAY, 1978). Notwithstanding such a tradition, some appraisal studies have used computational and quantitative analysis, such as Taboada and Grieve (2004), Bednarek (2006) and Lima-Lopes (2018), to name just a few. Taboada and Grieve (2004) present a method for automatically classifying texts based on appraisal choices. The authors apply and improve a model of semantic classification by assigning scores to adjectives according to their function performance in the appraisal system. Their system distinguished different types of subjective texts, as the scores helped to classify such texts according to their appraisal resources. Bednarek (2006) discusses the possible classification of attitudinal lexis according to patterns of use. Such patterns would lead to a further extension of the system, according to the kind of assessment present. Lima-Lopes (2018) discusses how clustering and network analysis of lexis can be a tool to elicit meaningful patterns regarding aboutness and affect.

However, these researchers do not focus on the correlation of such strategies in a large set of texts, as this study does. The multidimensional analysis provided evidence of how such strategies would couple and how they would materialise into the discourse, at both text and media-specific levels. Therefore, this paper tries to shed some light on the hypothesis that appraisal meanings do not co-occur freely but might follow a pattern motivated by each newspaper's social representation regarding immigrants and the UK immigration system.

Consequently, the contribution of this research is also methodological. In addition to trying to understand how immigration is represented, it seeks to create an analysis and data collection methodology that allows us to investigate the appraisal system in a more significant number of texts. This study relies on open-source software for data analysis, as it enables the replication of this study in any computational platform. All the scripts are available to the community in the researcher's website[2] and Github repository.[3]

As the results will illustrate, a corpus-based analysis made it possible to understand the general aboutness of the text, in addition to isolating clusters with the main collocational patterns related to the theme of immigration. The results pointed to a series of appraisal choices which were common to all three newspapers. Such choices led to four dimensions which represent the aspects of the immigration issue in the Brexit context. As such dimensions represent the use of the appraisal choices, it was possible to observe how these choices relate to each other across the texts. Finally, each newspaper presented a different profile in terms of the presence of such dimensions.

The following sections of this paper reflect the approach taken as the basis for this research. Section 1 tries to establish the social relevance of the theme, as it also offers a general

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[2] http://www.iel.unicamp.br/rll307

[3] https://github.com/rll307

understanding of the entities that are present in the Brexit context. Section 2 discusses the system of appraisal and its place within SFL. The third section discusses the methodological approach, including data collection and the description of the R packages present in this research. The following section presents the results and the final remarks close the article.

CONTENT METAPHOR, IMMIGRATION AND BREXIT

Immigration is a theme that has drawn some attention in the context of Brexit. Cap (2017a) studies the discourse of UK politicians and its representation in the conservative media, and his results show that the anti-immigration discourses address immigration as a threat to UK sovereignty and democracy. Such risks seem to pronounce the dissatisfaction of society regarding the adverse outcomes of the UK's participation in the EU. In this sense, the country is portrayed as losing its economic freedom and, to some extent, depleting its welfare state. As a consequence, the immigration problem might be one of the most relevant themes that influenced constituents to vote YES in the 2016 referendum (CAP, 2017a). It would, therefore, create a feeling that "[…] *the country* [UK] *is thus under a real and growing threat* [and] *the only way to offset the threat is to force the government* [UK] *to ignore the 'orders' and maintain a tough immigration policy* (CAP, 2017a, p. 76)".

The discourse of such representation relies on the cultural and economic delegitimisation of EU countries, more specifically those from Eastern Europe. This brings an idea that the UK has given up control of its borders as well as of its economic policies, as it has to accept unwelcome non-UK citizens (CAP, 2017a). In general terms, the country is represented in a container metaphor:

- *The country* [UK] *has a limited capacity;*
- *Continued immigration could cause the country* [UK] *(the 'container') to 'rupture';*
- *Immigration will continue as, 'under orders from the EU', the government is 'throwing open' the country's 'borders';* (CAP, 2017a, p. 76)

Such a metaphor embodies a time-space representation since the immigration issue is discussed in terms of 'here and now' and not as a problem which is about to happen. This creates a legitimation device, a fear-generating event based on poorly elaborate arguments (CAP, 2017a, p. 81). Gietel-Basten (2016) observes that such discourse translates into what the author calls 'a toxic mix of immigration and austerity', a general message in which 'immigration was straining infrastructure and public services' (GIETEL-BASTEN, 2016, p. 673–674). As a result, there is a general campaign by the media pointing out that Europe has failed in its economic, political and social projects, as the UK has been indirectly portrayed as successful in hers. This success would, then, be responsible for the continued immigration from European countries.

Abrams and Travaglino (2018) tested an aversion-amplification hypothesis in two broadly representative samples of the UK electorate in an online survey. For the authors, both the mistrust in the political system, as well as in the nation's entrusted representatives, and the growing fear that immigration would wear out the country's resources could have contributed significantly to the YES vote. As they stood together in the same argument for Brexit, they were likely to

produce a catalytic effect. Therefore, fear of the government's inability to deal with the present immigration threat might have driven several constituents to vote in favour of leaving the EU (ABRAMS; TRAVAGLINO, 2018).

Goodwin and Milazzo (2017) observed the same correlation yet adding a new element to the equation. To them, the idea that the UK is unable to control its borders due to EU policies was also a key factor to consider. Their survey observed that an anti-immigration/migration vote might be the consequence of an association between the perception of more ethnic diversity in one's immediate context and the media discourse which frames EU immigration policy as responsible for increasing the number of foreigners in the country. Viskanic's (2017) results point to the same perception of lack of control: "increase in Polish immigration post-2004 led to a statistically significant increase in votes in favour of Brexit" (VISKANIC, 2017).

In conclusion, the political and economic interpretation of the UK's role in Europe seemed to have influenced public opinion in a context in which fear of the 'immigrant problem' catapulted the votes in favour of Brexit.

Gietel-Basten (2016), Goodwin and Milazzo (2017), Abrams and Travaglino (2018) and Viskanic (2017) corroborate the results of Cap (2017a), as they identify different social trends in which the container metaphor seems to be present. They help us to understand that it is a result of the association of some factors, mostly social perceptions which are amplified by media propaganda in favour of Brexit. Such propaganda seems to have succeeded in creating fear of an unknown scenario (CAP, 2017b) caused by growing immigration (CAP, 2017a) and its consequences to a policy based on the economic balance of welfare (GIETEL-BASTEN, 2016). This sort of legitimation by fear is defined by Cap (2017b) as Proximisation: 'a construal operation meant to evoke closeness of the external threat, to solicit legitimisation of preventive measures' (CAP, 2017b, p. 16). In this discursive context, Brexit is presented as a remedy for this fear of growing immigration and its outcomes, as it would restore the economic and social balance represented by a tighter control of the borders (GIETEL-BASTEN, 2016).

APPRAISAL AND SFL

The appraisal system (MARTIN; WHITE, 2005) can be a useful tool for analysing the role of immigration in the Brexit scenario. This is because it can provide the necessary framework for understanding how these entities are characterised in terms of their relationship to the container metaphor (CAP, 2017a).

As Martin and White (2005) define it, an analysis of this system should describe how language is structured for evaluative representation. Otherwise speaking, we would try to understand how the different participants are represented and represent others in the texts they produce or receive. Such representations ought to be linguistically performed by instances of the attitude subsystems, concerning what those entities represent in Brexit's social and discursive frameworks.

Martin and White (2005) develop an evaluation framework with three main domains: attitude, engagement and graduation (figure 1).

The system of attitude (figure 1) could be defined as the mapping of feelings and the way they are expressed in ethical, emotional and aesthetic terms. It seeks to analyse the different types

of feelings involved when expressing attitude and affection in language, through mechanisms of judgment and appreciation. Although Martin and White (2005) point out that the canonical realization of these meanings occurs through adjectives, they may also be expressed by means of processes (verbal elements) and other language choices.

Attitude is subdivided into three main semantic regions: affect, judgment and appreciation. The first is related to the way we express positive or negative feelings towards people or things. The instantiation of attitude would take place by means of adjectives and adverbs. There are two kinds of judgment: judgment of esteem and judgment of social sanction. Judgment of esteem would instantiate meanings related to *normality* (how frequent something is), *capacity* (how capable one is) and *tenacity* (how resolute someone is), while that of social sanction would instantiate meanings of 'veracity' (if something/someone is trustworthy) and propriety (how ethical something/someone is). Appreciation would be evaluation in aesthetic terms, including people, things and attitudes. In other words, it would be responsible for describing people's 'reactions' in relation to something (does that please us?), to the 'composition' of things (are we dealing with something simple or complex?) and their 'value' (is it something innovative?).

Figure 1: System of Appraisal
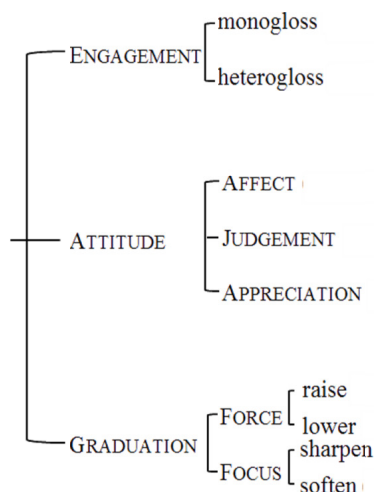
Source: Martin and White (2005)

The system of attitude (figure 1) would be responsible for the ways we express our feelings towards someone or something. Such a system is constituted of the other subsystems: affect, judgment and appreciation. Affect deals with the expression of positive and negative feelings, while judgment is in the domain of ethics or our attitude towards some behaviour. Lastly, appreciation encompasses evaluations of the semiotic phenomena and how our culture values them.

Engagement (figure 1) is about the interpersonal relationship established in the interaction, as it translates our negotiation and the interactants' dialogic relationship into language choices. That is to say, one would identify the source of the attitudes identifying the traces of monoglossia and heteroglossia in the discourse (MARTIN; WHITE, 2005). As Martin and White (2005)

define it, such a system would be responsible for the writer/speaker's acknowledgement of other discourses or different positions.

Finally, the graduation system (figure 1) has an ancillary function regarding the other two. It makes it possible to lower or raise the value of a judgment, an attitude or the weight that external voices have in the discourse. The system would then be responsible for sharpening, softening or intensifying the boundaries of some attitude or behaviour.

According to Oteiza (2017), the purpose of the appraisal framework would be to magnify the traditional accounts of how meaning is negotiated within a text. This system would do so by considering the textual voices concerning the many entities present in discourse. It would mean that appraisal is a system that might explain how the meanings produced by those participating in a communicative event render their language choices into processes of expressing ideological alignment or antagonism.

Such a framework is relevant because language is part of a system of values by which people construct their representations about the world around them (ALBA-JUEZ; THOMPSON, 2014). There is, then, a dialectic relationship between language and social context as they mutually influence one another in equal proportion (HALLIDAY, 1978). So, the appraisal framework affords a resource for systematising the language used to construct the values of social experience across discourse (OTEIZA, 2017) and translate them into language. The linguistic analysis would concern how evaluative prosodies are expressed within the texts (OTEIZA, 2017, p. 460).

Alba-Juez and Thompson (2014, p. 13) define evaluation – or appraisal in Martin and White's (2005) terms – as a dynamical subsystem of language. It would permeate all linguistic levels, which would express one's attitude and feelings towards other entities represented. In many situations, such entities may have some functions or representations ascribed in the text (THOMPSON; THETELA, 1995). Because appraisal is at the level of discourse semantics (HALLIDAY, 1978; TANN, 2017), it would allow meanings to unfold towards many systems in the lexicogrammar (OTEIZA, 2017). In many situations, such entities may have some functions or representations ascribed in the text (THOMPSON; THETELA, 1995). Because appraisal is at the level of discourse semantics (HALLIDAY, 1978; TANN, 2017), it would allow meanings to unfold towards many lexicogrammatical systems (OTEIZA, 2017).

METHODS[4]

CORPUS COMPILATION AND DESCRIPTION

The corpus is a set of 98 articles from three UK newspapers: *The Sun*, *The Daily Star* and *The Telegraph*. After a search for the term immigration in each newspaper webpage, a list of possible addresses was saved to enable web scraping.

The data were collected using R, a statistical programming software that is also able to perform web scraping and language processing. The data were automatically scraped from the

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[4] All scripts written for this paper will be available at: http://www.iel.unicamp.br/rll307

newspaper's webpage using a package called Rvest[5] (WICKHAM, 2019). This package reads the CSS information of a webpage and extracts pieces of information as requested. In the case of this study, the title and the text of the main article.

Table 1: Articles per newspaper

Newspapers	Articles
Telegraph	27
Sun	21
Daily Star	50
Total	**98**

Source: Data

A software script was written for each newspaper, due to HTML and CSS code differences. The final product of the data collection process was a CVS table containing the article text, the newspaper name and the access link.

Table 2: Types/token distribution.

	Telegraph	Sun	Daily Star
Types	9106	8058	8543
Tokens	20468	15982	15378
Ty/To Ratio	0.45	0.50	0.55
Tokens/article	758	761	307

Total Types: 2507/Total tokens: 51828
Source: Data

The main concern was to keep the total number of types and tokens similar across the subcorpora (table 2). So, although the number of articles is different in each subcorpora, the number of words is similar amongst them. In order compare the corpus on an equal basis, all lexical occurrences were normalised (BREZINA, 2018) by 1000 words. The corpus design also considered only complete articles, avoiding maculating the analysis of the appraisal meanings due to the presence of abridged texts.

The corpus has 98 articles, 50 from *The Daily Star* (DS), 21 from *The Sun* (S) and 27 from *The Telegraph* (T). A cross observation between tables 1 and 2 would tell us that the DS articles tend to be shorter in comparison to the other newspapers. In contrast, the T articles tend to be slightly shorter than those in S. The DS articles tend to have the highest types/tokens ratio, while the T articles tend to have the lowest numbers.

PROCEDURES

As discussed earlier, the methods of analysis are twofold. The first step was to study the collocational network of the articles in order to elicit which lexicogrammatical patterns

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[5] https://github.com/tidyverse/rvest

instantiate appraisal meanings in the text. This initial explorative analysis was also important to understand the main semantic prosody in the texts.

The collocational network results were the basis for the multidimensional analysis. This analysis aimed at discussing how meaningfully the appraisal meanings and lexicogrammatical choices co-occurred in the texts and newspapers studied.

Word clustering

Network clustering was obtained using two software programs. The first was COWO (LEVALLOIS, 2012),[6] which calculates collocates and clustering using mutual information (BREZINA, 2018; BREZINA; MCENERY; WATTAM, 2015). COWO exports a file with the calculation results but does not produce any visual representation. Gephi (BASTIAN; HEYMANN; JACOMY, 2009)[7] plotted the collocate network. The software can also calculate clusters and display them separately.

Gephi (BASTIAN; HEYMANN; JACOMY, 2009) is a network analysis programme which offers a number of statistical calculations and plotting options. Each word of the corpus was considered as a one within the network and the size of each node represents its centrality (SCOTT, 2013). Centrality is calculated in terms of the connections a given element has within a network; as it relates to more elements, it tends to get a higher score (SCOTT, 2000). The network graphics also has a topological meaning, the proximity of the nodes expresses how close they are in terms of co-occurrence. If we translate such an approach into language features, the direction of a collocation would represent the network connection within the graphics, the size of the words (or nodes) would indicate its importance within the network and the colour would indicate the co-occurrence cluster it belongs to. The software also calculates a clustering component based on the connection of two or more items (BLONDEL et al., 2008). The objective of clustering was to elicit the choices that would tend to be around words like *immigration* or *immigrants*.

It is essential to mention that this exploratory phase was necessary because many of the articles do not have immigration as a single theme. In many cases, they also discuss some other Brexit issues. This exploratory analysis had two main functions. One was to recognise the general aboutness of the texts, to understand how immigration relates to the other themes they discuss. The second was to isolate the clusters related to immigration to then use such collocates as a starting point for the semi-automatic tagging. Naturally, the clusters could be represented more traditionally, as tables or dendrograms. Nevertheless, some of the hierarchal relationships are much clearer in network graphics, which makes it easier to recognise lexical and semantic relations within the clusters (BREZINA, 2018; BREZINA; MCENERY; WATTAM, 2015). Each appraisal meaning was subjectively categorized in term of its lexicogrammatical instantiation.

The procedures for the network analysis were:

      1. All HTML information was extracted from the texts, using R scripts;

      2. All texts were saved in simple text format in the same directory;

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[6] https://github.com/seinecle/Cowo/blob/master/README.md

[7] https://gephi.org/

3. Collocations were obtained using COWO:

    a. The study considered only words that occurred at least five times in the corpus;

        i. Such a cut excluded one-time collocations and made the statistical processing possible due to hardware limitations;

4. Collocations were processed using Gephi.

Semi-automatic tagging, concordancing and factor analysis

The next step was to tag the corpus in order to enable factor analysis (BIBER, 1988; BREZINA, 2018). Three R packages were used for this task:

- Quanteda (BENOIT et al., 2018):[8] It offers a set of tools intended to perform quantitative textual analysis. In this research, I used its KWIC feature to map the appraisal in the corpus;
- RQDA (HUANG, 2016):[9] It is a package for qualitative data analysis. It integrates qualitative coding with various R programming features;
- Psych (REVELLE, 2019):[10] A set of tools for Psychology and Human Sciences Statistics.

Concordancing aimed at classifying patterns of appraisal according to their function in the corpus. Afterwards, the corpus was tagged in order to perform factorial calculation, using RQDA (HUANG, 2016) command line. Such patterns were organised as lists for tagging texts semi-automatically. Then, each file was manually reviewed to either correct any mistagging or to tag any appraisal meaning that was not mapped by collocation analysis.

Subsequently, the number of occurrences of each lexicogrammatical choice within each text was exported to a table and normalized by 1000. The normalization aimed at making it possible to compare the occurrences of each feature without falling into the pitfall of possible differences in terms of absolute values, a standard procedure in corpus analysis (BREZINA, 2018). This table was the basis for the factor analysis using the package (REVELLE, 2019).

These procedures could be summarised as:

1. Classifying lexicogrammatical choices observed in the network/cluster analysis according to POS (Part of Speech) categories;
2. Concordancing each lexical or collocation pattern in order to classify them in the appraisal system;
3. Using RQDA to tag lexicogrammatical choices within the texts;
4. Reading each tagged text in order to correct errors (mistagging or unaccounted for choices);
5. Quantifying the occurrence of each lexicogrammatical choice in each text;
6. Normalising the occurrences by 1000;
7. Applying factor analysis to the resulting normalised table.

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[8] https://quanteda.io/

[9] http://rqda.r-forge.r-project.org/

[10] https://personality-project.org/r/psych/

RESULTS

ABOUTNESS AND COLLOCATES

Figures 2 through 4 display a collocation network obtained by processing all articles. Each lexical item – in this case single words – represents a node in each network. The size of the nodes represents how important that word is in the newspaper collocational context and the colours display the clustering based on co-occurrence. The figures also have a topological meaning: the more central position represents importance, as central items have more collocates, while lexical items that are closer also tend to co-occur more frequently. Each figure also has a key with the percentage of items in each cluster.

Figure 2: Network of collocations in the Daily Star
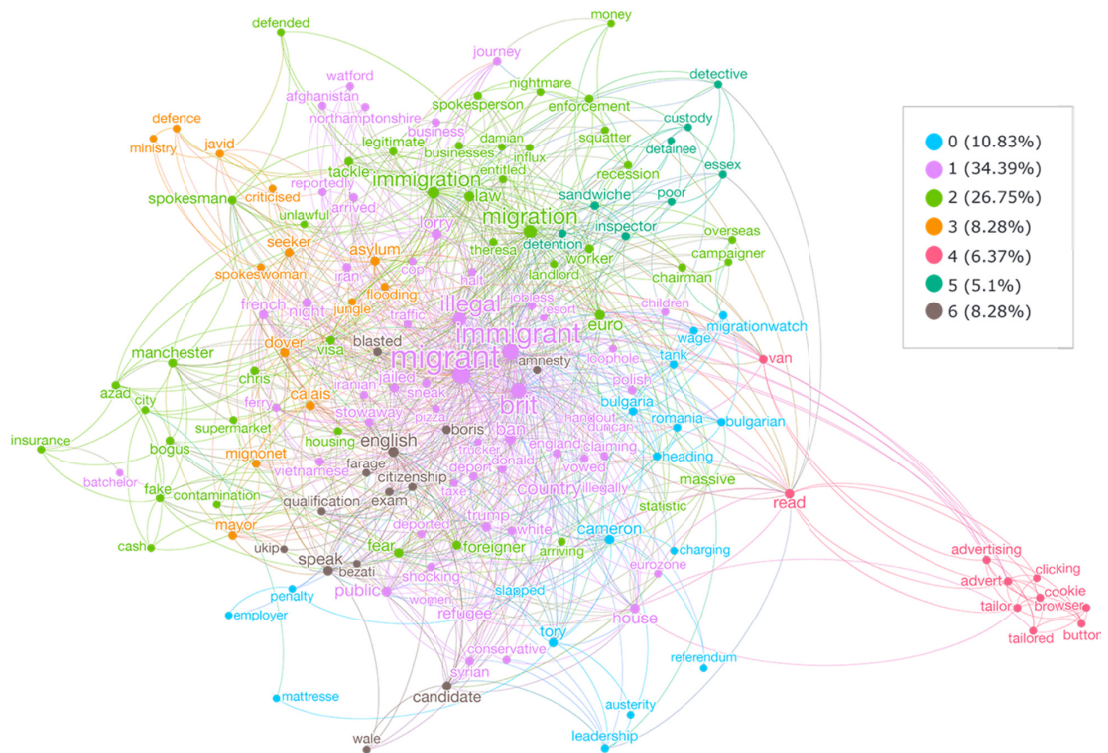
Source: Data

The Daily Star (figure 2) has seven clusters, with cluster 1 and cluster 2 featuring the most items. Both have the words *migration*, *immigration*, *migration* and *migrant* in their central positions. They seem to connect to words meaning nationalities (French, Iran) and legal issues (legal, illegal, loophole). Politicians — like *Trump*, *Boris* and *Theresa* — are also present in these clusters. Some verbs like *sneak* and *squat* represent actions instantiated by immigrants. The most distant cluster (04, far left) features information regarding the newspaper's internet policy and was not considered. Cluster number 2 (green) seems to congregate words.

The Daily Star seems to emphasise legal issues (unlawful, bogus), with immigrants being treated as 'foreigners', in addition to being negatively assessed by squatting (table 3, lines 1, 2 and 3). Public health issues also seem to affect how the newspaper views immigrants (contamination, table 3, line 7). Origin identification not only shifts the focus of criticism towards some individuals but also to the UK immigration system. This is mainly due to the nationality of those who obtain entry visas (table 3, line 8).

Table 3: Daily Star Collocations (1)

1	Bell admitted one count of assisting in	unlawful	immigration
2	Many immigrants with	bogus	documents
3	Jobless immigrants	squatting	in filthy hovels across Britain
4	European migrants could now be much *higher* after	the numbers arriving	in Britain has continued to soar.
5	European Union nations in response to the crisis in the	Euro	
6	immigrants a month came to Britain from the former Eastern Bloc nation before the	recession	, then the numbers began to dwindle
7	NHS drugs are being destroyed amid fears of	contamination	after migrants broke into trucks.
8	Indian nationals from Goa can obtain	Portuguese citizenship	if their parents were Portuguese citizens prior to 1961

Source: Data

Discussion on economics addresses the employability of immigrants, mostly related to recession or economic problems in the eurozone (table 3, lines 5 and 6) or their lack of contribution to the official UK pension funds. This economic discussion seems to be a form of criticism of immigrants and the UK immigration system.

Several voices seem to be brought into the articles. In the absolute majority, they appear to be representatives of the UK government (spokesman, spokesperson) or of studies that demonstrate immigration 'statistics'. The latter seem to give a tone of objectivity to the discourse (table 4) in addition to justifying criticism.

Table 4: Daily Star Collocations (2)

1	[…] low-paid immigrants	made	no contribution to the state pension pot […]
2	A Home Office	spokesperson	said today […]
3	Most recent figures from the Office for National	Statistics	showed a net flow of 176,000 migrants

Source: Data

The collocations in *The Sun* are in figure 3. There are five clusters topologically well divided. Cluster 0 is responsible for the most frequent collocations regarding the immigration phenomenon. References to politicians (*Boris, Patel, Theresa*) are frequent, plus references to the kind of visas available (*tourism, business*), the legal status of immigrants (*illegal)* and their professional skills (*unskilled*). Cluster 1 is central and features information about the newspaper,

mostly from the headings. Cluster 2 focuses on some political issues of Europe, featuring the names of politicians (*Laurence, Meg*) and European cities (*Brussels*). Cluster 3 focuses on the controversy of the issue (*controversial, socialism*), on justification or characterisation of phenomena that might cause immigration (*war, asylum*), and on actions that might be taken against immigrants (*extradite, denying*).

There is the same concern about illegal immigrants, mostly in the context of the trafficking and smuggling of people into the UK (table 5, line 7). Immigrants also seem to be treated according to the nature of their professional skills, particularly when discussing new immigration policies (table 5, lines 4 and 5). This skills-related classification is present in the speech of politicians, who seem to place immigrants in two categories: skilled and unskilled. The former are welcome in the UK and comprise specialised workers and scientists, while the latter are not clearly defined. Their place as undesirable immigrants is not something openly presented, but rather inferred from the context when compared to the first category.

It is noticeable that *The Sun* frequently makes references to the United States and Australia (table 5, lines 1, 2 and 3), as it features policy examples carried out by their governments. It also introduces some cases of illegal immigration in the USA and quotes Australia as an example of a skills-based migration programme.

Figure 3: Network of collocations in The Sun

Source: Data

Reported speech is frequent, as *The Sun* relies on other voices to express its feelings towards immigrants and immigration (table 5, line 7). Here the names of politicians are frequently present before the reproduction of their speeches, and there are a few references to official positions. Brexit is present in most of the texts, usually as a temporal timestamp for new UK policies (table 5, line 8).

Table 5: *The Sun* Collocations

1	DONALD	Trump	is planning to restrict travellers from Nigeria and six other countries
2	Trump has also turned away	pregnant	women coming over to the US.
3	[…] rule for immigrants coming to Britain and replace it with an	Australian-style	system.
4	Another group of unskilled	workers	**could** be granted short-term visas
5	Skilled	workers	including health and NHS staff would need a job lined up […]
6	[…] illegal entries by sending people	smuggled	in straight back […]
7	[…] new system is enforced after	Brexit	
8	[…]	Mr Farage	added: They're beginning to say the same

Source: Data

Figure 4 shows the network of collocations in *The Telegraph*, with seven clusters. Clusters number 1 and 3 concentrate references to *immigration* and *migration* and are the ones with the highest number of words. Besides references to Brexit and to a number of politicians (*Theresa*, *Cameron*, *Farage*), the newspaper expresses its concerns about the legal situation of immigrants, the intensity of the immigration phenomenon (*uncontrolled*, *massive*) as it makes reference to other countries in Europe (*Portugal*). The immigration issue is in two different clusters because they seem to represent two different facets of the matter. The first (cluster 3) features political discussions and actions regarding immigrants and their characterisation, while the second (cluster 1) is about the legality of immigrants.

Table 6 shows the results of *The Telegraph*. The economic issue is also present, represented by words like 'Euro' (table 6, line 1) and 'Eurozone' (table 6, line 3). 'Euro' is in propositions that discuss problems related to the economy in foreign countries. At the same time 'Eurozone' identifies these countries, generalising them as a single economy. To some extent, it also seems to classify the origin of immigrants indirectly.

Figure 4: Network of collocations in The Telegraph

Source: Data

Table 6 - The Telegraph Collocations

1	May: we'll stop migrants if	**euro**	collapses
2	The authors warn that Brexit could lead to a	**surge**	of illegal immigrants
3	This suggests that the economic problems faced by	**Eurozone**	countries
4	Every	**illegal**	immigrant in Britain costs the taxpayer up to £ 4,250 a year
5	China provides the	**biggest**	number of new immigrants to the UK
6	The report also	**disclosed**	the advertising campaign, which encouraged illegal immigrants
7	they had the biggest impact on industrial towns with high levels of	**unemployment**	such as Rotherham and Oldham
8	You can't turn away a genuine	**refugee**	fleeing persecution.
9	Europe People	**smugglers**	using Facebook to find migrants Syrians flee chaos
10	a surge in migrants coming to the UK from countries like	**Spain and Portugal**	

Source: Data

The subject of economics mixes up with personal assessment at different times. If the difference between skilled and unskilled workers already pointed to this possibility, this becomes even clearer when the newspaper classifies immigrants as having or not having jobs in their country of origin (table 6, line 7). In a way, this type of speech contributes to the idea that the eurozone is collapsing (table 6, line 1), which would justify a 'surge' of immigration to the UK (table 6, line 2).

The issue of legality is also present in the data; however, it seems to contrast two types of immigrants. The first are illegal (table 6, line 4), and as such, they have high costs for the UK citizen, while the second are 'genuine' since they are fleeing political persecution in their country (table 6, line 8).

The newspaper identifies European citizens as people 'smugglers' (table 6, line 9), making them responsible for human trafficking. Country names (Spain and Portugal) determine the origin of immigrants, as in other newspapers (table 6, line 10). *The Telegraph* also features other voices, mostly politicians and immigration specialists (table 6, line 6), as the latter also contribute some sound of objectiveness to the discourse. The use of adjectives to characterise the immigration scenario is also common (table 6, line 5).

This initial analysis made it possible to recognise some of the evaluation strategies within the texts, as it brought up some basic categories to be surveyed in the multidimensional analysis. Some of the possible categories one observes are:

- Judgment of immigrants based on their origin;
- Judgment of immigrants based on their skills;
- Judgment of immigrants according to the legality of their entry;
- Presence of external voices, such as politicians from UK and other countries;
- Economic evaluation of European countries;
- Evaluation of the immigration system;

The next step was tagging semi-automatically the lexicogrammatical choices which would instantiate such meanings within the texts. If any new categories emerged during this process, they were also considered in the analysis.

MULTIDIMENSIONAL ANALYSIS

A summary of Multidimensional categories is shown in table 7. The challenge in this approach is to translate the appraisal meanings into a set of lexicogrammatical items. Results pointed out that most of the choices would instantiate more than one meaning as, most of the time, appraisal is a result of the general prosody (MARTIN; WHITE, 2005). For example, there are adjectives used to evaluate immigrants in terms of their legal status and in terms of their social and economic behaviour. On the other hand, the origin of the immigrants — a discourse tool for negative evaluation — is expressed by nouns phrases, adjectives and prepositional phrases. As table 7 reads, the lexicogrammatical choices were grouped according to three main

criteria: 1) the meaning they instantiated; 2) the entity they evaluated; and 3) the appraisal functions they actualised.

The analysis showed that the negative semantic prosody (BEDNAREK, 2008; HUNSTON, 2007) regarding the theme of immigration is a result of a system that evaluates not only the immigrants but also the countries in the eurozone, as it relies highly on the voices of politicians and external research. The articles tend to evaluate it as two specific entities: the first is the immigrants and the second is the immigration system. Immigrants are assessed in terms of their legal status. They are classified in terms of their place of origin. This place of origin approach might be a sharpening strategy since, by determining the immigrants' nationalities, it creates a pre-selected group that poses more risk to the UK financial or border system.

Immigrants also suffer sanctions on three main points: their behaviour, their economic contributions and their employability. The first may be related to manners that differ from what the newspaper considers to be part of normality, as well as those imposed by adverse life situations in the UK. There is a clear division of immigrants according to their professional capacity. The skilled and those who suffer political persecution are considered for immigration. The unemployed and unskilled, in turn, are unwanted, represented as trespassers and criminals, and associated with unsanitary acts.

Table 7: Categories for Multidimensional analysis

Category	What it means	Appraisal Function(s)	Examples	Tag
Adjectives - I (immigrants or immigration)	Immigrants' social and economic behaviour	Judgment (social sanction) Propriety Affect (negative) Appreciation (negative)	Bogus, Awful, Destitute, Dangerous	ADJ_I
Adjectives – II (Immigrant skills)	Quality of professional skills	Judgment (social esteem) Capacity	Unskilled migrants, low-skilled, skilled-worker, Brightest minds	ADJ_II
Adjectives – III (Legal status)	Whether immigration is legal or morally accepted	Judgment (social sanction/esteem) Normality/propriety	Legal, illegal, unlawful	ADJ_III
Mixed categories - I (Noun phases, adjectives and prepositional phrases)	Where immigrants are from	Intensification (Focus) Sharpness	Ethnic minorities, Portugal, from Eastern Europe, from poorer EU countries, Iran, Polish	MC_I
Mixed categories - III (Adverbs and adjectives)	How immigration (system) is	Judgment (social esteem) Normality Appreciation (negative)	dramatically, passionately, absurd, uncontrolled	MC_III

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conclusão

Category	What it means	Appraisal Function(s)	Examples	Tag
Mixed categories – II (Proper nouns and noun phrases)	Politicians and other entities voices for support	Heteroglossia	Nigel Farage, Boris Johnson, say, Official statisticians	MC_II
Verb phraseologies	Processes (with collocates) that withhold some evaluation	Judgment (social esteem) Property (immigration) Capacity (government) Heteroglossia	Stop illegal immigrants, squat, stow	VP
Modals	Modal verbs	Heteroglossia	May, Must, Can	Modal
Noun phrases – I	Evaluating economic processes	Intensification (focus) Sharpness Judgment (social esteem) Normality	European economies, eurozone, economic refugees, welfare	NP_I
Noun phrases – II	Control over UK borders	Judgment (social esteem) Normality (immigration)	student visas, proper border controls	NP_II

Source: Data

The issue of economics is treated from the perspective that the eurozone is in complete financial collapse, which would lead to immigration to the United Kingdom. It would not only lead to costs for the taxpayer but also ruin the welfare system.

There are several voices present in the text. They can be either from UK politicians, like Boris Johnson and Nigel Farage, or statistical studies that would prove the surge of immigrants towards the country. The embedded discourse of politicians provides information about the country's scenario, as well as actions related to the economy and migration policies. In a way, the presence of politicians and statistical studies show with which voices the three newspapers are aligned.

The voice of the immigrant is not present at any time. This means that although a great deal of Appreciation, Judgment and Affect are directed towards these people, they do not have the right to be heard by the newspaper or its readers. The use of 'we' is a way of excluding the other non-UK voices. In this sense, 'we' includes the reader if she/he is a UK citizen and shares the writer's concern with immigration as in '*We live in a world where China wants your lunch and India wants your dinner*' (*Daily Star*).

Although the initial appraisal theory does not afford the analysis of processes (verbal elements in SFL terminology), it is impossible not to notice that they are essential for this research. First, because this choice tends to reinforce the semantic prosody already established by nouns, adverbs and intensification adjectives, and second because some of them already carry an intrinsic evaluation. Examples would be 'squat', which in itself represents a negative action concerning property, and 'stowaway', which despite being a noun also occurs as a verbal form in the articles. The processes have some collational patterns, such as 'stop immigrants',

which focus their meaning on the prosody. There are also verbal patterns that evaluate economic performance, such as 'stagnate', which necessarily shows a negative assessment. Modal verbs were commonly present. While the use of modal verbs in themselves does not indicate any specific judgment, they occur exclusively in the politicians' reported speech. Such a pattern seems to ascribe an important role to external voices, which not only justify the political position of the newspaper but are also responsible for any expression of possibility/probability. Besides, since modals occur exclusively in this context, it also might be seen as a lexicogrammatical pattern that identifies heteroglossia.

An important topic was the control of UK borders. In many propositions, the system of immigration was evaluated as inefficient and not adequately controlled by local authorities due to EU interference. Finally, several adverbs are present in the texts. They are mostly marking strong personal judgment towards all the entities I have discussed above. Unfortunately, this subjective category could not be broken down into smaller groups due to the size of the texts. Adjectives and adverbs are fairly common strategies for evaluation. In some cases, bigrams occur in many texts to maintain the discourse patterns recognisable for the reader.

One of the hypotheses of this research is that newspapers might use differently the Appraisal strategies presented in table 7. Two steps were taken to confirm whether this hypothesis is correct or not. The first would be to understand the correlation between these different lexicogrammatical choices and, secondly, to observe how each newspaper uses them.

Figure 5 shows the qualitative relationship between the lexicogramatical choices and the system of appraisal, translating graphically some of the information present in table 7. It is possible to observe that judgment plays an important role in the texts, as it instantiates meanings of both social esteem and social sanction. The former is actualised by adjectives (ADJ_I and ADJ_III) and noun phrases (NP_I), while the latter is also actualised by adjectives (ADJ_II, ADJ_III), noun phrases (NP_II), verbal phrases (VP) and mixed categories (MC_III). Affect and appreciation are mostly entirely instantiated by adjectives (ADJ_I) while heteroglossia is instantiated by modals, mixed categories (MC_II) and verbal phrases (VP). Finally, focus instantiates by means of mixed categories (MC_I) and noun phrases (NP_I).

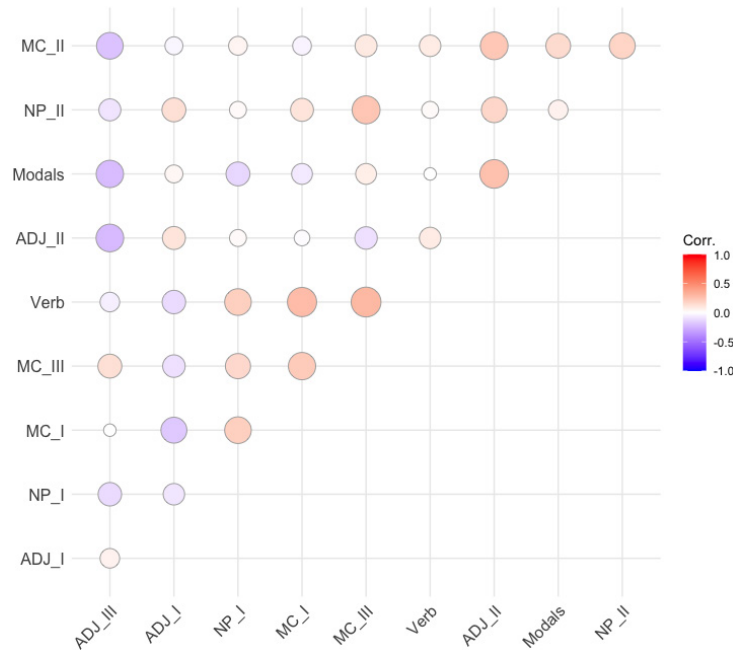**Figure 5:** Relationship amongst strategies and the appraisal system
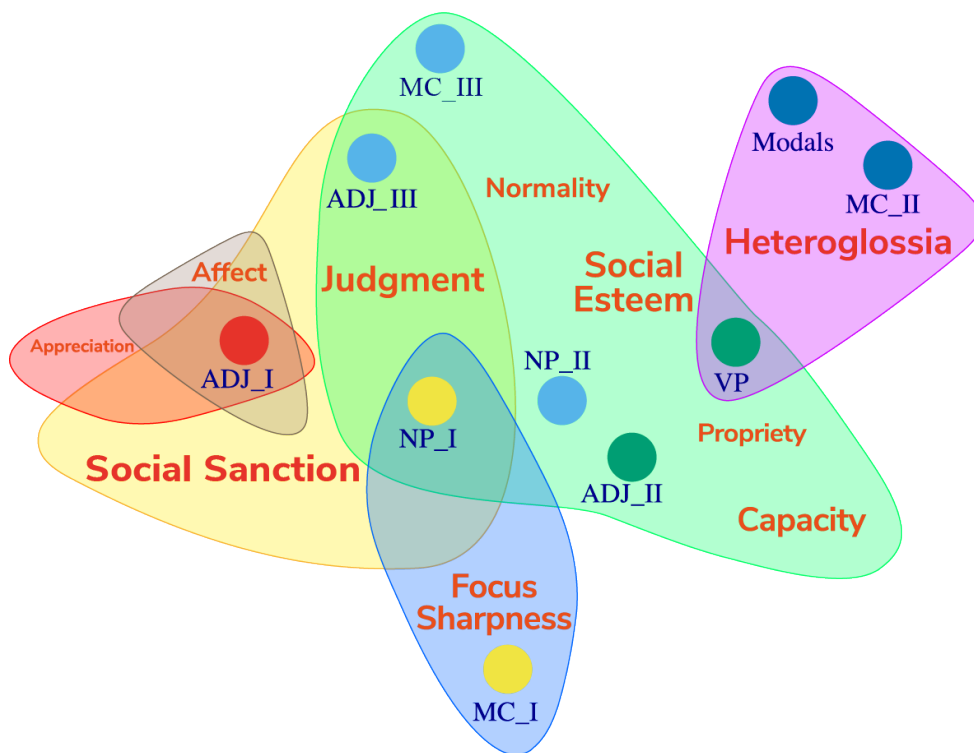
Key: NP_I: Noun Phrase I, NP_II: Noun Phrase II, MC_I: Mixed categories I, MC_II: Mixed categories II,
MC_III: Mixed categories III; ADJ_I: Adjective I; ADJ_II: Adjective II; ADJ_III: Adjective III
(for function correspondence, see table 7)
Source: Data

These results also bring two vital conclusions to this research. The first is that there is no possibility to observe a simple and sharp relationship between lexicogrammatical elements and the appraisal system. This might be so because appraisal is a semantic concept which seems to be expressed by a multiple set of choices and oriented towards a general prosody at a discursive level (MARTIN; WHITE, 2005). It was possible, nonetheless, to classify evaluative meanings throughout a discursive prosody regarding the entities present in the texts.

The second is an overlap brought about by this multiple relationship. Some overlaps amongst lexicogrammatical choices and appraisal meanings represented by the sets and their colours can be observed in figure 5. Some meanings such as social esteem and social sanction overlap in two categories, as focus overlays with them in one category. Heteroglossia and focus instantiate only one common grammar category, while appreciation and affect are actualised by only one kind of choice. Regardless of the fact that figure 5 does not represent any statistical testing, but a simple co-occurrence of the features within the texts, it might indicate that some meanings and choices do not co-occur randomly.

Figure 6 provides a correlation matrix amongst the lexicogrammatical choices within the texts. This matrix recursively correlates the occurrences of each choice in each text, offering a summary of this correlation in a graphical representation.

Figure 6: Correlation Matrix

Key: NP_I: Noun Phrase I, NP_II: Noun Phrase II, MC_I: Mixed categories I, MC_II: Mixed categories II, MC_III: Mixed categories III; ADJ_I: Adjective I; ADJ_II: Adjective II; ADJ_III: Adjective III
(for function correspondence, see table 7)
Source: Data

First, it corroborates the results observed in figure 5, as the statistical analysis shows that some lexical choices seem to co-occur more significantly than others. Since each set of choices represents some appraisal meaning, one might conclude that these meanings also co-occur significantly.

Figure 6 shows that there are both positive and negative relationships. The positive, on the one hand, are those closer to 1, which means a 99% or higher chance of them co-occurring consistently in the texts. On the other hand, the negative correlation shows just the opposite, a consistent possibility of not co-occurring. Numbers close to zero indicate that the co-occurrence has a high probability of happening by chance.

Amongst the most significant positive relationships are:
- VP, MC_I, MC_III and NP_I
  - Property, capacity, heteroglossia, normality sharpness and normality
- ADJ_I, MC_I, NP_II, NP_I and AD_III
  - Propriety, affect, appreciation, sharpness, normality
- NP_II, NP_I, ADJ_II, ADJ_I and MC_III
  - Normality, sharpness, capacity, affect, appreciation and heteroglossia

Some of the most significant negative correlation results would be:

- VP and ADJ_I
  - Property, affect and appreciation
- MC_I and modals
  - Sharpness and modals
- ADJ_III and MC_II
  - Sharpness and heteroglossia
- ADJ_III and NP_I
  - Normality/propriety and sharpness

These results point to a relationship not yet observed in appraisal analysis. Such associations can be motivated by choices in the discursive context, as the presence of specific strategies tends to be what characterises a particular textual typology of discourse. It is important to note that such an association of appraisal meanings cannot be dissociated from the lexicogrammatical choices which actualise them. The relationship amongst different language strata is a fundamental element in SFL (Halliday, 1978, 1994), as meaning and form are seen as part of the same phenomenon.

One implication of these results is that discursive strategies and lexicogrammar choices might follow a combinatory logic. Otherwise speaking, they do not correlate freely in or across texts but tend to create some common groups of strategies which could point to some meaning-making patterns. This is why both positive and negative correlations are equally significant.

Table 8: Dimensions of Appraisal in the corpus

		D1	**D2**	**D3**	**D4**
		Immigrants and border control	Legal status, heteroglossia and immigration	Heteroglossia and job skills	Origin and economic issues
Features	**NP_II**	0.984			
	NP_I				0.430
	MC_II			0.378	
	ADJ_II		-0.112	0.527	
	ADJ_III		0.178	-0.453	-0.147
	Modals	-0.101	0.174	0.531	-0.180
	MC_I				0.521
	ADJ_I	0.152			-0.279
	MC_III		0.936		0.179
	VB		0.139	0.104	0.474

Key: NP_I: Noun Phrase I, NP_II: Noun Phrase II, MC_I: Mixed categories I, MC_II: Mixed categories II, MC_III: Mixed categories III; ADJ_I: Adjective I; ADJ_II: Adjective II; ADJ_III: Adjective III
(for function correspondence, see table 7)
Source: Data

As I discussed in section 3, the multidimensional approach uses analysis of factors, which is responsible for grouping linguistic features into factors or dimensions. The positive

correlations would mean a kind of 'attraction' or proximity amongst some features, while the negative would mean rejection or distance.

According to Biber (1988) the dimensions should be named according to the meaning they instantiate in the corpus. In this corpus, four dimensions were found (table 8). The first dimension, named 'immigrants and border control', is centred on meanings that discursively criticise immigrants and express the need to close the borders, with a negative occurrence of modals.

Some propositions in dimension 1 evaluate immigrants negatively in terms of social esteem (table 9, line 1) or in terms of affection and appreciation (table 9, lines 2 and 3). The immigration system (table 9, lines 4 and 5) and the consequences of the immigration phenomenon (table 9, line 6) are also appraised negatively. UK borders are depicted as out-of-control, while the system is not considered fair for the country. Immigrants are portrayed as committing crimes that maculate their ethics (table 9, lines 7 and 8), as they use loopholes in the immigration system to stay in the country.

Table 9: Examples Dimension 1 *DS= Daily Star, S= Sun, T= Telegraph

1	T	Second-generation Muslims have not only failed to integrate; a small,	dangerous	minority are so filled with hatred for our country
2	DS	There was no electricity or hot water. In one room four	dirty	mattresses lay next to each other
3	S	Women carrying small children who looked tired and	hungry	can be seen at the front of the bridge
4	T	If Britain wants to be able to control its own	borders	
5	S	Fair and	legitimate	immigration rules have their place but this nasty.
6	T	This is a measure of the massive impact that	uncontrolled	immigration is having on our population
7	T	a Nigerian man who had overstayed his	Visa	
8	DS	THOUSANDS of immigrants are abusing the UK's student	Visa	system to sneak into the country

Source: Data

Dimension 2, 'Legal status, heteroglossia and immigration', congregates the presence of evaluations concerning judgment of normality, propriety, the appreciation of the legal system and heteroglossia. These elements seem to combine in a context in which the legality of immigrants (table 10, lines 1 and 2) is evaluated and related to the UK political system. In this dimension, adjectives for immigrants occur close to modal verbs such as 'will' (table 10, line 2), in contexts whose situation justifies some legal actions and social consequences. As the modal verbs occur almost exclusively in the context of heteroglossia (representing the UK or foreign politicians), determining future possible sanctions to illegal immigrants is one of the themes commonly ascribed to external voices. Such a pattern relates the immigrants' legal status to possible changes in the UK immigration system, besides projecting a negative prosody on European

immigrants. There is, then, a tone of reaction against illegal immigration, as measures will be taken to regain the border control lost due to participation in the EU (table 10, line 1 and 4).

Such control is discussed in terms of normality, sometimes in an indirect way. As the controls are not adequate (table 10, line 4) and the illegal, therefore unethical, immigrants cannot be blocked (table 10, line 1), border control is suffering the consequences, as it is not as it should be.

Adverbs and adjectives seem to be related not only with the characterisation of immigrants but also with political situations. The semantic prosody brought by words like 'dramatically' or 'absurd' (table 10, lines 3 and 6) represent an emotional reaction within the scope of negative affection. Adverbs also seem to be responsible for amplifying the judgment of immigration, as they add a personal and dramatic tone to the issue. Adjectives also create categories of immigrants, as some of them are considered genuine (table 10, line 5), although there is no definition of what would define such a status.

Table 10: Examples Dimension 2 *DS= Daily Star, S= Sun, T= Telegraph

1	T	EU citizens in a member country must have the same rights, so it is	illegal	to stop migrants from the rest of the EU
2	DS	Tough new rules for	illegal immigrants	will ban them opening a bank account
3	T	European migrants coming to Britain has risen	dramatically	in the past five years
4	T	If we do not implement the	proper	controls, communities can be damaged
5	S	And none are genuine	refugees	, they would stay put in the EU […]
6	DS	It is	absurd	that EU citizens should be in a more favourable position than our own citizens

Source: Data

Dimension 3 (Heteroglossia and job skills) has in External Voices a means to criticise immigrant Job Skills and a system of immigration which does not favour the UK. In general, these external voices characterise an immigration system that is more positive for the UK (table 11, lines 1, 2 and 3), which should take into account the skills of the people to be accepted in the country (table 11, lines 4 and 5). There is no clear definition of what these skills might be or what areas would be privileged in this type of program, just something almost anecdotal in a single example (table 11, line 6).

'Say' or 'indicate' are invariably related to politicians' quotes (table 11, line 2) and introduce their speech in an environment of heteroglossia. As observed earlier, this strategy tends to add such voices as a central argument in the newspaper's view of immigration. The most common modals are 'will', 'need' and 'would' (table 11, lines 7 to 9), which instantiate three meanings. In the first they instantiate a hypothetical selection of genuine immigrants, leaving the others outside UK borders. The second reflects concern about future problems regarding uncontrolled migration while the third relates immigration to actual UK needs. The function of modal verbs here is to outline a possible reality in which immigration to the UK would be under control, as it selects the best possible immigrants. The modal verbs do not evaluate the

system *per se* but are an important tool for creating a discursive context in which it would be under control as it serves the country.

Table 11: Examples Dimension 3 *DS= Daily Star, S= Sun, T= Telegraph

1	S		Unskilled	migrants will be filtered out
2	DS	During the Tory leadership campaign Boris indicated he would like to see a system where only	skilled	workers who are needed in certain areas of the economy are allowed to come to the UK.
3	DS	'We will continue to welcome the	brightest	and best migrants who want to contribute to our economy and society and play by the rules.'
4	S	And a new points-based system will keep us open to the	brightest	and best.
5	T	This map will tell you Britain's	brightest	leaving in brain drain and replaced with low skilled migrants
6	S	Mr Johnson has promised that migrants with '	exceptional	talents such as violinists, nuclear physicists, prima ballerinas' would be given visas
7	DS	[…] none are genuine refugees	would	or they stay put in the EU […]
8	T	"take back control" of our borders, as the prime minster has promised. It	will	be a surge in illegal immigration
9	DS	[…] our rules on immigration	need	to reflect the need to meet skills shortages […]

Source: Data

Dimension 4 (Origin and economic issues) is the one with the most significant number of correlated strategies.

In general, immigrants are judged subjectively based on their possible contributions to the UK economy. The relationship between this type of assessment is presented in verbs such as squat, fail, deter and contribute (table 12, lines 1, 2 and 4). The first verb evaluates economic issues related to the presence of immigrants, while the other three are in a cause and consequence relationship. As such immigrants do not have jobs and would not contribute to the UK economy, they should not be in the country.

The evaluation also portrays immigrants as deserving of entering the UK only if they reach a certain level of professional skills or based on their merit (table 12, line 6). Although not directly expressed or clearly explained, this merit is related to possible economic contributions. Non-productive immigrants are characterised not only by their legal status but also for not finding a suitable job. Students, for example, are considered an economic hazard if they do not see a job after graduation (table 12, line 3). This type of meaning seems to be related to the retaking of a UK identity, which would be lost and could only be recovered if these non-productive foreigners were repatriated (table 12, line 7).

Table 12: Examples Dimension 4 *DS= Daily Star, S= Sun, T= Telegraph

1	T	Immigration laws to 'deter'	foreigners	who will not contribute to UK
2	DS	Jobless	immigrants	squatting in filthy hovels across Britain
3	S		Foreign	students will get two years to find a job after graduating […]
4	DS	EU	migrants	who fail to find work within six months face having their handouts axed […]
5	T	EU's freedom of movement rules that have so far allowed hundreds of thousands of EU	migrants	to live and work in the UK […]
6	S	Economic	migrants	from the EU, like everywhere else, can come in on merit
7	T	The strengthening of our national identity	demands	a programme of assisted repatriation
8	DS	This is a measure of the massive impact that	uncontrolled	immigration is having on our population
9	S	Any normal and fair-minded person would have a perfect right to be concerned if a group of	Romanian	people suddenly moved in next door

Source: Data

Naturally, the origin is an essential element for this discursive scenario. In this context, adjectives positively modify British citizens in contrast to people from different nationalities, who cause the immigration problem (table 12, line 9).

Figure 7: Dimensions and Newspapers
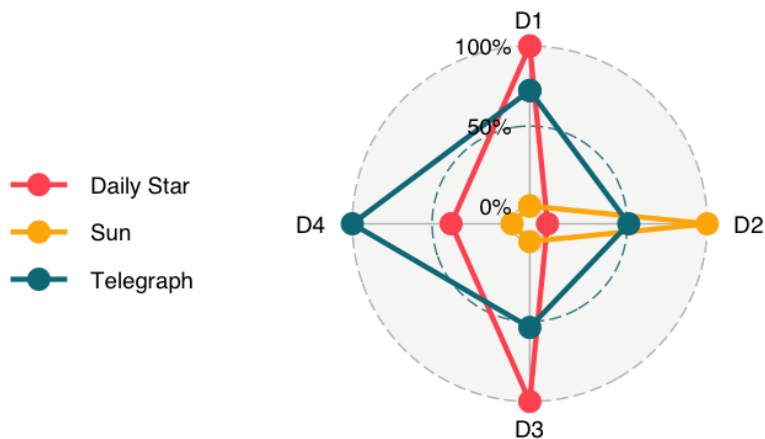
Key: D1: Immigrants and border control; D2: Legal status, heteroglossia and immigration;
D3: Heteroglossia and job skills; D4: Origin and economic issues
(for function correspondence, see table 7)
Source: Data

One of the questions this research would answer was to observe whether each newspaper could be profiled according to the presence (or absence) of such choices. This type of analysis would help to determine the extent to which each newspaper builds its own identity, despite sharing a common core. One way to do this is to compare how *The Sun*, *The Telegraph* and *The Daily Star* score in each dimension (figure 7).

The Sun has the most significant occurrence of dimension 2 (Legal status, Heteroglossia and immigration) and the lowest presence of the other three dimensions. *The Daily Star* has the highest scores in the use of strategies linked to dimension 1 (Immigrants and border control) and 3 (Heteroglossia and job skills), in addition to having a moderate number in dimension 4 (Origin and economic issues) and fair use of dimension 1 strategies. In general, *The Telegraph* is the one that has a more balanced use of all the references, with average numbers in three dimensions and with the highest use of dimension 4.

Such results allow us to draw a profile for each newspaper. *The Sun* is related to judgment based on the legality of immigrants, *The Daily Star* stands out for criticising the behaviour of immigrants and for different judgments, and *The Telegraph* uses all functions but is centred on judging immigrants by economic criteria and social sanctions.

FINAL REMARKS

This article aimed at studying the evaluation of immigrants and the immigration system in the context of Brexit, while developing a methodology for data analysis based on quantitative and qualitative approaches.

As a general framework for understanding such evaluation, some social sciences studies (ABRAMS; TRAVAGLINO, 2018; CAP, 2017a, 2017b; GIETEL-BASTEN, 2016; VISKANIC, 2017) were taken as a basis to understand how the issue of immigration is built as a social and political construct in the UK context. The main theory of data analysis was Systemic-Functional Linguistics (HALLIDAY, 1978), with a primary focus on the Appraisal System (MARTIN; WHITE, 2005).

The data were collected and analysed using software scripts, responsible for the tabulation and representation of the results. The analytical framework was the multidimensional approach (BIBER, 1988) and the calculation of networks of collocates (BREZINA; MCENERY; WATTAM, 2015).

The results show that there are several strategies that positively and negatively correlate. This demonstrates that motivated patterns create a specific evaluation profile in each newspaper.

The immigrants seem to be evaluated by unclear economic and social criteria. Negative appraisal is based on immigrants' nationality, level of specialisation and their legal status in the country. Besides, each newspaper has had a different profile regarding the use of the appraisal strategies in each dimension.

There is a semantic prosody that holds international students, unemployed immigrants and those with low professional qualifications as responsible for the depletion of UK economic resources and welfare. Legal issues, origin and immigrants' capacity of insertion in the economic system seem to portray them as either 'real' or not-worth-having immigrants. The identification

of certain nationalities as economically unproductive is indirectly present. At no time are such immigrants directly identified as unproductive; otherwise, they are commonly associated with crimes, unemployment or unhygienic and anti-social habits. Thus, the semantic prosody describes the UK as a place of limited resources, therefore unable to accommodate everyone. A policy for 'choosing' the ones who deserve to stay in the country is, then, a reflection of the container metaphor (CAP, 2017a; 2017b).

The methodology brought about positive results for research in the appraisal theory. First, it showed that it is possible to map strategies to classify their co-occurrence in a statistically relevant way. Second, the mapping of the most common patterns in each newspaper led to the determination of a specific profile for them. It is crucial, however, to emphasise that much remains to be developed. More studies of this nature need to be carried out to refine the methodological processes, in particular the tagging system.

Despite the reduced corpus size, I believe this research contributes to the analysis of the appraisal system as it discusses methodological processes and strategies for the production of meaning through mixed methodologies.

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